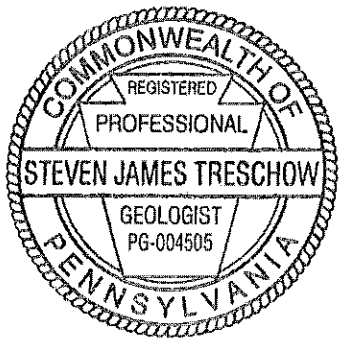
REMEDIAL ACTION PROGRESS REPORT
4th Quarter 2012

PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
Kwik Fill #M-90
1322 South 2nd Street
Clearfield, Lawrence Township
Clearfield County, Pennsylvania 16830

Prepared for:

United Refining Company of Pennsylvania
15 Bradley Street
P.O. Box 688
Warren, Pennsylvania 16365



Prepared by:

Letterle & Associates, LLC
629 East Rolling Ridge Drive
Bellefonte, Pennsylvania 16823

Jed Hill
Project Manager

Steven James Treschow, P.G.
Professional Geologist

January 2013

"By affixing my seal to this document, I am certifying that the information is true and correct to the best of my knowledge. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information."

Steven James Treschow, P.G. (signed and sealed this day (January 24, 2013))

Letterle &
Associates, LLC

Environmental Consulting & Remediation Services

629 East Rolling Ridge Drive
Bellefonte, PA 16823

814. 355. 2241 office
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January 24, 2013

Mr. Scott Ferguson, P.G.
PADEP
Environmental Cleanup Program
208 W. Third St., Suite 101
Williamsport, PA 17701-6448

RE: 4th Quarter 2012 Remedial Action Progress Report
PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
United Refining Company of Pennsylvania
Kwik Fill #M-90
1322 South 2nd Street, Clearfield, PA

Dear Mr. Ferguson:

Enclosed please find a copy of the 4th Quarter 2012 Remedial Action Progress Report prepared by Letterle & Associates, LLC, on behalf of United Refining Company of Pennsylvania, for the Kwik Fill #M-90, located at 1322 South 2nd Street, Clearfield, Pennsylvania.

If you have any questions please contact Jed Hill at (814) 355-2241 or jhill@letterleassociates.com.

Sincerely,

Jed Hill
Project Manager

Enclosure

cc: Mr. Scott C. Wonsettler, P.G., United Refining Company of Pennsylvania
Mr. Gerald Hawk, ICF International
Mr. Robert McDonald, Arch Street Management

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GENERAL INFORMATION

Client Contact:	Scott Wonsettler, P.G.
Letterle Project Manager:	Jed Hill
Regulatory Contact:	Scott Ferguson, P.G.
PADEP Facility ID #:	17-14821
PAUSTIF Claim #:	2008-0034 (M)
Number of Wells:	14 monitoring wells (on-site wells MW-2A, MW-32, and MW-33 and off-site monitoring wells MW-3, MW-4, MW-7, MW-9, MW-10, MW-14, MW-15, MW-17, MW-21, MW-29, and MW-30).
Wells Containing LNAPL:	0

SITE HISTORY

Letterle & Associates, LLC (Letterle) of Bellefonte, Pennsylvania (PA) is pleased to present this Remedial Action Progress Report (RAPR) for United Refining Company (United) of PA Kwik-Fill #M-90 (site), located in Lawrence Township, Clearfield, PA, for the period of October 1, 2012 through December 31, 2012. **Figure 1** depicts the site location and surrounding area.

The site is currently an active retail fueling (gasoline and diesel) station, which has two, 10,000-gallon and one, 8,000-gallon steel underground storage tanks (USTs). The two 10,000-gallon USTs were in installed in 1969 and the 8,000-gallon UST was installed in 1974. One 10,000-gallon UST and one 8,000-gallon contain unleaded gasoline and the remaining 10,000-gallon UST (in the middle) contains diesel fuel.

On June 15, 1995, the 10,000-gallon unleaded gasoline UST (#002) failed a tightness test. The PA Department of Environmental Protection (PADEP) was notified of the failure and subsequently, Mountain Research, Inc. (MRI) was retained by United in May 1996 to perform site characterization activities.

From June 1996 through October 1997, four soil boring/monitoring wells, MW-1, MW-1A, MW-2, and MW-2A, were installed on the site and five monitoring wells, MW-3 through MW-7, were installed off-site, on the Beckwith Machinery Company (Beckwith) property. Quarterly groundwater sampling began in February 1996. Groundwater analytical results for the monitoring wells indicated unleaded gasoline constituents at concentrations above their respective Medium-Specific Concentration (MSC) values. In June 1997, soil/groundwater samples were collected on-site and in the right-of-way of South 2nd Street. The results of the investigation indicated several soil/groundwater samples contained unleaded gasoline constituents at concentrations above their respective MSC values.

MRI prepared a Remedial Action Plan (RAP) in July 1999 proposing a Matrix Trailer Mounted Oxygen Injection System. The PADEP approved the RAP in January 2000. In February 2000, system installation was initiated. The system consisted of eight oxygen injection points and a small trailer to house any ancillary equipment. On April 12, 2000, the system was activated. The system was operational from April 12, 2000 until the first quarter of 2005. From February 1996 through

first quarter of 2005, MRI performed quarterly groundwater sampling from the monitoring well network.

From early 2005 through mid-2006, additional site investigations were initiated at the site to re-evaluate the remedial approach. In October 2006, a Supplemental Site Characterization Report (SCR) and RAP Addendum was submitted to the PADEP. The Supplemental SCR/RAP Addendum identified two separate source areas, one on-site and one off-site at the BMC property. The on-site source area (Source Area #1) was found to have impacted groundwater beneath the site and downgradient on the former BMC property. Impacted groundwater from Source Area #2 was found to be related to an off-site release and not associated with the Kwik Fill M-90 facility. The Supplemental SCR/RAP Addendum strategy included remediating groundwater via an air sparge/soil vapor extraction (AS/SVE) system. An additional RAP Addendum was submitted in December 2006. The PADEP approved the Supplemental SCR/RAP Addendum and additional RAP Addendum in January 2007, with modifications. An AS/SVE system was installed at the site and operated from November 2007 through the fourth quarter of 2008.

A second release of unleaded gasoline occurred at the site, and was reported in February 2008. Additional site characterization activities were initiated and an Additional SCR and RAP Addendum was submitted in June 2011. The June 2011 Additional SCR/RAP Addendum included the selection of a dual phase extraction (DPE)/SVE system to address on-site soil and groundwater and enhanced in-situ bioremediation (EB) to address off-site groundwater. The June RAP Addendum was approved by the PADEP in July 2011.

REMEDIAL ACTION PLAN IMPLEMENTATION

The PA Underground Storage Tank Indemnification Fund (PAUSTIF) and their administrator, ICF International (ICFI), put the site remedial work out for competitive bid. The proposed scope of work was based upon the July 2011 approved RAP. Letterle was awarded the bid in March of 2012 and began implementation of the approved RAP.

Remedial actions completed in previous quarters include off-site well abandonment, dual-phase extraction well installation, remedial system trenching and piping, remedial system installation, and the application of a chemical oxidant as part of an enhanced bioremediation feasibility study.

Remedial System

The remedial system trailer was constructed and mobbed to the site during the third quarter of 2012 and began operation during the fourth quarter of 2012. The principal DPE system components housed within the trailer include:

- One claw pump;
- One air compressor;
- One air/water separator (AWS) tank;
- One equalization tank;
- Two transfer pumps and level controls;
- Six pneumatic groundwater pumps;

- Four 300-pound liquid-phase granular activated carbon (GAC) vessels (high pressure units);
- Two 600-pound vapor-phase GAC vessels; and,
- Control panel for the claw pump, air compressor, and the transfer pumps (including all system interlocks).

The trailer is located along the southern property boundary. The dimensions of the trailer are approximately 8 feet in width, 20 feet in length, and 8 feet tall. The trailer includes wall and roof insulation and has adjustable wall louvers close to the floor, each complete with an exterior mounted mesh screen. Each louver contains an explosion-proof (XP) fan to circulate outside air into it. The fan is controlled both thermostatically and by a manual wall switch located near the side door. The trailer contains an XP radiant heater unit with adjustable thermostat to prevent freeze damage during the winter. The heater/thermostat is capable of maintaining a minimum ambient air temperature of 50 °F within the enclosure regardless of outside temperatures.

The trailer has a double door large enough to remove any piece of equipment housed within the trailer. The trailer includes a sump built into the floor equipped with a high level alarm switch that will terminate system operation if activated. The influent and effluent PVC pipes stubbed out of the ground by the installation contractor are inside 18-inch well vaults and are connected in the trailer with a pressure connection. The trailer includes an outside wall electrical receptacle, a lightning rod, and grounding. The trailer contains a mounted 20-pound fire extinguisher within three feet of the door.

A fenced area adjacent to the remediation trailer was constructed to accommodate the vapor phase treatment equipment and associated control panels. The fenced area is approximately 8 feet by 14 feet in size and consist of a 6-foot high privacy fence with one access gate.

The remediation system began operation during the fourth quarter of 2012. The recovered groundwater is treated and discharged to the sanitary sewer under an issued permit from the Clearfield Municipal Authority (CMA).

QUARTERLY SITE ACTIVITIES COMPLETED – 4TH QUARTER 2012

Remedial System Operation

The DPE remedial system was activated on October 30, 2012 and the system was in operation upon arrival at the site on November 26, 2012. The system was shutdown at the end of the day to allow for return of groundwater levels to static conditions prior to starting the engineering evaluation on November 27, 2012. All remediation system equipment was observed to be in good working condition prior to shutdown. All clear schedule 40 PVC sight-tubes on the influent manifold showed signs of only minor scaling to the system piping. Since remediation system startup, a total of 142,565 gallons of groundwater have been extracted at an average of 4.71 gallons per minute (gpm) over the time period. All equipment safety alarms have been tested and are in good working order. The recovered and treated groundwater is treated and discharged to the sanitary sewer under an issued permit from the CMA. Under the terms of the permit, analytical reports and totalizer readings are reported in Discharge Monitoring Reports (DMR) on a monthly basis to the CMA. Petroleum

impacted soil and groundwater remediation systems have been listed as exempt from the Plan Approval/Operating permit requirements by PADEP, Division of Air Quality. The remediation system is operated under the exemption requirements.

Remedial System Alterations

The over amping of the rotary claw SVE pumps has been eliminated by increasing the size of the exhaust piping. Heat tape and insulation have been installed on all hoses and piping that is exposed under the trailer to prevent freezing. Sediment filter changes will initially occur during every O&M event in order to minimize system downtime due to clogged sediment filters. The four 400-pound liquid-phase GAC pressure vessels will continue to be connected in a parallel/series arrangement to treat the groundwater. The existing vapor carbon treatment system will remain with two 600-pound vapor-phase GAC units connected in a series configuration.

Remedial System Summary

Based on the results of the system engineering evaluation, the remediation system at the Kwik Fill M-90 site is operating with influence results similar to the original design and currently, the influence of the DPE system is large enough to cover the majority of the down gradient contaminated plume area. The DPE system has been placed into operation and extraction from the recovery wells will continue. To allow for adequate vacuum levels with the addition of the VEGE system, DPE recovery wells MW-1 and MW-28, MW-31, and MW-34 will be continuously operated through 2013. Wells MW-1A, MW-2, MW-35 and MW-36 will remain shutdown to increase the vacuum of the DPE system and to prevent overwhelming the groundwater treatment system with excessive amounts of extracted groundwater. The system will be serviced twice a month for regularly scheduled preventative maintenance to ensure operational success. Future evaluations will include measurements of vacuum at the top of each recovery well, groundwater recovery rates from each DPE well, and water table drawdown after an extended period of system operation. For additional details concerning the operation and performance of the remedial system, please see the Remediation System Start-Up Engineering Evaluation included as **Appendix B**.

Groundwater Monitoring

Groundwater Gauging

Letterle completed a quarterly groundwater gauging and sampling event on December 14, 2012. A total of 12 monitoring wells were sampled: on-site wells MW-2A, MW-32, and MW-33 and off-site monitoring wells MW-3, MW-4, MW-7, MW-10, MW-14, MW-15, MW-21, MW-29, and MW-30 (MW-9 and MW-17 could not be located). Prior to well purging, the depth to groundwater in each well was measured using an electronic water level probe accurate to the nearest 0.01 foot. The groundwater gauging and elevation results are on **Table 1**.

Shallow Water-Bearing Zone

The groundwater gauging data collected during the sampling event indicated the following for the shallow water-bearing zone:

- Groundwater elevations in the shallow water-bearing zone ranged from 1,134.25 feet in MW-7 to 1,145.66 feet in MW-2A;
- The apparent groundwater flow direction in the shallow water-bearing zone is towards the north (towards the West Branch Susquehanna River) (**Figure 3**);
- Based on the groundwater elevation data for on-site monitor wells MW-2A (1,145.66 feet) and MW-7 (1,134.25 feet), the horizontal hydraulic gradient was approximately 0.030 feet per foot (ft/ft); and,
- The groundwater elevations observed in MW-10 was considered anomalous and was not used in groundwater contouring.

Groundwater Sampling

Sampling Methodology

Quarterly groundwater sampling at the site was completed on December 14, 2012. Monitoring wells MW-2A, MW-3, MW-4, MW-7, MW-10, MW-14, MW-15, MW-21, MW-29, MW-30, MW-32, and MW-33 (MW-9 and MW-17 could not be located) were purged and sampled using low flow techniques. The following field screening parameters were collected from the sampled monitor wells via an YSI Model 556 flow-through cell and water quality meter: pH, Temperature, Specific Conductance, total suspended solids (TSS), dissolved oxygen (DO), and oxidation-reduction potential (ORP).

The groundwater samples were submitted for analysis of PADEP pre-March 2008 short list of unleaded gasoline constituents via USEPA Method 8260B. The laboratory analyses included the following constituents: benzene, toluene, ethylbenzene, xylene(s) total, methyl tert-butyl ether (MTBE), cumene (isopropylbenzene), and naphthalene.

Sampling Results

Within the shallow water-bearing zone, analytical results from the groundwater sampling program conducted on December 14, 2012 indicated no exceedances of the applicable PADEP Used-Aquifer TDS $\leq$2,500 milligrams per liter (mg/L)) Residential Statewide Health Standard (UARSHS) MSCs.

Table 1 summarizes the groundwater analytical results. The complete analytical laboratory reports are included in **Appendix A.**

PLANNED ACTIVITY

The following activity is currently planned for the 1st Quarter of 2013:

- Remedial system operation and maintenance (including permit-required sampling);
- Quarterly groundwater gauging and sampling; and,
- Quarterly reporting.

The targeted goals of the remedial action are the elimination of the potential exposure pathways identified during site characterization activities (i.e., inhalation via indirect contact with groundwater

and ingestion and dermal contact via direct contact with surface water) and the attainment of the applicable PADEP UARSHS MSCs.

TABLE

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-1	3/17/2010	**10.9**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.26	1147.28
	6/8/2010	**11.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.57	1146.97
	8/30/2010	**18.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.78	1144.76
	11/17/2010	**13.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.40	1146.14
	3/1/2011	**6.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.78	1147.76
	5/31/2011	**13.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.75	1145.79
	8/24/2011	**12.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.12	1145.42
	3/28/2012	**14.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.12	1147.42
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-1A	3/17/2010	**7.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.57	1147.20
	6/8/2010	**6.9**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.86	1146.91
	8/30/2010	**16.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.32	1144.45
	11/17/2010	**10.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.88	1145.89
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.04	1147.73
	5/31/2011	**4.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.29	1145.48
	8/24/2011	**8.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.65	1145.12
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.55	1147.22
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-2	3/17/2010	**20.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.07	1146.91
	6/8/2010	**20.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.36	1146.62
	8/30/2010	**20.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.61	1144.37
	11/17/2010	**20.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.36	1145.62
	3/1/2011	**11.0**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.73	1147.25
	5/31/2011	**10.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.68	1145.30
	8/24/2011	**14.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.90	1145.08
	3/28/2012	**11.5**	**1.1**	<1.00	<1.00	<3.00	<1.00	<2.00	2.85	1147.13
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-2A	3/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.21	1147.66
	6/8/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.27	1147.60
	8/30/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.23	1145.64
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.25	1146.62
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.91	1147.96
	5/31/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.16	1146.71
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.52	1146.35
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.45	1148.42
	6/25/2012	**5.22**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.51	1144.36
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.21	1145.66
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.12	1144.75
MW-3	3/18/2010	**43.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.43	1143.80
	6/7/2010	**44.0**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.40	1143.83
	8/31/2010	**41.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.92	1142.31
	11/17/2010	**40.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.48	1142.75
	3/2/2011	**33.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.81	1144.42
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**32.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.38	1142.85
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.40	1144.83
	6/25/2012	**21.9**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.17	1143.06
	9/6/2012	**27.5**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.17	1142.06
	12/14/2012	**18.4**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.63	1140.60
MW-4	3/18/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.97	1144.15
	6/7/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.17	1142.95
	8/31/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.44	1140.68
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.26	1141.86
	3/2/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.92	1144.20
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.24	1141.88
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.20	1143.92
	6/25/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.74	1142.38
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.11	1141.01
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.40	1141.72

Notes:
All results reported in ug/l.
Bold values indicate levels above LRL.
Bold and shaded values indicate exceedance of UARSHS MSCs.
NG - Not Gauged. NA - Not Available. NS - Not Sampled.

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-5	3/17/2010	**5.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.16	1143.51
	6/7/2010	**4.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.53	1143.14
	8/31/2010	**3.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.18	1141.49
	11/17/2010	**2.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.80	1141.87
	3/1/2011	**1.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.43	1144.24
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**5.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.64	1142.03
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.04	1143.63
	6/25/2012	Well not part of quarterly sampling program.							2.25	1142.42
	9/6/2012	Well not part of quarterly sampling program.							NG	NA
MW-6	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/7/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/31/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/1/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located. Well not part of quarterly sampling program.								
	9/6/2012	Well could not be located. Well not part of quarterly sampling program.								
MW-7	3/18/2010	**3.6**	**59.5**	**11.5**	**44.4**	**54.7**	**25.6**	**44.5**	2.60	1139.41
	6/7/2010	**3.1**	**57.7**	**12.9**	**55.2**	**60.3**	**35.4**	**61.3**	5.77	1136.24
	8/31/2010	**6.8**	**104**	**14.4**	**47.9**	**49.2**	**29.3**	**38.7**	7.92	1134.09
	11/17/2010	**7.2**	**97.9**	**12.5**	**46.5**	**47.4**	**27.3**	**57.7**	6.85	1135.16
	3/2/2011	**4.1**	**51.9**	**8.8**	**39.3**	**27.7**	**22.4**	**20.9**	3.93	1138.08
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**7.7**	**73.8**	**10.2**	**25.8**	**28.5**	**31.3**	**40.7**	7.21	1134.80
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	7.15	1134.86
	6/25/2012	**3.84**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	7.49	1134.52
	9/6/2012	**10.6**	NS	<2.00	<2.00	<4.00	<2.00	<2.00	7.76	1134.25
	12/14/2012	<2.00	**84.4**	**14.8**	**89.5**	**43.6**	**29.0**	**65.4**	5.80	1136.21
MW-9	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/8/2010	**32.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.00	1141.97
	8/30/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/1/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located.								
	9/6/2012	Well could not be located.								
MW-10	3/17/2010	**8.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.64	1147.90
	6/7/2010	**8.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.78	1148.76
	8/31/2010	**8.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.08	1147.46
	11/17/2010	**7.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.50	1147.04
	3/2/2011	**7.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.14	1149.40
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**7.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.42	1148.12
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.42	1148.12
	6/25/2012	**5.01**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	1.23	1148.31
	9/6/2012	**6.16**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.10	1147.44
	12/14/2012	**5.56**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.08	1147.46
MW-12	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/7/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/31/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	**30.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.28	1142.28
	3/2/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well not part of quarterly sampling program.							2.83	1142.73
	9/6/2012	Well could not be located. Well not part of quarterly sampling program.							NG	NA

Notes:
All results reported in ug/l.
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NG - Not Gauged. NA - Not Available. NS - Not Sampled.

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-14	3/17/2010	23.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.97	1146.75
	6/7/2010	18.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.22	1146.50
	8/31/2010	35.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.43	1144.29
	11/17/2010	21.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.40	1145.32
	3/2/2011	2.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.62	1147.10
	5/31/2011	21.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1145.28
	8/24/2011	17.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.80	1143.92
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.71	1146.01
	6/25/2012	8.80	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.59	1145.13
	9/6/2012	19.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.63	1144.09
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	6.89	1141.83
MW-15	3/18/2010	6.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.73	1145.56
	6/7/2010	6.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.08	1145.21
	8/31/2010	7.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.88	1143.41
	11/17/2010	6.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1143.85
	3/2/2011	4.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.51	1145.78
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	6.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.27	1144.02
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.20	1145.09
	6/25/2012	6.98	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.11	1144.18
	9/6/2012	5.64	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.18	1143.11
	12/14/2012	2.23	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.45	1141.84
MW-17	3/18/2010	9.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.73	1142.53
	6/7/2010	1.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.09	1143.17
	8/31/2010	13.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.78	1141.48
	11/17/2010	11.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.70	1141.56
	3/1/2011	7.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.11	1143.15
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located.								
	9/6/2012	Well could not be located.								
MW-21	3/17/2010	41.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.86	1144.60
	6/7/2010	42.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.12	1144.34
	8/30/2010	40.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.43	1143.03
	11/17/2010	35.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.22	1143.24
	3/2/2011	33.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.50	1144.96
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	37.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.05	1143.41
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.10	1144.36
	6/25/2012	21.7	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.94	1143.52
	9/6/2012	42.1	<2.00	<2.00	<2.00	<4.00	<2.00	<2.00	3.79	1142.67
	12/14/2012	10.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.09	1141.37
MW-22	3/17/2010	5.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.79	1143.08
	6/7/2010	8.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.18	1142.69
	8/30/2010	8.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.60	1141.27
	11/17/2010	6.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.38	1141.49
	3/2/2011	6.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.42	1143.45
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	10.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.04	1141.83
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.11	1142.76
	6/25/2012	Well not part of quarterly sampling program.							2.81	1142.06
	9/6/2012	Well not part of quarterly sampling program.							3.43	1141.44
	12/14/2012	Well not part of quarterly sampling program.							4.06	1140.81

Notes:
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United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-23	3/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.51	1144.65
	6/7/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.03	1145.13
	8/31/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.63	1142.53
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.90	1143.26
	3/2/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.02	1145.14
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.93	1143.23
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.80	1144.36
	6/25/2012	Well not part of quarterly sampling program.							4.57	1142.59
	9/6/2012	Well not part of quarterly sampling program.							5.37	1141.79
	12/14/2012	Well not part of quarterly sampling program.							5.99	1141.17
MW-28	3/17/2010	4.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.13	1146.94
	6/8/2010	3.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1146.63
	8/30/2010	6.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.64	1144.43
	11/17/2010	4.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.46	1145.61
	3/1/2011	7.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.01	1147.06
	5/31/2011	3.4	NS	NS	NS	NS	NS	NS	4.82	NA
	8/24/2011	4.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.97	1145.10
	3/28/2012	14.6	NS	NS	NS	NS	NS	NS	2.88	1147.19
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-29	3/17/2010	35.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.61	1144.65
	6/7/2010	39.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.83	1144.43
	8/30/2010	39.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.95	1142.31
	11/17/2010	37.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.95	1143.31
	3/2/2011	9.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.23	1145.03
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	37.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.81	1143.45
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.71	1144.55
	6/25/2012	22.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.58	1143.68
	9/6/2012	25.0	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.58	1142.68
	12/14/2012	3.13	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.77	1141.49
MW-30	3/18/2010	17.0	23.9	<1.00	14.5	12.2	1.9	2.5	2.23	1145.03
	6/7/2010	20.1	17.9	<1.00	12.4	10.5	1.9	<2.00	2.41	1144.85
	8/31/2010	22.7	<1.00	<1.00	3.1	<3.00	<1.00	<2.00	4.07	1143.19
	11/17/2010	25.9	<1.00	<1.00	1.8	<3.00	<1.00	<2.00	3.61	1143.65
	3/2/2011	22.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.35	1144.91
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	8.41	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.31	1143.95
	9/6/2012	10.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.30	1142.96
	12/14/2012	4.08	<2.00	<2.00	<2.00	<4.00	<2.00	<2.00	5.91	1141.35
MW-31	3/17/2010	7.8	668	783	265	2,700	26.4	119	3.16	1147.07
	6/8/2010	6.3	336	118	119	754	10.2	61.8	3.61	1146.62
	8/30/2010	8.0	18.8	1.1	10.5	34.1	1.3	3.3	5.73	1144.50
	11/17/2010	6.7	60.5	<1.00	20.6	20.4	1.8	4.3	4.73	1145.50
	3/1/2011	4.8	9.2	1.4	3.6	4.1	<1.00	<2.00	3.48	1146.75
	5/31/2011	6.3	66.1	<1.00	20.0	22.1	2.3	2.1	4.74	1145.49
	8/24/2011	14.3	439	7.2	135	272	12	35.7	5.03	1145.20
	3/28/2012	16.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.18	1147.05
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-32	5/28/2010	4.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.22	1145.58
	6/8/2010	2.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.21	1146.59
	8/30/2010	1.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.16	1144.64
	11/17/2010	2.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.64	1145.16
	3/1/2011	2.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.94	1146.86
	5/31/2011	2.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.15	1145.65
	8/24/2011	2.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.58	1145.22
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.49	1147.31
	6/25/2012	4.51	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.51	1145.29
	9/6/2012	4.07	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.51	1144.29
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.65	1144.15

Notes:
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Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-33	5/28/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.41	1145.72
	6/8/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.36	1146.77
	8/30/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.25	1144.88
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.96	1145.17
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.42	1146.71
	5/31/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.38	1145.75
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.72	1145.41
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.70	1147.43
	6/25/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.66	1145.47
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.70	1144.43
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.72	1145.41

Notes:
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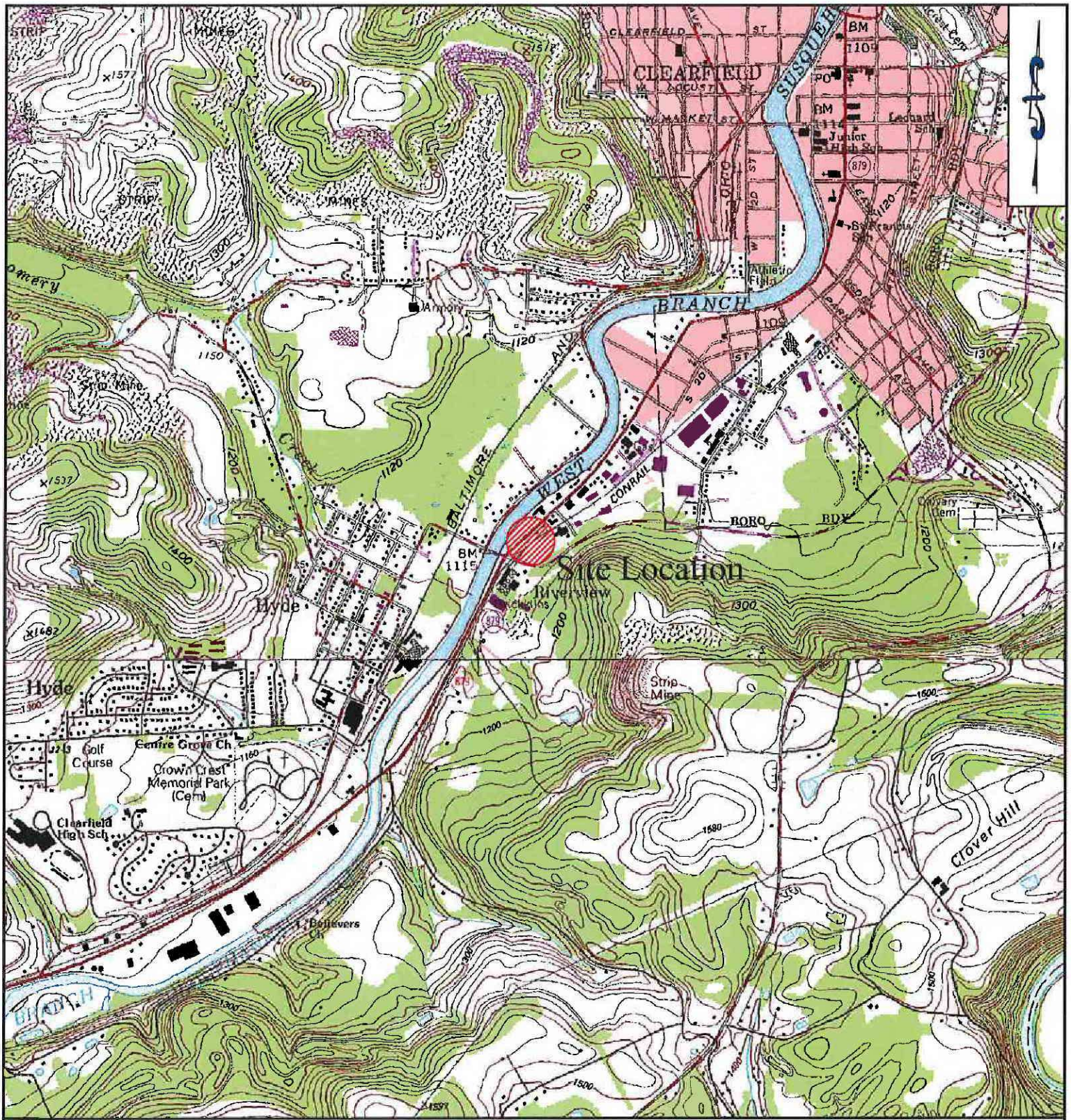
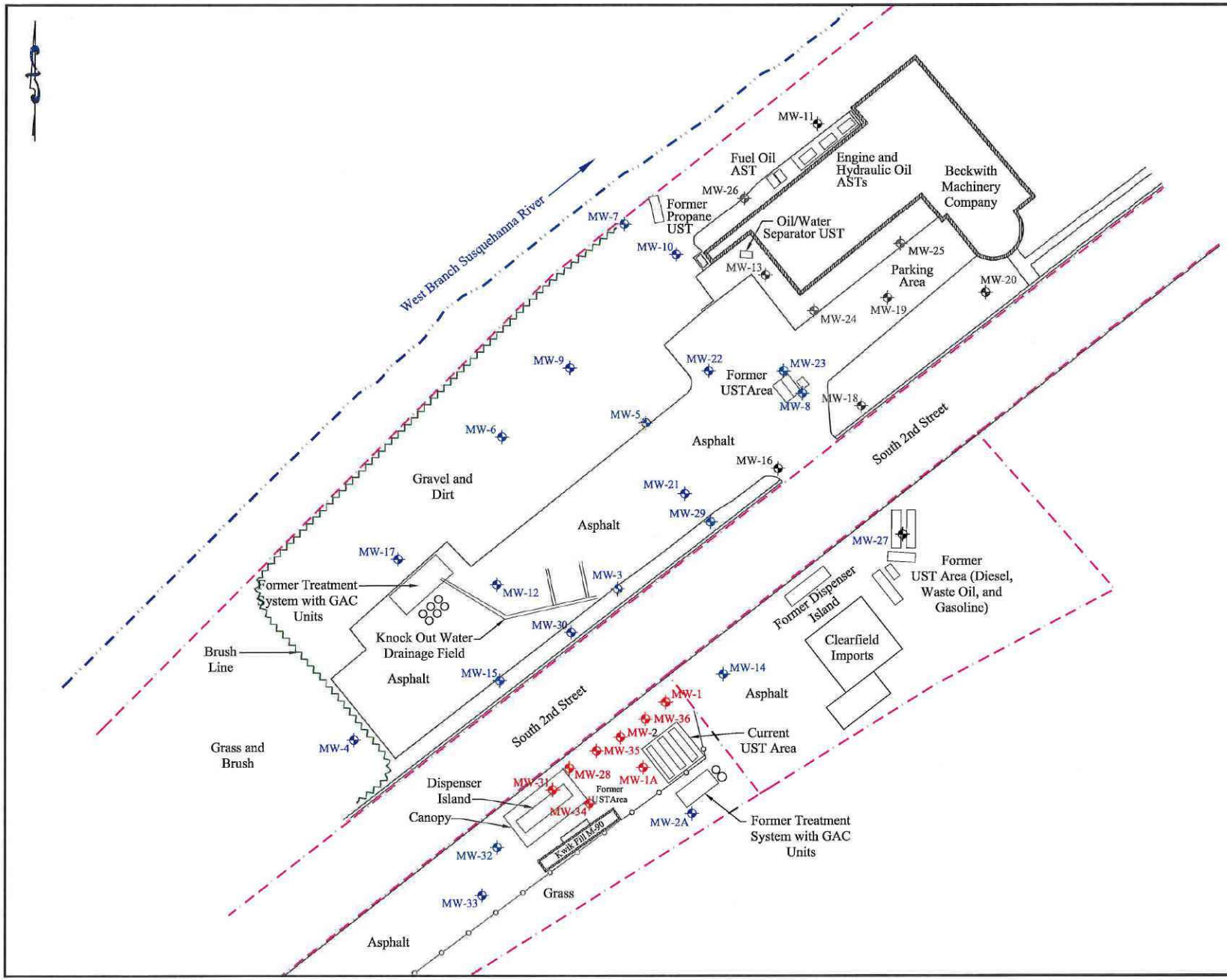
NG - Not Gauged. NA - Not Available. NS - Not Sampled.

FIGURES



Reference: 7.5-minute United States Geological Survey Topographic Quadrangles of Clearfield and Glen Richey, Pennsylvania, DeLorme 3-D Topographic Quads Program.

Prepared For:	*Project Information:*	*Prepared By:*
United Refining Company, Kwik Fill M-90 1322 South 2nd Street, Lawrence Township, Clearfield County, Pennsylvania PADEP Facility ID #17-14821	Project Manager: Jed Hill Project Geologist: Steven Treschow, P.G.	Letterle & Associates, LLC 629 East Rolling Ridge Drive Bellefonte, PA 16823 P: 814-355-2241 F: 814-355-2410 www.letterleassociates.com
Title:	*Scale (feet):*	
Figure 1 Site Location Map	Scale: 1" = 2000' 0 2000 4000	



Prepared By:

Letterle & Associates, LLC

629 East Rolling Ridge Drive
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P: 814-355-2241
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Project Manager: Jed Hill
Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 2
Site Layout Map

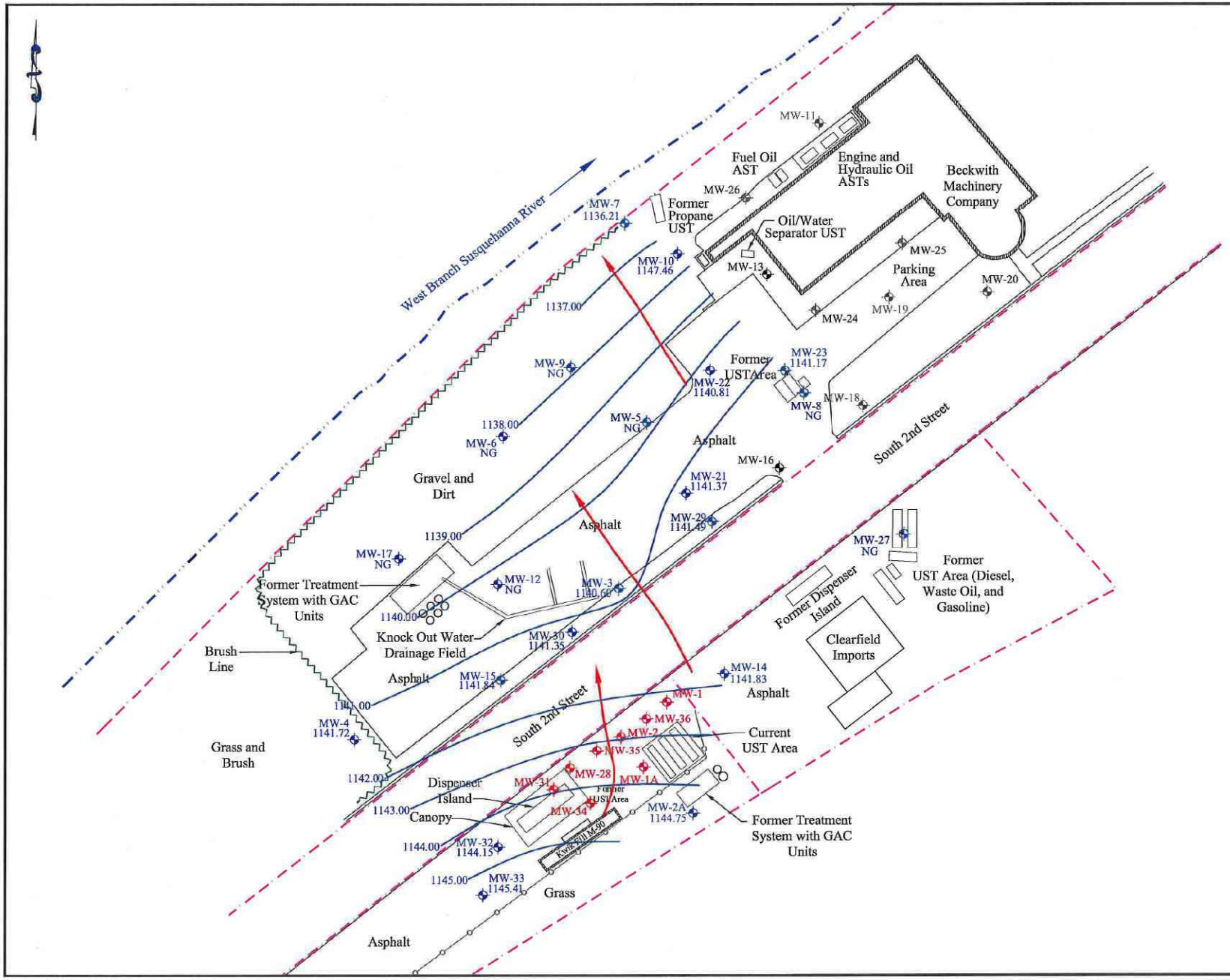
Legend:

- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120



Prepared By:

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P: 814-355-2241
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Project Manager: Jed Hill
Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 3
Groundwater Potentiometric
Surface Contour Map
December 14, 2012

Legend:

- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail
- 1145.0 Groundwater Elevation (ft)
- Groundwater Elevation Contour (dashed where inferred)
- Groundwater Flow Direction

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120

APPENDICES

APPENDIX A

Groundwater Analytical Laboratory Reports

2019 Ninth Avenue
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89 Kristi Road
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PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-14	2L17019-01	Water	Grab	12/14/12 10:53	12/17/12 13:35
MW-2A	2L17019-02	Water	Grab	12/14/12 11:15	12/17/12 13:35
MW-33	2L17019-03	Water	Grab	12/14/12 11:29	12/17/12 13:35
MW-32	2L17019-04	Water	Grab	12/14/12 11:44	12/17/12 13:35
MW-4	2L17019-05	Water	Grab	12/14/12 12:02	12/17/12 13:35
MW-15	2L17019-06	Water	Grab	12/14/12 12:22	12/17/12 13:35
MW-10	2L17019-07	Water	Grab	12/14/12 12:34	12/17/12 13:35
MW-30	2L17019-08	Water	Grab	12/14/12 12:49	12/17/12 13:35
MW-3	2L17019-09	Water	Grab	12/14/12 13:02	12/17/12 13:35
MW-21	2L17019-10	Water	Grab	12/14/12 13:14	12/17/12 13:35
MW-29	2L17019-11	Water	Grab	12/14/12 13:25	12/17/12 13:35
MW-7	2L17019-12	Water	Grab	12/14/12 13:38	12/17/12 13:35

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-14 **Date/Time Sampled:** 12/14/12 10:53

Laboratory Sample ID: 2L17019-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*91.7 %*	*70-130*		*12/21/12 11:44*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*92.2 %*	*70-130*		*12/21/12 11:44*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.3 %*	*70-130*		*12/21/12 11:44*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-2A **Date/Time Sampled:** 12/14/12 11:15

Laboratory Sample ID: 2L17019-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*97.9 %*	*70-130*		*12/21/12 12:22*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*87.9 %*	*70-130*		*12/21/12 12:22*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*89.6 %*	*70-130*		*12/21/12 12:22*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-33 **Date/Time Sampled:** 12/14/12 11:29

Laboratory Sample ID: 2L17019-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*88.3 %*	*70-130*		*12/21/12 13:00*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*86.5 %*	*70-130*		*12/21/12 13:00*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.0 %*	*70-130*		*12/21/12 13:00*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-32 **Date/Time Sampled:** 12/14/12 11:44

Laboratory Sample ID: 2L17019-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*92.4 %*	*70-130*		*12/21/12 13:38*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*91.0 %*	*70-130*		*12/21/12 13:38*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.6 %*	*70-130*		*12/21/12 13:38*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-4 **Date/Time Sampled:** 12/14/12 12:02

Laboratory Sample ID: 2L17019-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*91.1 %*	*70-130*		*12/21/12 14:16*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*93.6 %*	*70-130*		*12/21/12 14:16*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.9 %*	*70-130*		*12/21/12 14:16*	*EPA 8260B*	wlm	

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629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-15 **Date/Time Sampled:** 12/14/12 12:22

Laboratory Sample ID: 2L17019-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Methyl tert-butyl ether	2.23		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*89.8 %*	*70-130*		*12/21/12 14:54*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*97.0 %*	*70-130*		*12/21/12 14:54*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*96.2 %*	*70-130*		*12/21/12 14:54*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-10 **Date/Time Sampled:** 12/14/12 12:34

Laboratory Sample ID: 2L17019-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Methyl tert-butyl ether	5.56		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*93.0 %*	*70-130*		*12/21/12 15:33*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*92.0 %*	*70-130*		*12/21/12 15:33*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*95.1 %*	*70-130*		*12/21/12 15:33*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-30 **Date/Time Sampled:** 12/14/12 12:49

Laboratory Sample ID: 2L17019-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Toluene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	VC
Ethylbenzene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Xylenes (total)	<4.00		4.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Isopropylbenzene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Methyl tert-butyl ether	4.08		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Naphthalene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*87.3 %*	*70-130*		*12/21/12 17:03*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		*12/21/12 17:03*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*105 %*	*70-130*		*12/21/12 17:03*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-3 **Date/Time Sampled:** 12/14/12 13:02

Laboratory Sample ID: 2L17019-09 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Methyl tert-butyl ether	18.4		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*92.0 %*	*70-130*		*12/21/12 16:11*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*90.5 %*	*70-130*		*12/21/12 16:11*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*95.5 %*	*70-130*		*12/21/12 16:11*	*EPA 8260B*	wlm	

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Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-21 **Date/Time Sampled:** 12/14/12 13:14

Laboratory Sample ID: 2L17019-10 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Methyl tert-butyl ether	10.8		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*86.1 %*	*70-130*		*12/21/12 16:49*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*96.6 %*	*70-130*		*12/21/12 16:49*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*98.1 %*	*70-130*		*12/21/12 16:49*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-29 **Date/Time Sampled:** 12/14/12 13:25

Laboratory Sample ID: 2L17019-11 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Methyl tert-butyl ether	3.13		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*86.8 %*	*70-130*		*12/21/12 17:27*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*94.7 %*	*70-130*		*12/21/12 17:27*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*97.7 %*	*70-130*		*12/21/12 17:27*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-7 **Date/Time Sampled:** 12/14/12 13:38

Laboratory Sample ID: 2L17019-12 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	84.4		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Toluene	14.8		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	VC
Ethylbenzene	89.5		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Xylenes (total)	43.6		4.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Isopropylbenzene	29.0		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Methyl tert-butyl ether	<2.00		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Naphthalene	65.4		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*96.2 %*	*70-130*		*12/21/12 17:43*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*94.5 %*	*70-130*		*12/21/12 17:43*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*101 %*	*70-130*		*12/21/12 17:43*	*EPA 8260B*	wlm	

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State Certifications: MD 275, WV 364

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Notes

VC Check standard was outside the QC range. Data accepted based on acceptable LCS.

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

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Phone: (814) 946-4306
Fax: (814) 946-8791

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Environmental Laboratory

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Phone: (570) 494-6380

2L1701901
COC #

Page 1 of 2

Client Name: Letterle Assoc.
Address: 624 E. Rolling Ridge Dr. Bellefonte, PA 16823
Contact: J. Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: UR Clearfield
Quote/PO #: —

Received on ice? Y N
Sample Temp:
Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

Analyses Requested

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

	Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	1998 Unleaded Gas	Bottle Type/Comments
1	MW-14	X				12-14-12	1053		X		2	X	
2	MW-2A	X				12-14-12	1115		X		2	X	
3	MW-33	X				12-14-12	1129		X		2	X	
4	MW-32	X				12-14-12	1144		X		2	X	
5	MW-4	X				12-14-12	1202		X		2	X	
6	MW-15	X				12-14-12	1222		X		2	X	
7	MW-10	X				12-14-12	1234		X		2	X	
8	MW-30	X				12-14-12	1249		X		2	X	
9	MW-3	X				12-14-12	1302		X		2	X	
10	MW-21	X				12-14-12	1314		X		2	X	
11	MW-29	X				12-14-12	1325		X		2	X	

	Date	Time		Date	Time
Sampled by:	12-14-12	1523	Received by:	12/7/12	1030
Relinquished by:	12/7/12	1230	Received by:	12/7/12	1230
Relinquished by:	12/7/12	1335	Received by:	12/7	1335
Relinquished by:	Date	Time	Received by:	Date	Time

Remarks

27

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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2L1701902
COC #

Page 2 of 2

Client Name: Letterle Assoc.
Address: 629 E Rolling Ridge Dr. Bellefonte, PA 16823
Contact: J. Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: UR Clearfield
Quote/PO #: —

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas w/ Benzene	Bottle Type/Comments
18 MW-7	X				12-14-12	1338		X		2	X	

	Date	Time		Date	Time
Sampled by:	12-14-12	1523	Received by:	12-17-12	10:30
Relinquished by:	12-17-12	12:30	Received by:	12/17	1335
Relinquished by:	12/17/12	1335	Received by:		
Relinquished by:			Received by:		

Remarks

27

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document

Receiver: AC Page ___ of ___

Date/Time of this check: 12/17/12 1345 Sample Temperature: 2.6 Client: Letterle & Assoc Lab # 2L1701903

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 2.6 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: Water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐ *	Properly Preserved ☐ *	Bacti	
1							2				
									N		
12							4				

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

Chain of Custody Receiving Document

APPENDIX B

Remediation System Start-Up Engineering Evaluation

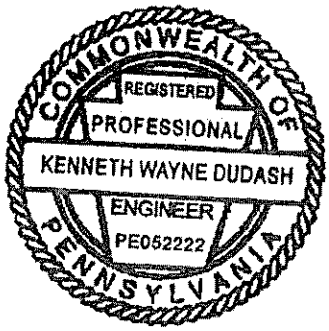
REMEDIATION SYSTEM START-UP ENGINEERING EVALUATION

PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
Kwik Fill #M-90
1322 South 2nd Street
Clearfield, Lawrence Township,
Clearfield County, PA 16830

Prepared for:

United Refining Company of Pennsylvania
15 Bradley Street
P.O. Box 688
Warren, PA 16365

Prepared by:



Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

Kenneth W. Dudash, P.E.
Senior Project Engineer

December 2012

"By affixing my seal to this document, I am certifying that the information is true and correct to the best of my knowledge. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information."

Kenneth W. Dudash, P.E. (signed and sealed this day (December 21, 2012))

TABLE OF CONTENTS

1.0 INTRODUCTION

As per the approved Pennsylvania Department of Environmental Protection (PADEP) Remedial Action Plan (RAP), a remedial system was installed at the United Refining Kwik Fill #M-90 Clearfield site (Kwik Fill M-90) during September 2012. The remedial system utilizes Dual Phase Extraction (DPE) technology to extract subsurface vapor and groundwater. The system was started on October 30, 2012 with a remediation system engineering evaluation performed at the Kwik Fill M-90 on November 27, 2012. This engineering evaluation was performed to document site conditions during the operation of the remedial system and to evaluate the performance and effectiveness of the remediation system, and to determine if any changes or modifications are necessary. The remediation system was checked for overall operating condition, hydraulic influence zone, pneumatic radius of influence (ROI), and groundwater/soil vapor extraction rates. This evaluation also compares the current remediation system operation to the original system design and recommends future system enhancements, if required.

2.0 SITE HISTORY

Kleinfelder East, Inc. (Kleinfelder) performed dual-phase extraction (DPE) pilot testing at the Kwik Fill M-90 in September 2010. Pilot test activities were conducted in order to assess the applicability of groundwater extraction in conjunction with soil vapor extraction (SVE) to remediate hydrocarbon-impacted soil and groundwater at the site. The pilot test involved the simultaneous recovery of soil vapor and groundwater from a designated extraction well (MW-31), while monitoring water table drawdown and induced vacuum in surrounding monitor wells.

During the testing, an average of 150 inches of water (in H2O) (11 inches of mercury (in.Hg)) was applied to the test well, resulting in an extracted flow rate of 25 standard cubic feet per minute (scfm). The average aquifer yield was approximately 2 gallons per minute (gpm) with a groundwater capture zone of 134 to 190 feet. A pneumatic ROI could not be calculated due to a lack of vacuum response in the surrounding wells but the closest well was 17 feet from MW-31. VOC concentrations were detected at low levels in the vapor stream during the tests.

The pilot test results indicated that a DPE system would be an effective and aggressive remediation strategy to reduce adsorbed and dissolved phase petroleum hydrocarbons in subsurface soil and groundwater. However, additional shallow wells in the source area were needed to shorten the time for active remediation.

The results from the pilot test depict an accurate representation of the site's hydraulic and pneumatic properties. Based on previous investigations by others, the geology of the site generally consists of unconsolidated materials (primarily silty clay) to depths of 10 to 17 feet. Unconsolidated materials are underlain by bedrock consisting of primarily sandstone and shale (Pottsville Group). Groundwater is located within the unconsolidated materials at depths ranging from one to seven feet below ground surface (bgs) across the site and adjoining properties. Groundwater typically flows to the northwest towards the West Branch of the Susquehanna River.

The geology of the site with the confining silty clay overburden provides for a small pneumatic ROI and hydraulic influence zone in the shallow areas to be treated with the DPE. The fractured bedrock of the deep aquifer provides for a very large hydraulic influence zone for the pneumatic pumps to be effective.

A DPE system was installed at the site and was activated on October 30, 2012. The purpose of the remediation system is to achieve attainment of the PADEP SHS for a residential used aquifer at the on-site point of compliance (POC), and off-site monitoring wells identified in the Site Characterization Report.

3.0 REMEDIATION SYSTEM AS-BUILT

The remediation system installation was completed at the site in September 2012. The system was activated on October 30, 2012. The following section details the system construction.

3.1 Remediation System Construction

The remediation system utilizes DPE technology with two high vacuum rotary claw pumps and six pneumatic pumps to remove vapors and groundwater from the subsurface. Groundwater can be extracted by the pneumatic pumps from six recovery wells (MW-1, MW-1A, MW-2, MW-28, MW-31 and MW-34) and by the rotary claw pumps from MW-35 and MW-36. The claw pumps apply vacuum and provide vapor recovery in all the recovery wells. Following extraction, groundwater and soil vapor are routed through an air/water separator (AWS). Groundwater from the pneumatic pumps is combined in an equalization tank. After equalization or separation, the groundwater is pumped through six sediment filters (connected in parallel/series) and then treated with four liquid phase granular activated carbon (GAC) units connected in a parallel/series configuration. The treated groundwater is discharged to a sanitary sewer drain southwest of the existing building site for treatment by the local sanitary authority.

The extracted vapor is passed through a heat exchanger to cool the temperature to below 100 degrees Fahrenheit and then treated with two 600-pound vapor phase GAC units connected in series to remove hydrocarbons from the vapor stream.

3.2 Remediation System Piping and Equipment

The following subsurface piping is used to extract soil vapor and groundwater from the site:

- MW-1, MW-1A, MW-2, MW-28, MW-31, and MW-34 through MW-36 are 4-inch diameter poly vinyl chloride (PVC) recovery wells. MW-1 is constructed with 11 feet of slotted screen from 5 to 16 feet bgs. MW-1A is constructed with 10 feet of screen from 5 to 15 feet bgs. MW-2 is constructed with 4-inch screen from 5 to 18.5 feet bgs. MW-28 has a screen from 5 to 21.5 feet bgs. MW-31 has 14 feet of screen from 5 to 19 feet bgs and MW-34 through MW-36 was constructed with screen from 5 to 22 feet bgs.
- Each recovery well is protected by 3' x 3' concrete pads with 18-inch diameter manholes.
- Vapor and groundwater are extracted through 1-inch diameter drop tubes extended to depths of 10 feet bgs in MW-35, and 10 feet bgs in MW-36. Extracted vapor and groundwater are conveyed through 2-inch diameter schedule 40 PVC subsurface piping installed from the system trailer to each recovery well.
- Each recovery well with drop tubes is connected to the subsurface extraction piping with pitless adapters installed on the recovery well riser piping at approximately 3 feet bgs. The pneumatic

groundwater pumps in MW-1, MW-1A, MW-2, MW-28, MW-31, and MW-34 are installed with the pump inlets at 1 foot from the bottom of the well.
- Treated groundwater is discharged via a 2 inch PVC pipe under a local sanitary permit.

The following remediation equipment is currently used to extract and treat vapor and groundwater from the site:

- Two 10-hp Busch Rotary Claw Pumps 230-volt three-phase (Model MM-1252-AV)
- One 80-gallon Air/Water Separator (MS80)
- One 250-gallon Equalization Tank
- One 2-hp transfer pump (Goulds Pumps Model NPE)
- One 3-hp transfer pump (Goulds Pumps Model NPE)
- Six 20" Big Blue® cartridge filter canisters
- Six pneumatic pumps (QED AP-4 Short)
- One 5.0 hp air compressor
- One 1.0 hp heat exchanger
- Four 300-pound liquid phase GAC units
- Two 600-pound vapor phase GAC units
- One explosion-proof heater and exhaust fan
- Electrical supply is 120/240 three phase, 200-amp service.

A Trenching Diagram and an as-built Piping and Instrumentation Diagram (P&ID) are included as **Figures 1 and 2,** respectively.

4.0 CURRENT REMEDIATION SYSTEM OPERATIONS

The DPE remedial system was activated on October 30, 2012 and the system was in operation upon arrival at the site on November 26, 2012. The system was shutdown at the end of the day to allow for return of groundwater levels to static conditions prior to starting the evaluation on November 27, 2012. All remediation system equipment was observed to be in good working condition prior to shutdown.

All clear schedule 40 PVC sight-tubes on the influent manifold showed signs of only minor scaling to the system piping. Since remediation system startup, a total of 142,565 gallons of groundwater have been extracted at an average of 4.71 gpm over the time period. All equipment safety alarms have been tested and are in good working order.

5.0 REMEDIATION SYSTEM DESIGN EVALUATION

5.1 DPE Engineering Evaluation – November 27, 2012

Upon arrival at the site on November 27, 2012, a pneumatic ROI and hydraulic influence zone test was initiated upon restart of the system. The remedial system had been in continuous operation for more than 7 days prior to the test. During initial system startup during the week of October 30, 2012, the system was adjusted to extract from wells MW-1, MW-28, MW-31 and MW-34 only. The number of recovery wells used for system operation was limited due to the volume of groundwater that exists at the

site and the high flow rate that can be obtained. If all the recovery wells are utilized together, the groundwater extraction flow rate would exceed treatment equipment flow rate specifications.

The system was adjusted to provide a vacuum of 12 inches of mercury (inHg) (99 scfm) during the test. Photo ionization detection (PID) reading of the vapor was measured at 124.9 parts per million volume (ppmv). Data obtained from monitoring the vacuum influence at the observation wells was used to obtain an approximate ROI. The pneumatic ROI is the transient pressure distribution created by the vacuum that results in an area in which the air flow rate through the soil decreases to the point in which the contaminants will not volatize. The ROI is measured in resulting inches of water (in H_2O) vacuum. Generally, a level of 0.1 in H_2O is the industry accepted standard extent that volatilization is limited due to a lack of subsurface vapor flow, and the extent of the ROI can be calculated.

Since MW-35 and MW-36 were not utilized for extraction, these wells were included in the monitoring during the evaluation. Vacuum levels of greater than 0.1 inches of water were found in adjacent wells MW-32, MW-35, and MW-36. All other monitor wells exhibited no vacuum response. The groundwater levels in all the monitor wells were below the well screen which allowed for a vacuum response if produced in these wells. The observed influence vacuum resulted in an average calculated pneumatic ROI of approximately 47 feet to the southwest but does not extend to MW-14 (40 feet to the northeast). The areas southeast of the existing tank field and north across South 2nd Street do not appear to be influenced by the vacuum of the DPE remediation system. Hydrocarbon content was recorded in the field with the PID during the evaluation.

Groundwater levels were recorded at all monitoring wells and were compared to static levels. From the difference in the observed groundwater levels, it was apparent that drawdown was occurring at a distance of approximately 140 feet to the northeast across South 2nd Street to MW-21. Drawdown was also recorded to the southwest to MW-33 at 0.1 feet. MW-27, which is located 180 feet east of the nearest recovery well MW-1, did not exhibit any drawdown. A hydraulic zone of influence map is included as **Figure 3**. **Table 1** shows the groundwater and vacuum influence readings collected during the DPE evaluation. **Chart 1** shows the calculated pneumatic ROI from the operating recovery wells during the DPE system evaluation. **Chart 2** shows the calculated hydraulic zone of influence.

Hydrocarbon recovery was measured in the field with a PID at 116.8 ppm-v. This resulted in a calculated removal rate of 1.04 lbs per day. A summary of vapor recovery system hydrocarbon removal calculations is included as **Table 2.**

Since system startup, the remediation system has operated at an average of 81% runtime for the groundwater pumps and 56% for the vacuum pumps. The lower runtime for the vacuum pumps is due to an over amping problem which causes the claw pumps to shut down. The problems were diagnosed by a close examination of the effluent piping which contains multiple valves and piping diameters that caused excessive exhaust pressure which resulted in the over amping of the units. All exhaust piping and valves were replaced with larger diameter sizes from the rotary claw units to the heat exchanger.

The telemetry unit was connected during the initial operation of the system and has responded during alarm conditions. With only MW-1, MW-28, MW-31, and MW-34 DPE recovery wells in operation; the petroleum-impacted shallow area near the tank field is being affected by the system operation (based on groundwater drawdown and vacuum response produced by the wells during the evaluation). Vacuum short circuiting is apparent into the tank field with the LRP operating at <5 in. Hg with MW-1 in full operation. This results in a low availability of vacuum pump capacity to apply to the other DPE recovery

wells in operation. The applied vacuum was valved off to MW-1 to increase the vacuum of the system. Areas beyond MW-21 to the north/northeast due not appear to be influenced by the DPE system.

The DPE remediation system recovery wells are producing a hydraulic influence zone similar to the size calculated from the site pilot test data and predicted in the RAP. The pneumatic ROI appears to be larger than predicated in the pilot test study. The remediation system was designed to be able to establish a hydraulic influence zone and pneumatic ROI to encompass the entire onsite shallow impacted plume and extend down gradient to influence the plume. When the pneumatic ROI is overlaid over the contaminant plume map, results show that the majority of the shallow contaminated area on-site is affected by the current DPE remediation system.

5.2 Key Criteria of System Feasibility

Key criteria and quantified ranges of values that were expected during the system testing in order to ensure a technology is a technically feasible application and for the system to operate as planned and meet the clean-up schedule included the following:

- If the maximum attainable groundwater extraction rate realized during system operation is below 2 gpm DPE technology would be deemed infeasible;

The remedial system has averaged greater than 4 gpm since the system startup and averaged 3.6 gpm during the evaluation.

- The groundwater capture zone will be defined as a decrease in the elevation of groundwater of at least 0.1 feet at a distance from the extraction point of a least 134 feet for two of the observation points at varied directions from the test well;

The calculated hydraulic zone of influence from the evaluation results is 145 feet and includes the majority of the plume area north of the site across South 2nd Street.

- If the maximum attainable vacuum realized during the extraction is below 11 in. Hg, the specified vacuum equipment would be deemed infeasible and other vacuum equipment such as a regenerative blower will be the utilized equipment;

Although several of the recovery wells exhibited low vacuum yields during the evaluation, the majority of the site geology requires the applied vacuum to be above 11 in. Hg which requires the use of the existing vacuum equipment.

- The pneumatic ROI as defined by an observed vacuum of 0.1 inches of water after stabilization of the readings will be observed at a minimum distance of 15 feet from the extraction point for two observation points located at varied directions from the test well;

The calculated pneumatic ROI was 25 feet in a measured response at the site in a northeast and southwest direction from the operating recovery wells.

- The VOC recovery rate in the extracted vapor will be greater than 0.5 pounds per day, as calculated from the analytical results of the extracted vapor or field measured levels, and the attainable flow rate measured during the interval of the test.

*The VOC recovery rate as calculated from the initial analytical results of the extracted vapor is 0.25 lbs/day which is below the 0.5 lbs/day criteria however, when calculated by the field measured levels, the system has been extracting 7.49 lbs/day (**Table 2**).*

Due to the location of the site next to the West Branch of the Susquehanna River and the high water table, the available extracted groundwater rate is greater than 10 gpm for the initial 24 hours of system operation. Once the site has been dewatered, the recovery rate slows to less than 1.0 gpm per recovery well. It appears from the evaluation data that the remedial extraction equipment may have been

overdesigned and can provide the hydraulic influence with fewer recovery wells in operation. If the remedial system has been down for longer than 24 hours, the groundwater extraction rate during restart is greater than the design flow. This flow rate provides a groundwater pump air usage that exceeds the capacity of the air compressor. The actual groundwater flow rate is higher than the anticipated design flow rate which has overwhelmed the treatment units and transfer pump shutting down the system. Utilizing a lower number of recovery wells has allowed the system to remain in operation.

The extracted groundwater flow rate decreases with the dewatering of the site and allows the air compressor to operate at an optimum 30% duty cycle after approximately 24 hours of operation. The high groundwater levels at the site also inhibit vapor recovery due to the lack of available open soil pore space. Once the site is dewatered, the groundwater table falls and opens areas of the soil that was not available for vapor extraction without the dewatering of the site.

6.0 REMEDIATION SYSTEM UPGRADES

The over amping of the rotary claw SVE pumps has been eliminated by increasing the size of the exhaust piping. Heat tape and insulation have been installed on all hoses and piping that is exposed under the trailer to prevent freezing. Sediment filter changes will initially occur during every O&M event in order to minimize system downtime due to clogged sediment filters. The four 400-pound liquid-phase GAC pressure vessels will continue to be connected in a parallel/series arrangement to treat the groundwater. The existing vapor carbon treatment system will remain with two 600-pound vapor-phase GAC units connected in a series configuration.

7.0 REMEDIATION SYSTEM PERMITTING

The recovered groundwater is treated and discharged directly to the sanitary pipe under a permit issued by the Clearfield Municipal Authority (CMA). Under the terms of the permit, analytical reports and totalizer readings are reported in Discharge Monitoring Reports (DMR) on a monthly basis to the CMA.

Petroleum impacted soil and groundwater remediation systems have been listed as exempt from the Plan Approval/Operating permit requirements by PADEP, Division of Air Quality. The remediation system is operated under the exemption requirements.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this system engineering evaluation, the remediation system at the Kwik Fill M-90 site is operating with influence results similar to the original design and currently, the influence of the DPE system is large enough to cover the majority of the down gradient contaminated plume area. The DPE system has been placed into operation and extraction from the recovery wells will continue. To allow for adequate vacuum levels with the addition of the VEGE system, DPE recovery wells MW-1 and MW-28, MW-31, and MW-34 will be continuously operated through 2013. MW-1A, MW-2, MW-35 and MW-36 will remain shutdown to increase the vacuum of the DPE system and to prevent overwhelming the groundwater treatment system with excessive amounts of extracted groundwater. The system will be serviced twice a month for regularly scheduled preventative maintenance to ensure operational success. Future evaluations will include measurements of vacuum at the top of each

recovery well, groundwater recovery rates from each DPE well, and water table drawdown after an extended period of system operation.

TABLES

TABLE 1: DPE SYSTEM EVALUATION EVENT SUMMARY

SITE: M-90 Clearfield Kwik Fill

DATE: 11/20/2012

VEGE EXTRACTION WELLS: MW-1, MW-28, MW-31, MW-34

GROUNDWATER GAUGING DATA
ELAPSED TIME (IN HRS.)

Well	Initial DTW	10:10	11:10	12:10	13:10	14:10	Total Drawdown
MW-2	5.15	5.34	5.63	5.78	5.86	6.2	1.05
MW-3	6.47	6.6	6.71	6.79	6.82	6.95	0.48
MW-4	5.04	5.05	5.05	5.06	5.06	5.06	0.02
MW-7	7.73	7.75	7.75	7.73	7.73	7.74	0.01
MW-8	6.4	6.4	6.41	6.48	6.51	6.46	0.06
MW-10	3.00	3.00	3.00	3.00	3.00	3.00	0.00
MW-14	8.12	8.51	8.81	8.98	9.1	9.31	1.19
MW-15	6.37	6.47	6.54	6.60	6.63	6.79	0.42
MW-21	5.72	5.74	5.81	5.81	5.86	5.9	0.18
MW-22	4.84	4.86	4.88	4.87	4.88	4.85	0.01
MW-23	6.31	6.35	6.25	6.25	6.25	6.24	-0.07
MW-27	6.7	6.67	6.69	6.67	6.66	6.67	-0.03
MW-29	6.47	6.51	6.55	6.57	6.58	6.64	0.17
MW-30	6.71	6.81	6.93	7.02	7.03	7.22	0.51
MW-32	7.51	7.65	7.93	8.16	8.3	8.5	0.99
MW-33	7.11	7.12	7.12	7.12	7.17	7.21	0.10
MW-35	9.45	11.88	12.46	12.66	12.81	14.55	5.10
MW-36	7.85	10.06	10.51	10.66	10.80	11.17	3.32
Totalizer	141695.4	142109.4	142283		142565.3		3.62 gpm

SOIL VAPOR GAUGING DATA
ELAPSED TIME (IN HRS.)

Well	1:00	2:00	3:00	4:00	5:00	
MW-2A				0	0	
MW-14				0	0	
MW-32				0.11	0.12	
MW-35				>10	>10	
MW-36				0.62	0.64	
PID				124.9	116.8	
Blower VAC (i.e., applied)				15	12	
Well VAC						

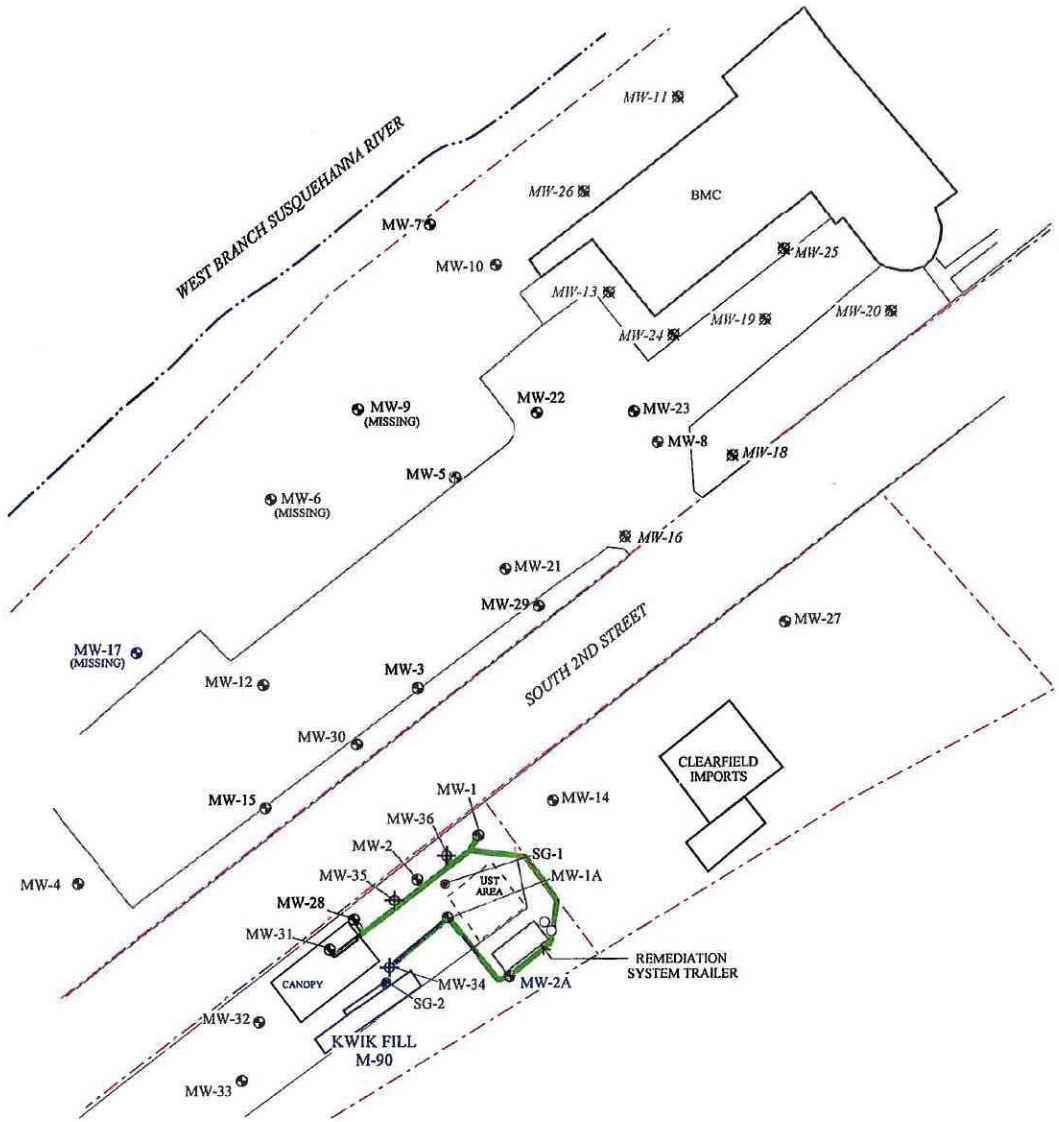
TABLE 2
VAPOR RECOVERY SYSTEM
HYDROCARBON REMOVAL CALCULATIONS
(Field Quantification)

United Refining--Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania 16830

Sample Location	Date	Extracted Vapor rate (scfm)	PID Hydrocarbon concentration (ppm)	Hydrocarbon Mass Removed (lb/day)	Hydrocarbon Mass Removed To Date (lb)
Influent	10/04/12	158	126	1.79	1.79
	10/17/2012	158	227	3.22	43.69
	11/7/2012	158	75.3	1.07	37.07
	11/20/2012	99	116.8	1.04	77.97

Notes:
NA denotes Not Analyzed.
NS denotes Not Sampled.

FIGURES



LEGEND

- PROPERTY BOUNDARY
- MW-1 EXISTING MONITOR WELL
- *MW-11* MONITOR WELL - ABANDONED
- SG-1 SOIL GAS MONITORING POINT
- MW-34 DPE WELL
- TRENCH LOCATION

SCALE IN FEET

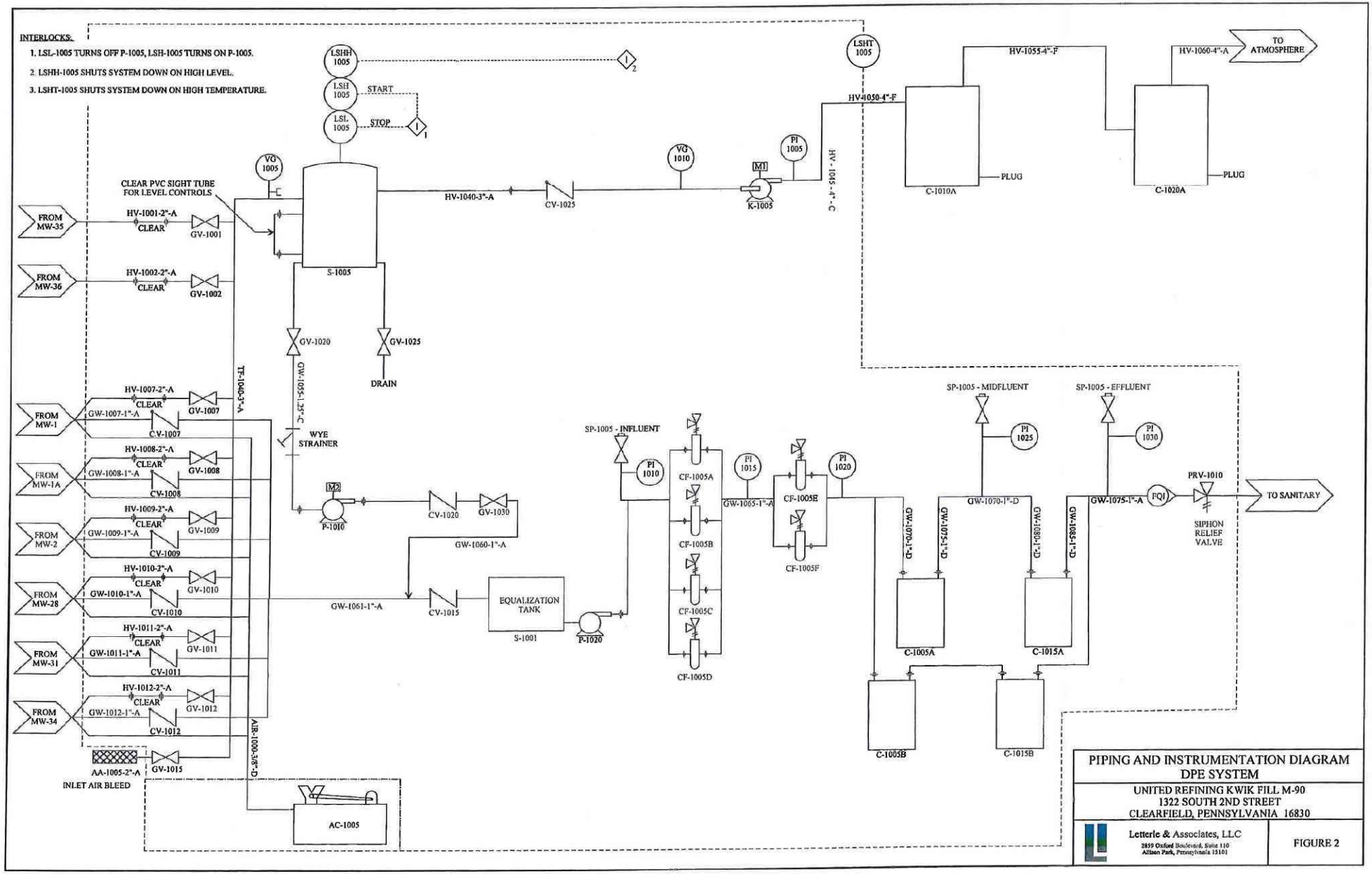
0 60

AS-BUILT TRENCHING DIAGRAM

UNITED REFINING KWIK FILL M-90
1322 SOUTH 2ND STREET
CLEARFIELD, PENNSYLVANIA 16830

Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

FIGURE 1

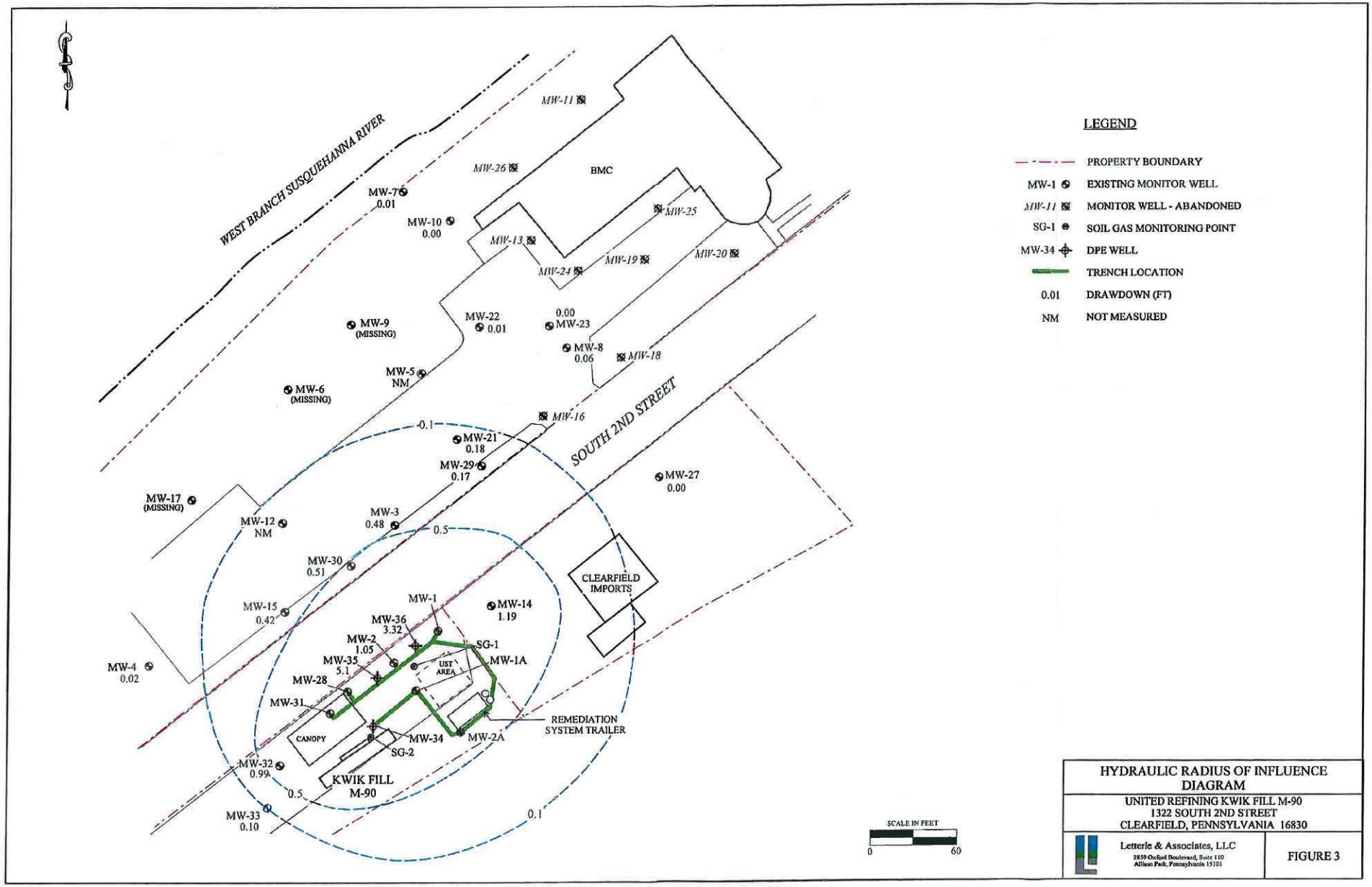


PIPING AND INSTRUMENTATION DIAGRAM
DPE SYSTEM

UNITED REFINING KWIK FILL M-90
1322 SOUTH 2ND STREET
CLEARFIELD, PENNSYLVANIA 16830

Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

FIGURE 2



HYDRAULIC RADIUS OF INFLUENCE DIAGRAM

UNITED REFINING KWIK FILL M-90
1322 SOUTH 2ND STREET
CLEARFIELD, PENNSYLVANIA 16830

Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

FIGURE 3

CHARTS

CHART 1: DPE System Pneumatic ROI
November 20, 2012
United Refining M-90
Clearfield, Pennsylvania

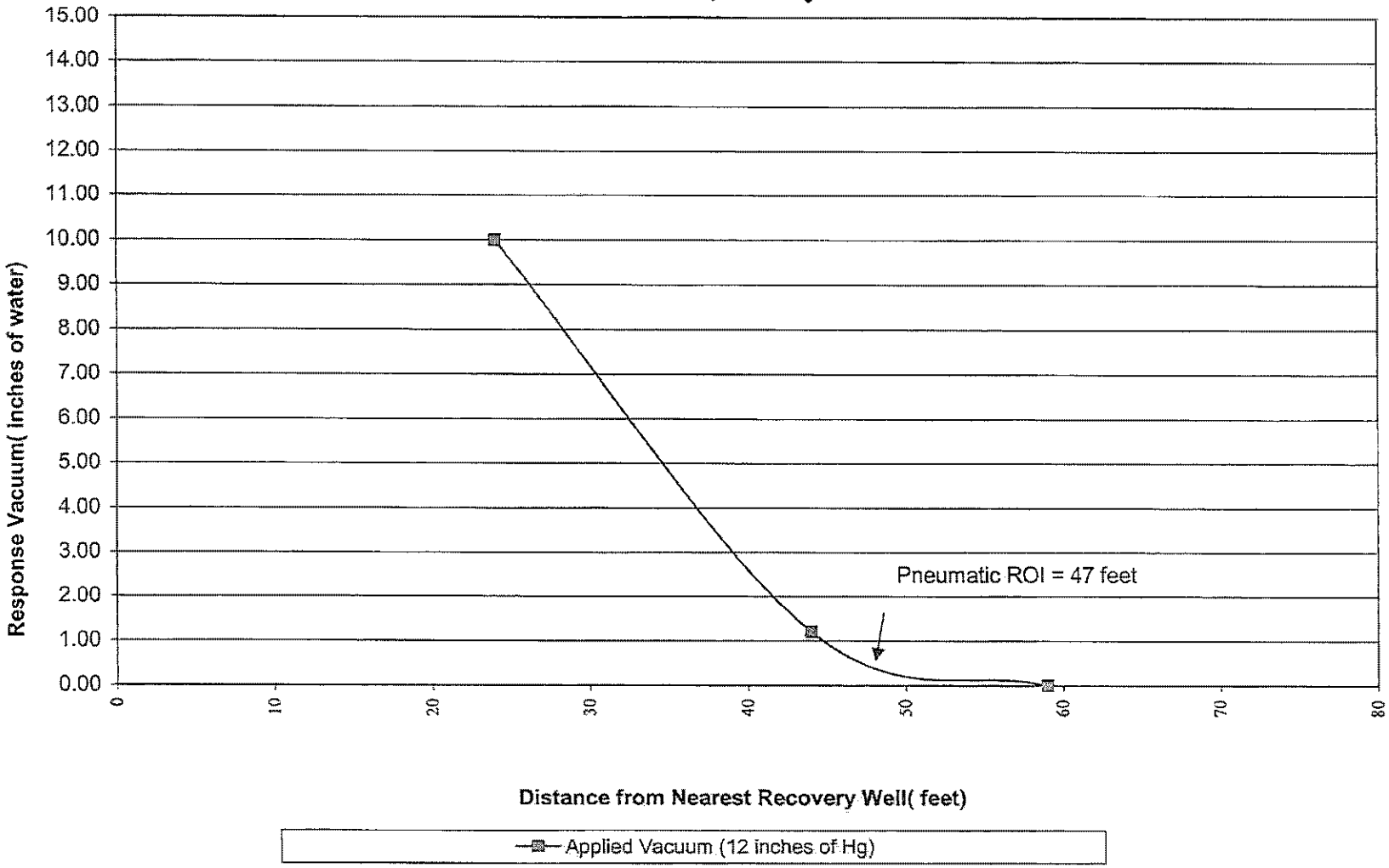
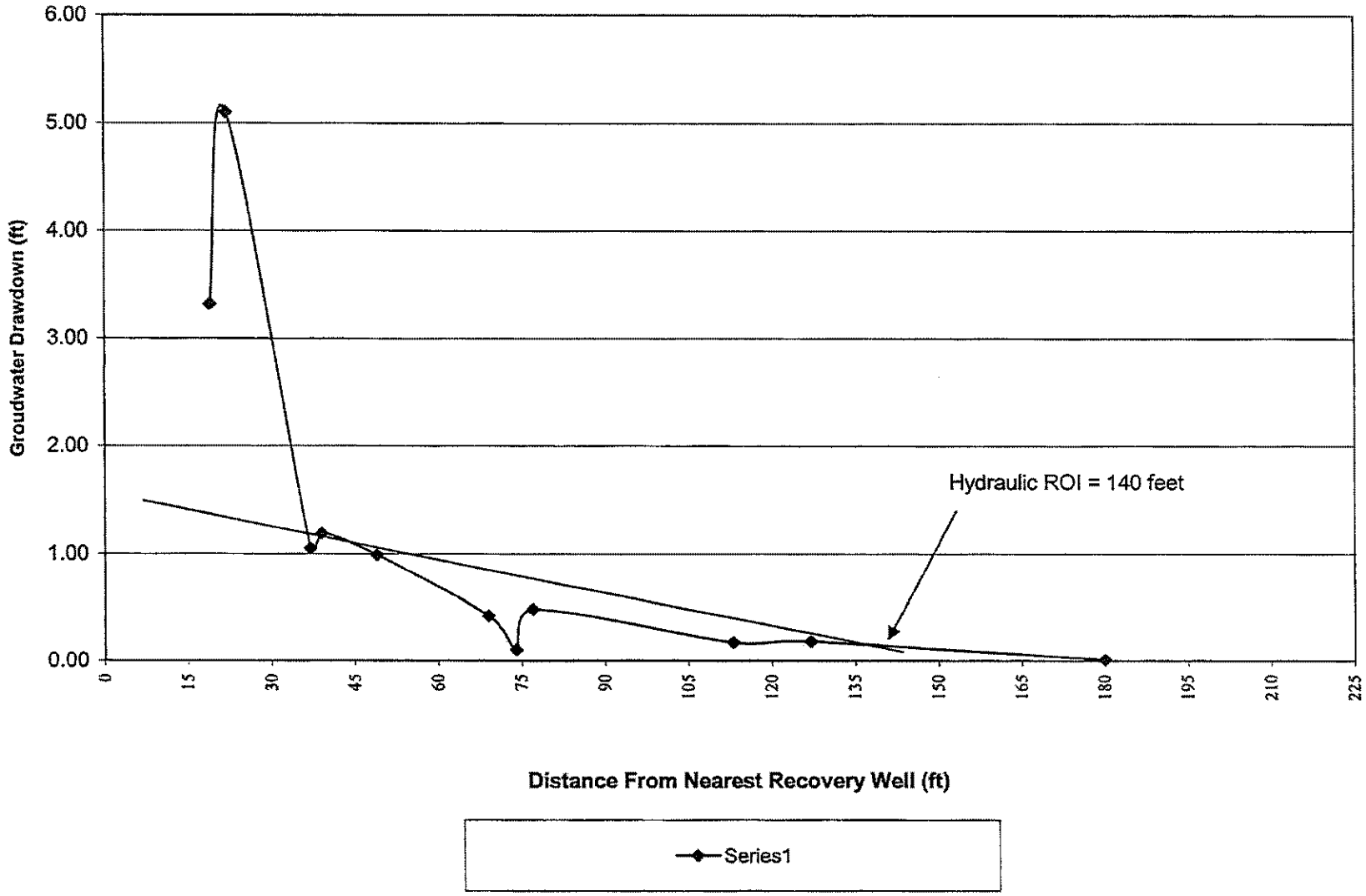


CHART 2: DPE System Hydraulic Zone of Influence
December 20, 2012
United Refining M-90
Clearfield, Pennsylvania



VAPORTECH Services, Inc.

10/17/2012

Mr. Jed Hill
Letterle and Associates, LLC
2859 Oxford Blvd, Suite 110
Allison Park, PA 15101

Dear Jed:

Enclosed are the sample data report, chain of custody record and quality control data for the sample(s) received on October 8, 2012 for your project; 277 - United Clearfield.

Please give me a call if you have questions or I can be of further assistance. Thank you for using Vaportech Services.

Sincerely,

David J. Masdea

Enclosure:

1158 Pittsburgh Road, Suite 201, Valencia, PA 16059
Ph: 724-898-2622 Fx: 724-898-2633 www.vaportechservices.com

Vaportech Service, Inc

LET38-2655

Letterle and Associates, LLC
Project: 277 - United Clearfield

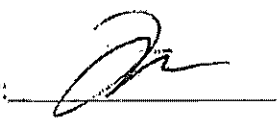
CONCENTRATIONS IN PPMV

COMPOUND	EFFLUENT	BETWEEN	INFLUENT	PQL
MTBE	ND	ND	ND	0.07
BENZENE	ND	ND	1.84	0.07
TOLUENE	ND	ND	0.66	0.07
ETHYL BENZENE	ND	ND	0.27	0.07
M&P XYLENE	ND	ND	1.29	0.07
O-XYLENE	ND	ND	0.13	0.07
CUMENE	ND	ND	ND	0.07
NAPHTHALENE	ND	ND	ND	0.07

FILE NAME	V73A.581.BND	V73A.582.BND	V73A.583.BND
DATE SAMPLED	10/04/12	10/04/12	10/04/12
DATE RECEIVED	10/08/12	10/08/12	10/08/12
DATE ANALYZED	10/11/12	10/11/12	10/11/12

PQL - denotes lower 'Practical Quantitation Limit'
ND - 'Not Detected' at or above the lower practical quantitation limit

17-Oct-12

Reviewed by: 

Vaportech Service, Inc

Letterle and Associates, LLC
Quality Control
Laboratory Project(s): 2655, 2663, 2664, 2665

CONCENTRATIONS IN PPMV

CONTINUING CALIBRATION CHECK

STANDARDS: STD 21V R4 PA-BTEX-H
FILE NAME: V73A.571.BND V73A.575.BND
DATE ANALYZED: 10/10/12 10/10/12

COMPOUND	KNOWN (PPMV)	RESULT (PPMV)	PERCENT DIFFERENCE
MTBE	50.33	48.00	4.63
BENZENE	1.25	1.26	0.64
TOLUENE	1.06	1.10	3.30
ETHYL BENZENE	0.92	0.96	4.24
M&P XYLENE	1.84	1.94	5.65
O-XYLENE	0.92	0.96	4.24
CUMENE	36.91	34.62	6.21
NAPHTHALENE	34.61	32.68	5.58

LABORATORY BLANK RESULTS

BLANK: N2 IN VIAL
FILE NAME: V73A.570.BND
DATE ANALYZED: 10/10/12

COMPOUND	BLANK (PPMV)	PRACTICAL QUANTITATION LIMIT (PPMV)
MTBE	ND	0.07
BENZENE	ND	0.07
TOLUENE	ND	0.07
ETHYL BENZENE	ND	0.07
M&P XYLENE	ND	0.07
O-XYLENE	ND	0.07
CUMENE	ND	0.07
NAPHTHALENE	ND	0.07

ND - 'Not Detected' at or above the lower practical quantitation limit

16-Oct-12

Reviewed by: 

LET 38-2655

CHAIN-OF-CUSTODY RECORD

VAPORTECH Services, Inc.

1158 Pittsburgh Road • Suite 201 • Valencia, PA 16059
Tel: 724-898-2622 • Fax: 724-898-2633

Company Name: Letterle & Associates, LLC
Address: 629 E. Rolling Ridge Drive
City: Bellefonte State: PA Zip: 16823
Proj. Manager: Jed Hill
Proj. Location: United Clearfield
Proj. Number: #277
Phone #: 814-355-2241 Fax #: 814-355-2410

Sampler's signature:

Analysis Options: Enter letters in Requested Analysis columns below.

A	Light Hydrocarbons	F	BTEX
B	Permanent Gases	G	BTEX & C5 - C10
C	Methane	H	TPH (C4 - C12 range)
D	Methane, Ethane, Ethylene	I	Chlorinated Hydrocarbons
E	Hydrogen	J	624 Compound List

Light Hydrocarbons: Methane, Ethane, Ethylene, Propane, Propylene, iso-Butane, n-Butane
Permanent Gases: Carbon Dioxide, Oxygen, Nitrogen, Methane, Carbon Monoxide
BTEX: Benzene, Toluene, Ethyl Benzene, m & p -Xylene, o-Xylene
C5-C10: Pentane, Hexane, Heptane, Octane, Nonane, Decane
Chlorinated HC: 1,1-DCE, 1,1-DCA, Methylene Chloride, trans-1,2-DCE, cis-1,2-DCE, Chloroform 1,1,1-TCA, Carbon Tetrachloride, Trichloroethylene (TCE), Tetrachloroethylene (PCE)

Collection Date	Collection Time	Number of Containers	Sample Type	Sample Identification	Requested Analysis	(Other)	Remarks
10/4/12		3	Air	Influent	F	Cumene, MTBE, and Naphthalene	
↓		↓	↓	Between	F	↓ ↓	↓
↓		↓	↓	Effluent	F	↓ ↓	↓

Results to : ~~Ted Rapp~~ Ken Dudash

Invoice to :

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
	Letterle & Assoc.	10-5-12	1100		Vaportech	10/8/12	930
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Laboratory to return. YELLOW COPY : Laboratory PINK COPY : Submitter

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
INFLUENT	2J11059-01	Water	Grab	10/04/12 11:00	10/11/12 13:45
BETWEEN	2J11059-02	Water	Grab	10/04/12 11:05	10/11/12 13:45
EFFLUENT	2J11059-03	Water	Grab	10/04/12 11:10	10/11/12 13:45

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: INFLUENT **Date/Time Sampled:** 10/04/12 11:00

Laboratory Sample ID: 2J11059-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Toluene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Ethylbenzene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Xylenes (total)	<4.00		4.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Isopropylbenzene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Methyl tert-butyl ether	20.1		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Naphthalene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	VC
Surrogate: 4-Bromofluorobenzene		*110 %*	*70-130*		*10/15/12 22:29*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*70-130*		*10/15/12 22:29*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*77.7 %*	*70-130*		*10/15/12 22:29*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: BETWEEN **Date/Time Sampled:** 10/04/12 11:05

Laboratory Sample ID: 2J11059-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	VH
Naphthalene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*109 %*	*70-130*		*10/17/12 17:38*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*70-130*		*10/17/12 17:38*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*77.7 %*	*70-130*		*10/17/12 17:38*	*EPA 8260B*	mlf	

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: EFFLUENT **Date/Time Sampled:** 10/04/12 11:10

Laboratory Sample ID: 2J11059-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	VH
Naphthalene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*107 %*	*70-130*		*10/17/12 18:16*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*70-130*		*10/17/12 18:16*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*76.9 %*	*70-130*		*10/17/12 18:16*	*EPA 8260B*	mlf	
Conventional Chemistry Parameters by SM/EPA Methods								
Oil & Grease	<6.30		6.30	mg/l	10/23/12 10:39	EPA 1664A	cdb	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Notes

VC	Check standard was outside the QC range. Data accepted based on acceptable LCS.
VH	LCS value was outside the QC range. Data accepted based on acceptable check standard.

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

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2J1105901
COC #

Page 1 of 1

Client Name: Letterle Associates
Address: 629 E. Rolling Ridge Drive
Bellefonte, PA 16823
Contact: Jed Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: United Clearfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

	Sample Description/Location	GRAB	Composite	Composite Start Date	Composite Start Time	GRAB -or- Composite End Date	GRAB -or- Composite End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas	Analyses Requested: Oil & Grease	Bottle Type/Comments
1	Influent	X				10-4-12	1100		X		2	X		
2	Between	X				↓	1105		X		2	X		
3	Effluent	X				↓	1110		X		3	X	X	

	Date	Time		Date	Time
Sampled by:	10-4-12	1500	Received by: MD	10-11	0910
Relinquished by: MD	10-11	1250	Received by: Ky Hebe	10/11	1250
Relinquished by: RH	10/11	15:45	Received by:		
Relinquished by:			Received by: MS	10/11/12	1345

Remarks

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Chain of Custody Receiving Document

Receiver: YS Page ___ of ___

Date/Time of this check: 10/11/12 14:03 Sample Temperature: 2.2 Client: Letterle Assoc. Lab # 2J1105902

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 2.2 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCL	Other ☐ *	Properly Preserved ☐ *	Bacti	
1							2		NA		
2							2		NA		
3				1			2		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	Date:	No Response; Proceed and qualified ( )
		Client Contact: Date:

* Comments: _____

Chain of Custody Receiving Document

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
INFLUENT	2K08082-01	Water	Grab	11/07/12 09:40	11/08/12 13:30
BETWEEN	2K08082-02	Water	Grab	11/07/12 09:45	11/08/12 13:30
EFFLUENT	2K08082-03	Water	Grab	11/07/12 09:50	11/08/12 13:30

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: INFLUENT **Date/Time Sampled:** 11/07/12 09:40

Laboratory Sample ID: 2K08082-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Toluene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Ethylbenzene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Xylenes (total)	<4.00		4.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Isopropylbenzene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Methyl tert-butyl ether	17.6		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Naphthalene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*70-130*		*11/09/12 07:08*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*70-130*		*11/09/12 07:08*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*96.1 %*	*70-130*		*11/09/12 07:08*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: BETWEEN **Date/Time Sampled:** 11/07/12 09:45

Laboratory Sample ID: 2K08082-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*91.1 %*	*70-130*		*11/09/12 08:57*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*70-130*		*11/09/12 08:57*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*106 %*	*70-130*		*11/09/12 08:57*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: EFFLUENT **Date/Time Sampled:** 11/07/12 09:50

Laboratory Sample ID: 2K08082-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*90.3 %*	*70-130*		*11/09/12 09:35*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*70-130*		*11/09/12 09:35*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*102 %*	*70-130*		*11/09/12 09:35*	*EPA 8260B*	mlf	
Conventional Chemistry Parameters by SM/EPA Methods								
Oil & Grease	<6.30		6.30	mg/l	11/19/12 16:00	EPA 1664A	rhb	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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2K08082-01
COC #

Page 1 of 1

Client Name: Letterlup Associates
Address: 629 E. Rolling Ridge Drive
Bellefonte, PA 16823
Contact: Jed Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: United Clearfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: __/__/__

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas	Analyses Requested: Oil & Grease	Bottle Type/Comments
Influent	X				11-7-12	0940		X		2	X		
Midfluent	X				↓	0945		X		2	X		
Effluent	X				↓	0950		X		3	X	X	

	Date	Time		Date	Time
Sampled by: Tyler Dahl	11-7-12	1220	Received by: Ky Hoke	11-8-12	8:15
Relinquished by: Ky Hoke	11-8-12	1230	Received by: fld	11-8-12	1230
Relinquished by: fld	11-8-12	1330	Received by:		
Relinquished by:			Received by: CB	11/8	13:30

Remarks

#38

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Chain of Custody Receiving Document

Receiver: CB Page ___ of ___

Date/Time of this check: 11/8 14:12 Sample Temperature: 1 Client: Lenexa Lab # 240808Z-CL

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 1 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
INF							2HCl		N/A		
MID							↓		N/A		
EFF				1			↓		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
☹ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
☹ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
☹ Wrong Container ( )		Provided Information ( )
☹ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
INFLUENT	2L04066-01	Water	Grab	12/03/12 15:25	12/04/12 14:30
BETWEEN	2L04066-02	Water	Grab	12/03/12 15:27	12/04/12 14:30
EFFLUENT	2L04066-03	Water	Grab	12/03/12 15:30	12/04/12 14:30

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: INFLUENT **Date/Time Sampled:** 12/03/12 15:25

Laboratory Sample ID: 2L04066-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Toluene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Ethylbenzene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Xylenes (total)	<4.00		4.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Isopropylbenzene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Methyl tert-butyl ether	12.5		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Naphthalene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	VC
Surrogate: 4-Bromofluorobenzene		*92.4 %*	*70-130*		*12/11/12 02:49*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*70-130*		*12/11/12 02:49*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*106 %*	*70-130*		*12/11/12 02:49*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: BETWEEN **Date/Time Sampled:** 12/03/12 15:27

Laboratory Sample ID: 2L04066-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	QB, VC
Toluene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Methyl tert-butyl ether	1.85		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*86.8 %*	*70-130*		*12/06/12 11:55*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*173 %*	*70-130*		*12/06/12 11:55*	*EPA 8260B*	mlf	QF
Surrogate: Fluorobenzene		*140 %*	*70-130*		*12/06/12 11:55*	*EPA 8260B*	mlf	QF

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: EFFLUENT **Date/Time Sampled:** 12/03/12 15:30

Laboratory Sample ID: 2L04066-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*88.8 %*	*70-130*		*12/06/12 14:46*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*169 %*	*70-130*		*12/06/12 14:46*	*EPA 8260B*	mlf	QF
Surrogate: Fluorobenzene		*144 %*	*70-130*		*12/06/12 14:46*	*EPA 8260B*	mlf	QF
Conventional Chemistry Parameters by SM/EPA Methods								
Oil & Grease	<6.30		6.30	mg/l	12/13/12 14:15	EPA 1664A	cdb	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Notes

QB	The spike recovery was outside acceptance limits for the MS and/or MSD due to sample matrix interferences. The batch was accepted based on acceptable CCV recovery.
QF	Surrogate recovery out of range due to possible matrix interference.
VC	Check standard was outside the QC range. Data accepted based on acceptable LCS.

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

2L04066-A
COC #

Page 1 of 1

Client Name: Letterle & Associates
Address: 629 E. Rolling Ridge Dr
Bellefonte, PA 16823
Contact: Jed Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: United Churchfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas	Analyses Requested: Oil & Grease	Bottle Type/Comments
1 Influent	X				12-3-12	1525		X		2	X		
2 Midfluent	X				↓	1527		X		2	X		
3 Effluent	X				↓	1530		X		3	X	X	

	Date	Time		Date	Time
Sampled by:	12-3-12	1715	Received by:	12-4-12	1145
Relinquished by:	12-4-12	1205	Received by:	12/4/12	1305
Relinquished by:	12/4/12	1445	Received by:	12/4	1445
Relinquished by:	Date	Time	Received by:	Date	Time

Remarks
14:30

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

#662

Chain of Custody Receiving Document

Receiver: AC Page ___ of ___

Date/Time of this check: 12/4/12 14:46 Sample Temperature: 0.4 Client: Letterle & Assoc Lab # 2104066-02

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 0.4 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐ *	Properly Preserved ☐ *	Bacti	
1				1			2		Y		
2							2				
3							2		N/A		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

Chain of Custody Receiving Document

This is a date sensitive document and may not be current after November 26, 2012.

GH

REMEDIAL ACTION PROGRESS REPORT
3rd Quarter 2012

PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
Kwik Fill #M-90
1322 South 2nd Street
Clearfield, Lawrence Township,
Clearfield County, PA 16830

Prepared for:

United Refining Company of Pennsylvania
15 Bradley Street
P.O. Box 688
Warren, PA 16365

Prepared by:

Letterle & Associates, LLC
629 East Rolling Ridge Drive
Bellefonte, Pennsylvania 16823

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL
STEVEN JAMES TRESCHOW
GEOLOGIST
PG-004505

Jed Hill
Project Manager

Steven James Treschow, P.G.
Professional Geologist

October 2012

"By affixing my seal to this document, I am certifying that the information is true and correct to the best of my knowledge. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information."

Steven James Treschow, P.G. (signed and sealed this day (October 15, 2012))

TABLE OF CONTENTS

GENERAL INFORMATION

Client Contact:	Scott Wonsettler, P.G.
Letterle Project Manager:	Jed Hill
Regulatory Contact:	Scott Ferguson, P.G.
PADEP Facility ID #:	17-14821
PAUSTIF Claim #:	2008-0034 (M)
Number of Wells:	14 monitoring wells (on-site wells MW-2A, MW-32, and MW-33 and off-site monitoring wells MW-3, MW-4, MW-7, MW-9, MW-10, MW-14, MW-15, MW-17, MW-21, MW-29, and MW-30).
Wells Containing LNAPL:	0

SITE HISTORY

Letterle & Associates, LLC (Letterle) of Bellefonte, Pennsylvania (PA) is pleased to present this Remedial Action Progress Report (RAPR) for United Refining Company (United) of PA Kwik-Fill #M-90 (site), located in Lawrence Township, Clearfield, PA, for the period of July 1, 2012 through September 30, 2012. **Figure 1** depicts the site location and surrounding area.

The site is currently an active retail fueling (gasoline and diesel) station, which has two, 10,000-gallon and one, 8,000-gallon steel underground storage tanks (USTs). The two 10,000-gallon USTs were in installed in 1969 and the 8,000-gallon UST was installed in 1974. One 10,000-gallon UST and one 8,000-gallon contain unleaded gasoline and the remaining 10,000-gallon UST (in the middle) contains diesel fuel.

On June 15, 1995, the 10,000-gallon unleaded gasoline UST (#002) failed a tightness test. The PA Department of Environmental Protection (PADEP) was notified of the failure and subsequently, Mountain Research, Inc. (MRI) was retained by United in May 1996 to perform site characterization activities.

From June 1996 through October 1997, four soil boring/monitoring wells, MW-1, MW-1A, MW-2, and MW-2A, were installed on the site and five monitoring wells, MW-3 through MW-7, were installed off-site, on the Beckwith Machinery Company (Beckwith) property. Quarterly groundwater sampling began in February 1996. Groundwater analytical results for the monitoring wells indicated unleaded gasoline constituents at concentrations above their respective Medium-Specific Concentration (MSC) values. In June 1997, soil/groundwater samples were collected on-site and in the right-of-way of South 2nd Street. The results of the investigation indicated several soil/groundwater samples contained unleaded gasoline constituents at concentrations above their respective MSC values.

MRI prepared a Remedial Action Plan (RAP) in July 1999 proposing a Matrix Trailer Mounted Oxygen Injection System. The PADEP approved the RAP in January 2000. In February 2000, system installation was initiated. The system consisted of eight oxygen injection points and a small trailer to house any ancillary equipment. On April 12, 2000, the system was activated. The system was operational from April 12, 2000 until the first quarter of 2005. From February 1996 through first quarter of 2005, MRI performed quarterly groundwater sampling from the monitoring well network.

From early 2005 through mid-2006, additional site investigations were initiated at the site to re-evaluate the remedial approach. In October 2006, a Supplemental Site Characterization Report (SCR) and RAP

Addendum was submitted to the PADEP. The Supplemental SCR/RAP Addendum identified two separate source areas, one on-site and one off-site at the BMC property. The on-site source area (Source Area #1) was found to have impacted groundwater beneath the site and downgradient on the former BMC property. Impacted groundwater from Source Area #2 was found to be related to an off-site release and not associated with the Kwik Fill M-90 facility. The Supplemental SCR/RAP Addendum strategy included remediating groundwater via an air sparge/soil vapor extraction (AS/SVE) system. An additional RAP Addendum was submitted in December 2006. The PADEP approved the Supplemental SCR/RAP Addendum and additional RAP Addendum in January 2007, with modifications. An AS/SVE system was installed at the site and operated from November 2007 through the fourth quarter of 2008.

A second release of unleaded gasoline occurred at the site, and was reported in February 2008. Additional site characterization activities were initiated and an Additional SCR and RAP Addendum was submitted in June 2011. The June 2011 Additional SCR/RAP Addendum included the selection of a dual phase extraction (DPE)/SVE system to address on-site soil and groundwater and enhanced in-situ bioremediation (EB) to address off-site groundwater. The June RAP Addendum was approved by the PADEP in July 2011.

REMEDIAL ACTION PLAN IMPLEMENTATION

The PA Underground Storage Tank Indemnification Fund (PAUSTIF) and their administrator, ICF International (ICFI), put the site remedial work out for competitive bid. The proposed scope of work was based upon the July 2011 approved RAP. Letterlc was awarded the bid in March of 2012 and began implementation of the approved RAP.

Off-Site Well Abandonment

Nine off-site monitoring wells (MW-11, MW-13, MW-16, MW-18, MW-19, MW-20, MW-24, MW-25, and MW-26) were abandoned in accordance with PA well abandonment requirements and the PADEP Groundwater Monitoring Guidance Manual (December 2001). The wells were located to the north of the site and South 2nd Street on the former BMC property. Well abandonment and site restoration activities were coordinated with both United and Arch Street Management (the management firm for the BMC property) to ensure minimal disruption to routine business activities. Well abandonment activities took place on May 7th and 8th, 2012.

Prior to abandonment, the wells were evaluated to determine their condition; the details of construction and whether or not any obstructions existed that would interfere with the filling and sealing (in accordance with ACT 610, the Water Well Drillers License Act). No obstructions were identified in any of the wells. The wells were decommissioned by removing the manhole/concrete pad, inserting a steel tremie pipe into the well casing until touching the bottom of the well, and then pumping a portland cement-bentonite grout mixture into the well until the grout was within approximately one foot below ground surface.

Following the well abandonment activities, the ground surface at each location was restored to its original condition. Site restoration included concrete/asphalt patching, soil patching, and planting new grass, where appropriate. The site restoration work was completed on June 25th through 27th, 2012.

Site photographs of the completed wells and well abandonment forms are included in **Appendix A**.

Dual-Phase Extraction Well Installation

On May 21, 2012, three new DPE wells were installed at the site (MW-34, MW-35, and MW-36). Approximately one week prior to the drilling event, a PA One Call was placed to notify area utility companies that subsurface work will be taking place at the site. Additionally, Letterle subcontracted Enviroprobe Services, Inc. (Enviroprobe) to utilize ground penetrating radar, electromagnetics, and a line locator to verify the utility locations marked out by local utility companies and to locate potentially unknown structures in the subsurface.

Borings for the wells were advanced to intercept the first encountered water-bearing zone and to auger refusal (18 feet below ground surface (ft-bgs)). Each well was constructed with 13 feet of 4-inch diameter poly vinyl chloride (PVC) with 0.020-inch slot screen. Each well was constructed with 5 feet of solid 4-inch PVC riser. The monitoring well screen and riser were installed through the augers to ensure he screen does not contact the overburden material. The augers were raised incrementally as the filter pack sand was placed in the well annulus. A minimum of one foot of sand was maintained in the augers so the screen did not contact the formation and to prevent borehole bridging and/or collapse and assure an even distribution of filter sand media. The evenly distributed sand pack was extended approximately two feet above the top of the well screen. A hydrated bentonite seal was placed on top of the sand pack in each monitoring well with a minimum thickness of two feet, with the remainder of the well grouted with a bentonite grout.

The monitoring wells were completed with locking expansion caps and protected with flush-mount steel manhole covers set in two-foot square concrete pads. Each monitoring well was secured with a keyed alike padlock. On June 27th, 2012, the remediation wells were developed to remove fine-grained material that may have entered the wells during construction and to ensure proper hydraulic communication with the aquifer(s). The monitoring wells were developed using a surge block to clean the well screen, and purged of fine-grain materials with a submersible pump and low-density polyethylene tubing.

Prior to development, static depth to water and total depth measurements were collected in order to calculate the well volume of water. During purging, the color and clarity of purge water were observed and noted, and groundwater field parameters were measured using an YSI Model 556 water quality meter. Groundwater field parameters measured during well development included pH, Temperature, Specific Conductance, Total Dissolved Solids (TDS), Dissolved Oxygen (DO), and Oxidation/Reduction Potential (ORP).

Each well was developed by purging groundwater until field parameters stabilized to within 10%. The volume of groundwater removed from each well during the development activities was noted, and a total depth to bottom measurement was collected after development to verify and determine sediment thickness removed from the bottom of the wells. The development water was disposed of in a manner consistent with PADEP protocols. The locations of the DPE wells are shown on the site plan (**Figure 2**).

All drill cuttings and decontamination waste were placed into 55-gallon DOT-approved and appropriately-labeled steel drums pending transportation and off-site disposal. The drummed waste was disposed of in conjunction with the soil generated during remedial system trenching activities. The soil was transported to Clean Earth of Hagerstown, Maryland (MD).

Well logs for MW-34, MW-35, and MW-36 are included in **Appendix B**.

Remedial System Trenching/Piping

A subsurface piping network was installed which connects existing extraction wells MW-1, MW-1A, MW-2, MW-28, MW-31 and newly installed DPE wells MW-34 through MW-36 to the remedial system. Prior to trenching for the remedial lines, the asphalt/concrete was sawcut. The surface covering was then removed to facilitate excavation of the trenches.

Trench dimensions were 36-inches deep and 16-inches to 24-inches wide. The wider trench was necessary near the remedial system as numerous lines converged in one location. The subsurface piping was installed such that each extraction well will have a dedicated 2-inch PVC airline conduit, a 2-inch PVC groundwater extraction conduit, and 2-inch PVC SVE piping. The lines were installed in a bed of pea gravel and placed such that lines were a minimum of four inches from the trench bottom or sidewalls and lines were placed a minimum of two inches apart. At the time of trenching, existing wells MW-1, MW-1A, MW-2, MW-28, and MW-31 were retrofitted as recovery wells. After piping installation, the trenches were filled to the ground surface with gravel overlain by a minimum of 4 inches of pea gravel followed by compacted crushed stone, and asphalt/concrete restored to existing conditions. The remedial system trenching/piping activities were completed on May 29th through June 6th, 2012.

All materials removed during trenching activities were temporarily staged on site pending transportation and off-site disposal. Letterle obtained pre-approval from the disposal facility so that on-site staging time was minimal. The soil was transported to Clean Earth of Hagerstown, MD.

Remedial System

The remedial system trailer was constructed and mobbed to the site during the third quarter of 2012. The principal DPE system components housed within the trailer include:

- One claw pump;
- One air compressor;
- One air/water separator (AWS) tank;
- One equalization tank;
- Two transfer pumps and level controls;
- Six pneumatic groundwater pumps;
- Four 300-pound liquid-phase granular activated carbon (GAC) vessels (high pressure units);
- Two 600-pound vapor-phase GAC vessels; and,
- Control panel for the claw pump, air compressor, and the transfer pumps (including all system interlocks).

The trailer is located along the southern property boundary. The dimensions of the trailer are approximately 8 feet in width, 20 feet in length, and 8 feet tall. The trailer includes wall and roof insulation and has adjustable wall louvers close to the floor, each complete with an exterior mounted mesh screen. Each louver contains an explosion-proof (XP) fan to circulate outside air into it. The fan is controlled both thermostatically and by a manual wall switch located near the side door. The trailer contains an XP radiant heater unit with adjustable thermostat to prevent freeze damage during the winter. The heater/thermostat is capable of maintaining a minimum ambient air temperature of 50 °F within the enclosure regardless of outside temperatures.

The trailer has a double door large enough to remove any piece of equipment housed within the trailer. The trailer includes a sump built into the floor equipped with a high level alarm switch that will terminate system operation if activated. The influent and effluent PVC pipes stubbed out of the ground by the installation contractor are inside 18-inch well vaults and are connected in the trailer with a pressure connection. The trailer includes an outside wall electrical receptacle, a lightning rod, and grounding. The trailer contains a mounted 20-pound fire extinguisher within three feet of the door.

A fenced area adjacent to the remediation trailer will be constructed to accommodate the vapor phase treatment equipment and associated control panels. The fenced area will be approximately 8 feet by 14 feet in size and consist of a 6-foot high privacy fence with one access gate.

The remediation system will commence operation during the fourth quarter of 2012. The recovered groundwater will be treated and discharged to the sanitary sewer under an issued permit from the Clearfield Municipal Authority (CMA).

Enhanced Bioremediation (EB) Feasibility/Treatability Study

On August 9, 2012, an enhanced EB feasibility/treatability study was conducted at the site using off-site wells MW-21 and MW-29, and included injecting Oxygen Release Compound (ORC) Advanced into the subsurface. An aqueous solution (6 gallons of water per pound of ORC) containing 25-pounds of ORC was introduced into the subsurface through well MW-29 via tremie pipe. To evaluate the injection response and influenced subsurface oxygen levels, the injection was performed on MW-29 while monitoring MW-21. Groundwater quality parameters (pH, Temperature, Specific Conductance, TDS, DO, and ORP) were collected continuously during the injection pilot test at MW-21 utilizing an YSI Model 556 flow-through cell and water quality meter (low-flow sampling techniques). Insignificant response was observed in MW-21 during the pilot test; however, elevated DO levels in MW-29 were observed during the September 6, 2012 (third quarter of 2012) groundwater monitoring/sampling event.

In order to comply with the United States Environmental Protection Agency (USEPA) Underground Injection Control (UIC) Program, Letterle requested "rule authorization" from the USEPA to inject ORC into the subsurface via injection wells. The USEPA issued a "rule authorization" (approval) dated February 28, 2012.

QUARTERLY SITE ACTIVITIES COMPLETED – 3RD QUARTER 2012

Groundwater Monitoring

Groundwater Gauging

Letterle completed a quarterly groundwater gauging and sampling event on September 6, 2012. A total of 12 monitoring wells were sampled: on-site wells MW-2A, MW-32, and MW-33 and off-site monitoring wells MW-3, MW-4, MW-7, MW-10, MW-14, MW-15, MW-21, MW-29, and MW-30 (MW-9 and MW-17 could not be located). Prior to well purging, the depth to groundwater in each well was measured using an electronic water level probe accurate to the nearest 0.01 foot. The groundwater gauging and elevation results are on **Table 1**.

Shallow Water-Bearing Zone

The groundwater gauging data collected during the sampling event indicated the following for the shallow water-bearing zone:

- Groundwater elevations in the shallow water-bearing zone ranged from 1,134.25 feet in MW-7 to 1,145.66 feet in MW-2A;
- The apparent groundwater flow direction in the shallow water-bearing zone is towards the north (towards the West Branch Susquehanna River) (**Figure 3**);
- Based on the groundwater elevation data for on-site monitor wells MW-7 (1,134.25 feet) and MW-2A (1,145.66 feet), the horizontal hydraulic gradient was approximately 0.030 feet per foot (ft/ft); and,
- The groundwater elevation observed in MW-10 is considered anomalous and was not used in groundwater contouring.

Groundwater Sampling

Sampling Methodology

Quarterly groundwater sampling at the site was completed on September 6, 2012. Monitoring wells MW-2A, MW-3, MW-4, MW-7, MW-10, MW-14, MW-15, MW-21, MW-29, MW-30, MW-32, and MW-33 (MW-9 and MW-17 could not be located) were purged and sampled using low flow techniques. The following field screening parameters were collected from the sampled monitor wells via an YSI Model 556 flow-through cell and water quality meter: pH, Temperature, Specific Conductance, TDS, DO, and ORP.

The groundwater samples were submitted for analysis of PADEP pre-March 2008 short list of unleaded gasoline constituents via USEPA Method 8260B. The laboratory analyses included the following constituents: benzene, toluene, ethylbenzene, xylene(s) total, methyl tert-butyl ether (MTBE), cumene (isopropylbenzene), and naphthalene.

Sampling Results

Within the shallow water-bearing zone, analytical results from the groundwater sampling program conducted on September 6, 2012 indicated the following exceedances of the PADEP Used-Aquifer TDS $\leq$ 2,500 milligrams per liter (mg/L)) Residential Statewide Health Standard (UARSHS) MSCs.:

- MTBE in wells MW-3, MW-21, and MW-29

Table 1 summarizes the groundwater analytical results. The complete analytical laboratory reports are included in **Appendix C.**

An isoconcentration contour map (**Figure 4**) was prepared for MTBE which graphically depicts exceedances of the PADEP UARSHS MSC in shallow groundwater.

PLANNED ACTIVITY

The following activity is currently planned for the 4th Quarter of 2012:

- DPE system start-up, shakedown, and evaluation;
- Remedial system operation and maintenance (including permit-required sampling);
- Quarterly groundwater gauging and sampling; and,
- Quarterly reporting.

The targeted goals of the remedial action are the elimination of the potential exposure pathways identified during site characterization activities (i.e., inhalation via indirect contact with groundwater and ingestion and dermal contact via direct contact with surface water) and the attainment of the PADEP Statewide Health Standards (SHS) for used aquifers at a residential property with a TDS concentration of less than or equal to 2,500 mg/l as detailed in Act 2, The Land Recycling and Environmental Remediation Standards Act.

TABLE

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining, Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-1	3/17/2010	**10.9**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.26	1147.28
	6/8/2010	**11.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.57	1146.97
	8/30/2010	**18.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.78	1144.76
	11/17/2010	**13.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.40	1146.14
	3/1/2011	**6.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.78	1147.76
	5/31/2011	**13.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.75	1145.79
	8/24/2011	**12.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.12	1145.42
	3/28/2012	**14.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.12	1147.42
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-1A	3/17/2010	**7.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.57	1147.20
	6/8/2010	**6.9**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.86	1146.91
	8/30/2010	**16.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.32	1144.45
	11/17/2010	**10.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.88	1145.89
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.04	1147.73
	5/31/2011	**4.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.29	1145.48
	8/24/2011	**8.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.65	1145.12
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.55	1147.22
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-2	3/17/2010	**20.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.07	1146.91
	6/8/2010	**20.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.36	1146.62
	8/30/2010	**20.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.61	1144.37
	11/17/2010	**20.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.36	1145.62
	3/1/2011	**11.0**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.73	1147.25
	5/31/2011	**10.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.68	1145.30
	8/24/2011	**14.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.90	1145.08
	3/28/2012	**11.5**	**1.1**	<1.00	<1.00	<3.00	<1.00	<2.00	2.85	1147.13
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-2A	3/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.21	1147.66
	6/8/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.27	1147.60
	8/30/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.23	1145.64
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.25	1146.62
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.91	1147.96
	5/31/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.16	1146.71
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.52	1146.35
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.45	1148.42
	6/25/2012	**5.22**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.51	1144.36
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.21	1145.66
MW-3	3/18/2010	**43.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.43	1143.80
	6/7/2010	**44.0**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.40	1143.83
	8/31/2010	**41.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.92	1142.31
	11/17/2010	**40.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.48	1142.75
	3/2/2011	**33.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.81	1144.42
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**32.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.38	1142.85
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.40	1144.83
	6/25/2012	**21.9**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.17	1143.06
	9/6/2012	**27.5**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.17	1142.06
MW-4	3/18/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.97	1144.15
	6/7/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.17	1142.95
	8/31/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.44	1140.68
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.26	1141.86
	3/2/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.92	1144.20
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.24	1141.88
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.20	1143.92
	6/25/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.74	1142.38
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.11	1141.01

Notes: NG denotes Not Gauged. NA denotes Not Available
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Bold and shaded values exceedance of UARSHS MSCs.

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining, Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-5	3/17/2010	**5.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.16	1143.51
	6/7/2010	**4.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.53	1143.14
	8/31/2010	**3.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.18	1141.49
	11/17/2010	**2.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.80	1141.87
	3/1/2011	**1.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.43	1144.24
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**5.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.64	1142.03
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.04	1143.63
	6/25/2012	Well not part of quarterly sampling program.							2.25	1142.42
	9/6/2012	Well not part of quarterly sampling program.							NG	NA
MW-6	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/7/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/31/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/1/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located. Well not part of quarterly sampling program.								
	9/6/2012	Well could not be located. Well not part of quarterly sampling program.								
MW-7	3/18/2010	**3.6**	**59.5**	**11.5**	**44.4**	**54.7**	**25.6**	**44.5**	2.60	1139.41
	6/7/2010	**3.1**	**57.7**	**12.9**	**55.2**	**60.3**	**35.4**	**61.3**	5.77	1136.24
	8/31/2010	**6.8**	**104**	**14.4**	**47.9**	**49.2**	**29.3**	**38.7**	7.92	1134.09
	11/17/2010	**7.2**	**97.9**	**12.5**	**46.5**	**47.4**	**27.3**	**57.7**	6.85	1135.16
	3/2/2011	**4.1**	**51.9**	**8.8**	**39.3**	**27.7**	**22.4**	**20.9**	3.93	1138.08
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**7.7**	**73.8**	**10.2**	**25.8**	**28.5**	**31.3**	**40.7**	7.21	1134.80
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	7.15	1134.86
	6/25/2012	**3.84**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	7.49	1134.52
	9/6/2012	**10.6**	NS	<2.00	<2.00	<4.00	<2.00	<2.00	7.76	1134.25
MW-9	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/8/2010	**32.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.00	1141.97
	8/30/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/1/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located.								
	9/6/2012	Well could not be located.								
MW-10	3/17/2010	**8.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.64	1147.90
	6/7/2010	**8.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.78	1148.76
	8/31/2010	**8.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.08	1147.46
	11/17/2010	**7.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.50	1147.04
	3/2/2011	**7.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.14	1149.40
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**7.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.42	1148.12
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.42	1148.12
	6/25/2012	**5.01**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	1.23	1148.31
	9/6/2012	**6.16**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.10	1147.44
MW-12	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/7/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/31/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	**30.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.28	1142.28
	3/2/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well not part of quarterly sampling program.							2.83	1142.73
	9/6/2012	Well could not be located. Well not part of quarterly sampling program.							NG	NA

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Bold and shaded values exceedance of UARSHS MSCs.

Table 1
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United Refining, Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-14	3/17/2010	23.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.97	1146.75
	6/7/2010	18.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.22	1146.50
	8/31/2010	35.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.43	1144.29
	11/17/2010	21.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.40	1145.32
	3/2/2011	2.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.62	1147.10
	5/31/2011	21.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1145.28
	8/24/2011	17.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.80	1143.92
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.71	1146.01
	6/25/2012	8.80	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.59	1145.13
	9/6/2012	19.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.63	1144.09
MW-15	3/18/2010	6.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.73	1145.56
	6/7/2010	6.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.08	1145.21
	8/31/2010	7.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.88	1143.41
	11/17/2010	6.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1143.85
	3/2/2011	4.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.51	1145.78
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	6.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.27	1144.02
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.20	1145.09
	6/25/2012	6.98	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.11	1144.18
	9/6/2012	5.64	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.18	1143.11
MW-17	3/18/2010	9.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.73	1142.53
	6/7/2010	1.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.09	1143.17
	8/31/2010	13.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.78	1141.48
	11/17/2010	11.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.70	1141.56
	3/1/2011	7.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.11	1143.15
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located.								
	9/6/2012	Well could not be located.								
MW-21	3/17/2010	41.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.86	1144.60
	6/7/2010	42.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.12	1144.34
	8/30/2010	40.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.43	1143.03
	11/17/2010	35.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.22	1143.24
	3/2/2011	33.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.50	1144.96
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	37.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.05	1143.41
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.10	1144.36
	6/25/2012	21.7	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.94	1143.52
	9/6/2012	42.1	<2.00	<2.00	<2.00	<4.00	<2.00	<2.00	3.79	1142.67
MW-22	3/17/2010	5.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.79	1143.08
	6/7/2010	8.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.18	1142.69
	8/30/2010	8.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.60	1141.27
	11/17/2010	6.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.38	1141.49
	3/2/2011	6.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.42	1143.45
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	10.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.04	1141.83
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.11	1142.76
	6/25/2012	Well not part of quarterly sampling program.							2.81	1142.06
	9/6/2012	Well not part of quarterly sampling program.							3.43	1141.44
MW-23	3/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.51	1144.65
	6/7/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.03	1145.13
	8/31/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.63	1142.53
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.90	1143.26
	3/2/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.02	1145.14
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.93	1143.23
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.80	1144.36
	6/25/2012	Well not part of quarterly sampling program.							4.57	1142.59
	9/6/2012	Well not part of quarterly sampling program.							5.37	1141.79

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Bold and shaded values exceedance of UARSHS MSCs.

Table 1
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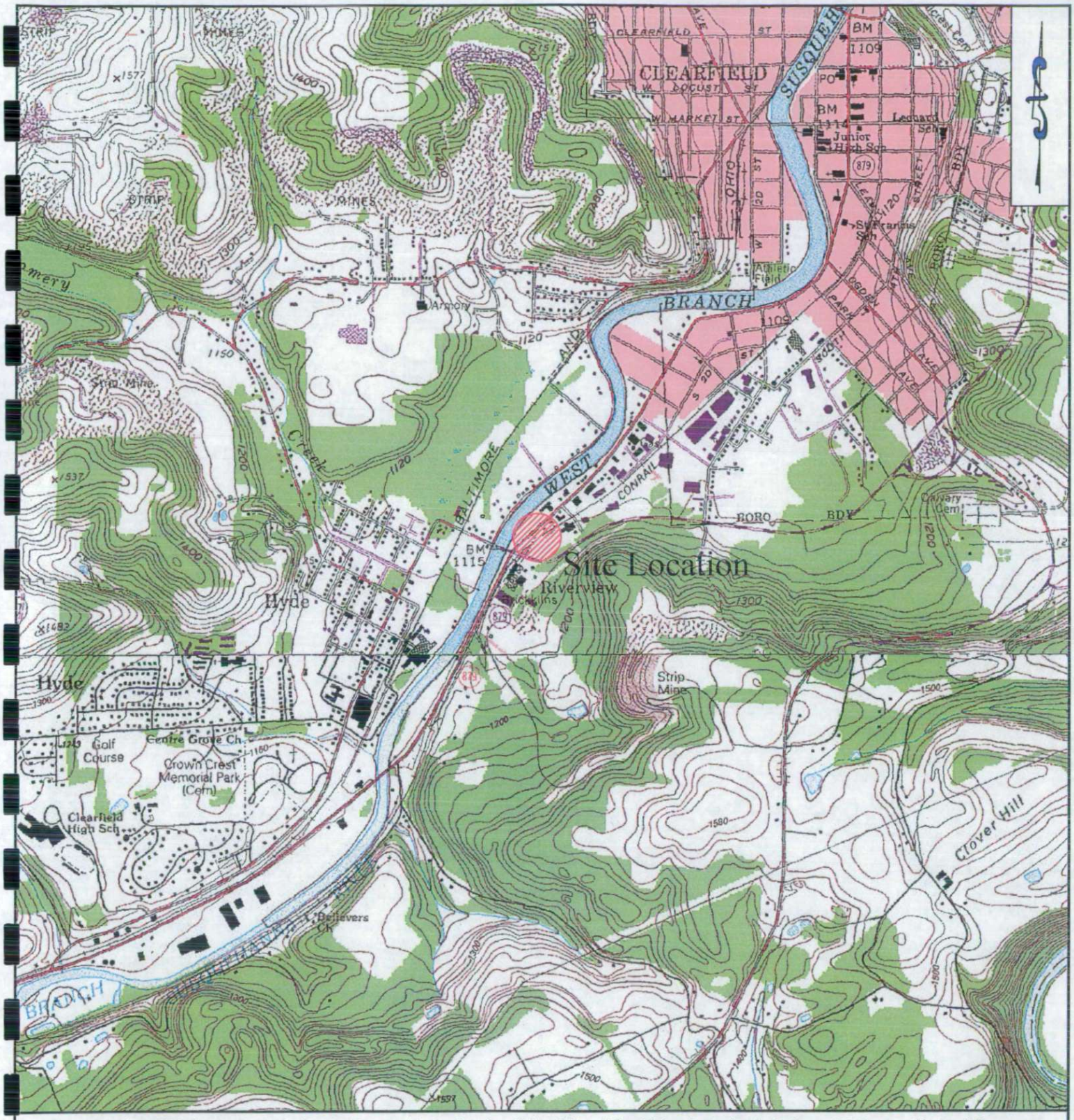
United Refining, Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-28	3/17/2010	4.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.13	1146.94
	6/8/2010	3.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1146.63
	8/30/2010	6.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.64	1144.43
	11/17/2010	4.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.46	1145.61
	3/1/2011	7.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.01	1147.06
	5/31/2011	3.4	NS	NS	NS	NS	NS	NS	4.82	NA
	8/24/2011	4.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.97	1145.10
	3/28/2012	14.6	NS	NS	NS	NS	NS	NS	2.88	1147.19
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-29	3/17/2010	35.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.61	1144.65
	6/7/2010	39.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.83	1144.43
	8/30/2010	39.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.95	1142.31
	11/17/2010	37.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.95	1143.31
	3/2/2011	9.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.23	1145.03
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	37.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.81	1143.45
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.71	1144.55
	6/25/2012	22.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.58	1143.68
	9/6/2012	25.0	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.58	1142.68
MW-30	3/18/2010	17.0	23.9	<1.00	14.5	12.2	1.9	2.5	2.23	1145.03
	6/7/2010	20.1	17.9	<1.00	12.4	10.5	1.9	<2.00	2.41	1144.85
	8/31/2010	22.7	<1.00	<1.00	3.1	<3.00	<1.00	<2.00	4.07	1143.19
	11/17/2010	25.9	<1.00	<1.00	1.8	<3.00	<1.00	<2.00	3.61	1143.65
	3/2/2011	22.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.35	1144.91
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	8.41	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.31	1143.95
	9/6/2012	10.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.30	1142.96
MW-31	3/17/2010	7.8	668	783	265	2,700	26.4	119	3.16	1147.07
	6/8/2010	6.3	336	118	119	754	10.2	61.8	3.61	1146.62
	8/30/2010	8.0	18.8	1.1	10.5	34.1	1.3	3.3	5.73	1144.50
	11/17/2010	6.7	60.5	<1.00	20.6	20.4	1.8	4.3	4.73	1145.50
	3/1/2011	4.8	9.2	1.4	3.6	4.1	<1.00	<2.00	3.48	1146.75
	5/31/2011	6.3	66.1	<1.00	20.0	22.1	2.3	2.1	4.74	1145.49
	8/24/2011	14.3	439	7.2	135	272	12	35.7	5.03	1145.20
	3/28/2012	16.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.18	1147.05
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-32	5/28/2010	4.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.22	1145.58
	6/8/2010	2.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.21	1146.59
	8/30/2010	1.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.16	1144.64
	11/17/2010	2.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.64	1145.16
	3/1/2011	2.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.94	1146.86
	5/31/2011	2.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.15	1145.65
	8/24/2011	2.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.58	1145.22
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.49	1147.31
	6/25/2012	4.51	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.51	1145.29
	9/6/2012	4.07	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.51	1144.29
MW-33	5/28/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.41	1145.72
	6/8/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.36	1146.77
	8/30/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.25	1144.88
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.96	1145.17
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.42	1146.71
	5/31/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.38	1145.75
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.72	1145.41
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.70	1147.43
	6/25/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.66	1145.47
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.70	1144.43

Notes: NG denotes Not Gauged. NA denotes Not Available
NS denotes Not Sampled.
All results reported in ug/l.
Bold values indicate levels above LRL.
Bold and shaded values exceedance of UARSHS MSCs.

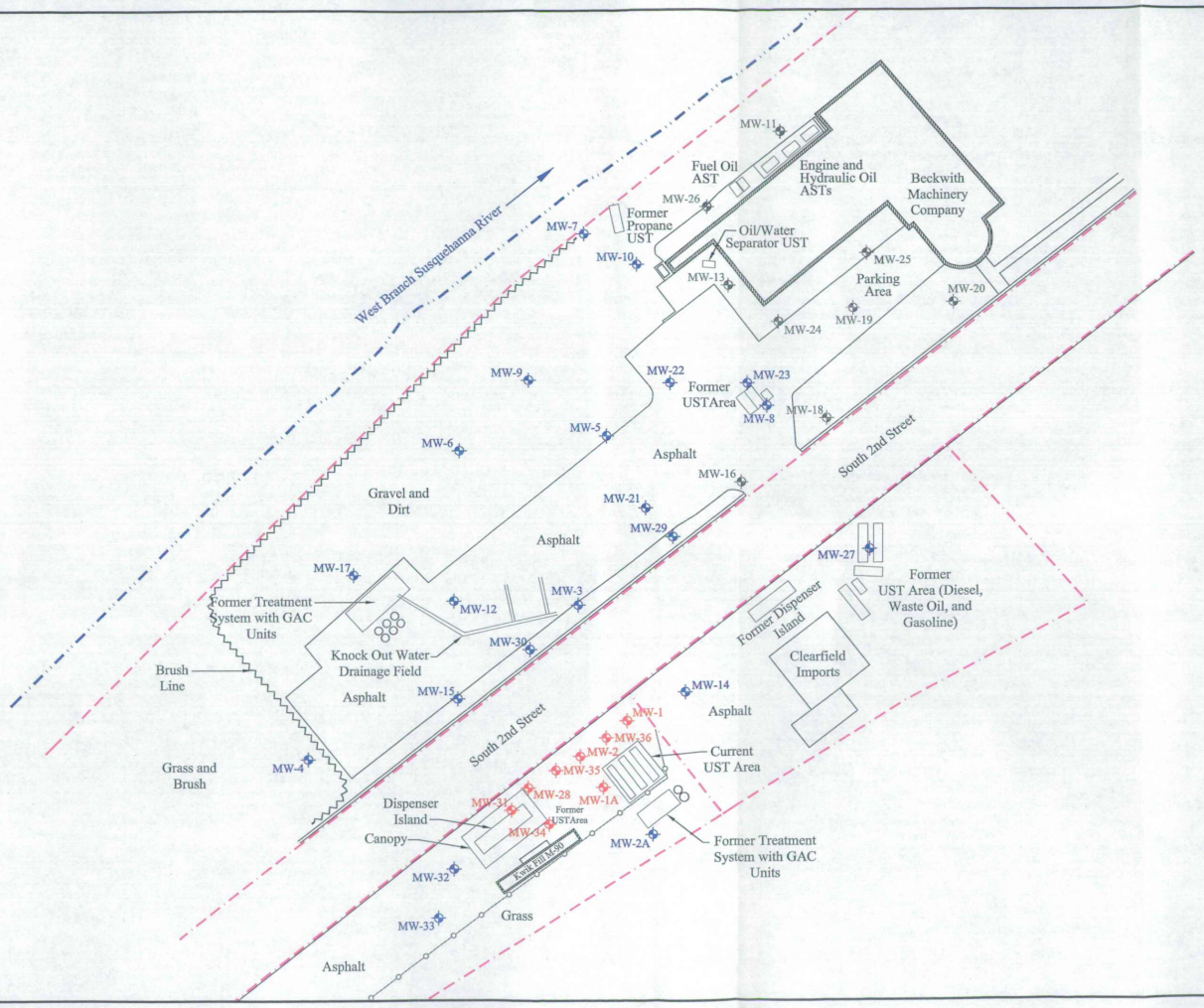
FIGURES



Reference: 7.5-minute United States Geological Survey Topographic Quadrangles of Clearfield and Glen Richey, Pennsylvania, DeLorme 3-D Topographic Quads Program.

Prepared For:	*Project Information:*	*Prepared By:*
United Refining Company, Kwik Fill M-90 1322 South 2nd Street, Lawrence Township, Clearfield County, Pennsylvania PADEP Facility ID #17-14821	Project Manager: Jed Hill Project Geologist: Steven Treschow, P.G.	Letterle & Associates, LLC 629 East Rolling Ridge Drive Bellefonte, PA 16823 P: 814-355-2241 F: 814-355-2410 www.letterleassociates.com
Title:	*Scale (feet):*	
Figure 1 Site Location Map	Scale: 1" = 2000' 0 2000 4000	

10/16/2012 10:36:34 AM



Prepared By:

Letterle & Associates, LLC

629 East Rolling Ridge Drive
Bellefonte, PA 16823
P: 814-355-2241
F: 814-355-2410
www.letterleassociates.com

Project Manager: Jed Hill
Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 2
Site Layout Map

Legend:

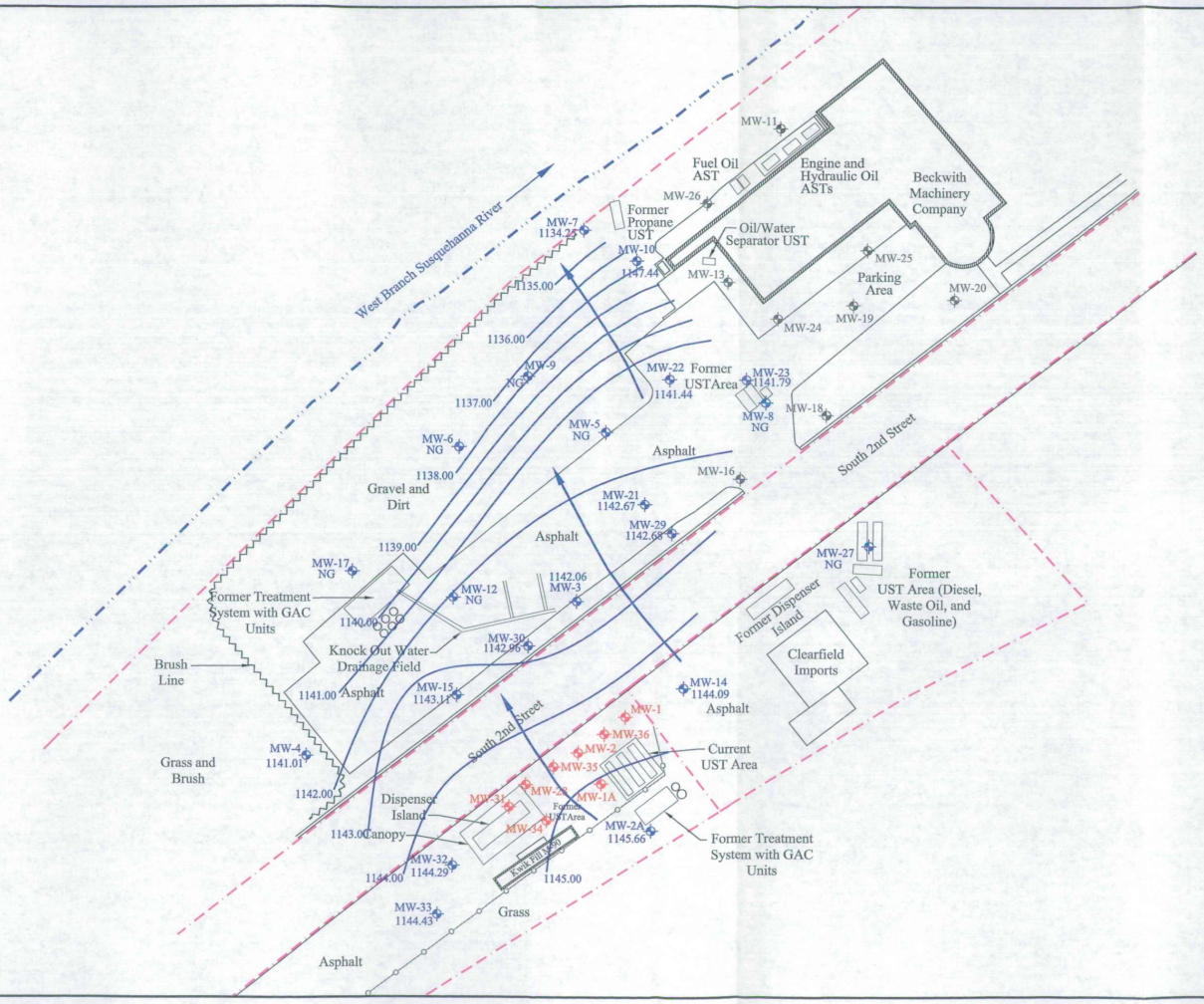
- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120

10/16/2012 10:43:35 AM



Prepared By:

Letterle & Associates, LLC

629 East Rolling Ridge Drive
Bellefonte, PA 16823
P: 814-355-2241
F: 814-355-2410
www.letterleassociates.com

Project Manager: Jed Hill
Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 3
Groundwater Potentiometric Surface Contour Map
September 6, 2012

Legend:

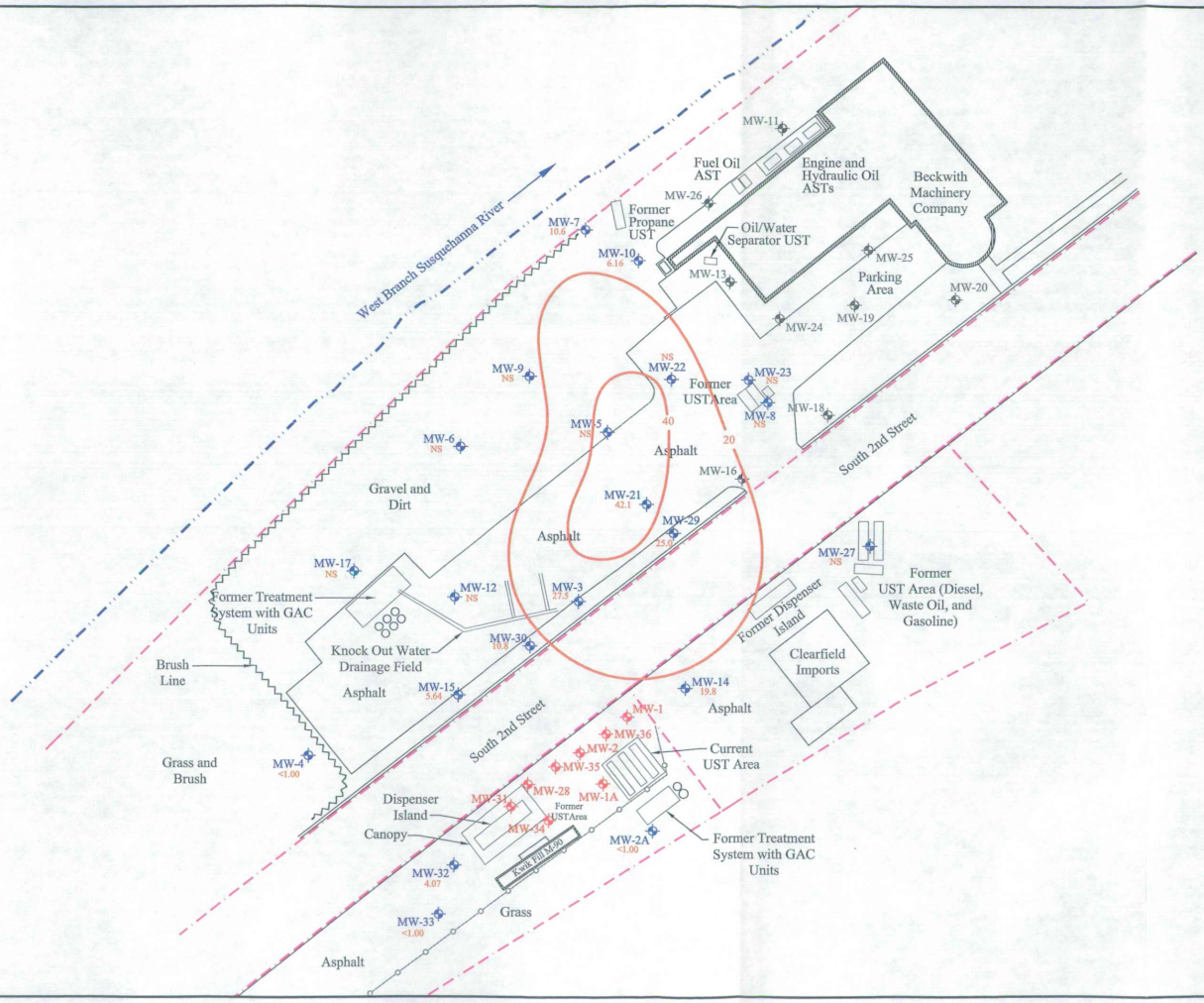
- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail
- 1145.0 Groundwater Elevation (ft)
- Groundwater Elevation Contour (dashed where inferred)
- Groundwater Flow Direction

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120

10/16/2012 10:43:38 AM



10/16/2012 10:44:38 AM

Prepared By:

Letterle & Associates, LLC

629 East Rolling Ridge Drive
Bellefonte, PA 16823
P: 814-355-2241
F: 814-355-2410
www.letterleassociates.com

Project Manager: Jed Hill
Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 4
MTBE Isoconcentration Contour Map
September 6, 2012

Legend:

- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail
- 20 MTBE Concentration (ug/L)
- MTBE Isoconcentration Contour Line

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120

APPENDICES

APPENDIX A

Site Photographs and Well Abandonment Forms

MW-11

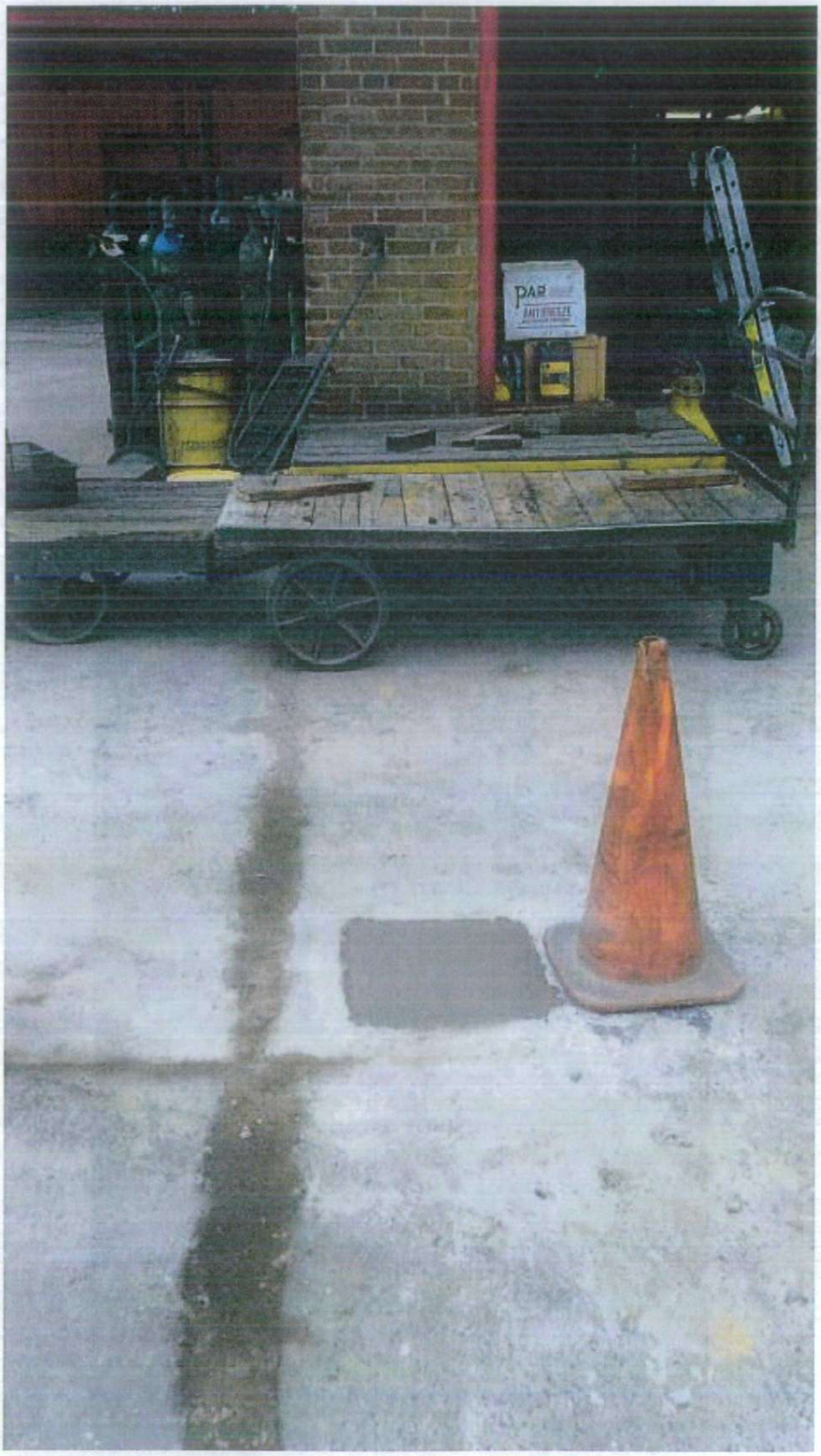
MW-13

MW-16

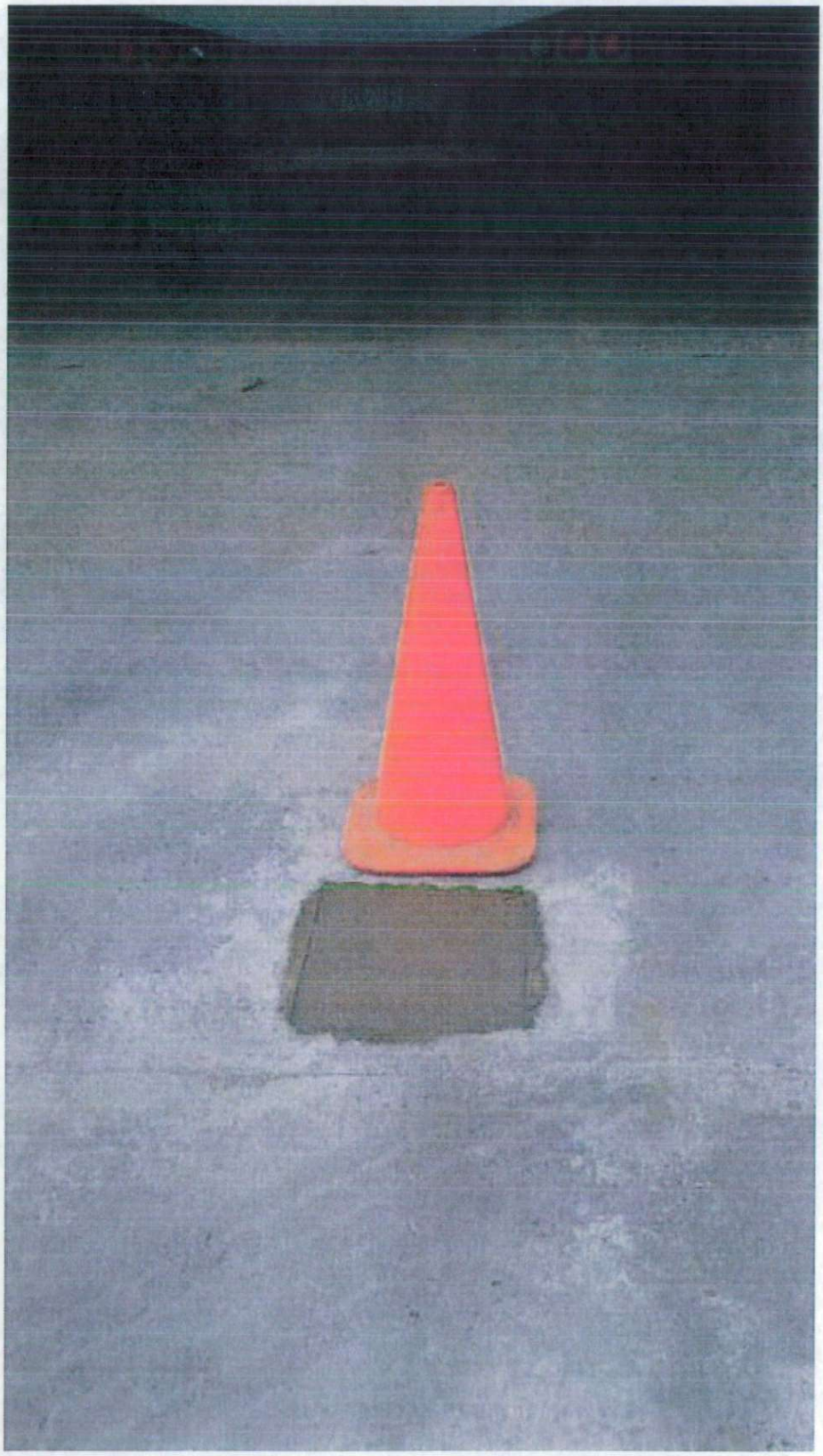
MW-18

MW-19

MW-20



MW-24



MW-25

MW-26

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
(Road, community, subdivision, lot no.)

Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-11

7. SEALING MATERIAL:		neat cement	sand cement
	bags (94 lb):	4 bags	NA
	gals of water:	30 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: [signature] 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:48 AM

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
(Road, community, subdivision, lot no.)

Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-13

		neat cement	sand cement
7. SEALING MATERIAL:	bags (94 lb):	2 bags	NA
	gals of water:	15 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: 2. Signature of Participant:

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: Address:

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

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2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-16

		neat cement	sand cement
7. SEALING MATERIAL:	bags (94 lb):	3 bags	NA
	gals of water:	23 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: [signature] 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:49 AM

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
(Road, community, subdivision, lot no.)

Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-18

7. SEALING MATERIAL:		neat cement	sand cement
	bags (94 lb):	3 bags	NA
	gals of water:	23 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: [signature] 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:49 AM

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
(Road, community, subdivision, lot no.)

Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St. P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-19

		neat cement	sand cement
7. SEALING MATERIAL:	bags (94 lb):	3 bags	NA
	gals of water:	23 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: [signature] 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:50 AM

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
(Road, community, subdivision, lot no.)

Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-20

7. SEALING MATERIAL:		neat cement	sand cement
	bags (94 lb):	10 bags	NA
	gals of water:	75 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: _____ 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:50 AM

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
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Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-24

7. SEALING MATERIAL:		neat cement	sand cement
	bags (94 lb):	2 bags	NA
	gals of water:	15 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: Tyler Wath 2. Signature of Participant:

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: Address:

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

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Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
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Latitude 41°00'21.64" N Longitude 78°27'17.30" W

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3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present), grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-25

		neat cement	sand cement
7. SEALING MATERIAL:	bags (94 lb):	2 bags	NA
	gals of water:	15 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: _____ 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:51 AM

WELL ABANDONMENT FORM

CONTRACTOR/AGENT: Earthsystems, LLC REGISTRATION NO. 4494

DATE: 05/07-08/2012 TYPE OF SITE OR PROGRAM: Chapter 245 Storage Tank Act

1. WELL LOCATION: (Show sketch of location on back of this form.) See attached site layout map.

Municipality Lawrence Township County Clearfield County

Quadrangle Clearfield and Glen Richey, PA 1322 South 2nd Street Clearfield, PA
(Road, community, subdivision, lot no.)

Latitude 41°00'21.64" N Longitude 78°27'17.30" W

2. OWNER AND ADDRESS: United Refining Co., 15 Bradley St, P.O. Box 688, Warren, PA 16365

3. TOPOGRAPHY: (Circle) hilltop, slope, stream terrace, valley, stream channel, draw, local depression, (flat)

4. USE OF WELL: Groundwater Monitoring

WELL DIAGRAM: sketch a diagram showing depths of well, casing (if present); grouting materials, perforations, etc.

5. DEPTH OF WELL: NA DIAMETER OF WELL: 4-inch ID

6. AMOUNT OF CASING REMOVED: NA DIAMETER: 4-inch ID

MW-26

7. SEALING MATERIAL:		neat cement	sand cement
	bags (94 lb):	3 bags	NA
	gals of water:	23 gallons	NA
	yds of sand:	NA	NA

OTHER MATERIAL: NA amount: NA

8. EXPLAIN METHOD OF EMPLACEMENT OF MATERIAL:

Neat cement grout pressure grouted through 1-inch ID tremie pipe placed from bottom to top of boring. Removed slowly as grout is pumped to ensure no void spaces in boring.

9. CERTIFICATION: We hereby certify that this well abandonment record is true and exact, and was accomplished on 7th & 8th day of the month of May, 2012, with our active participation and that we are qualified to participate in such abandonment actions.

1. Signature of Participant: _____ 2. Signature of Participant: _____

Date: 07/30/2012 Address: 629 East Rolling Ridge Drive, Bellefonte, PA 16823 Date: _____ Address: _____

10/16/2012 10:44:51 AM

APPENDIX B

Well Logs

Project No: 277

Project: United Refining - Clearfield

Client: United Refining

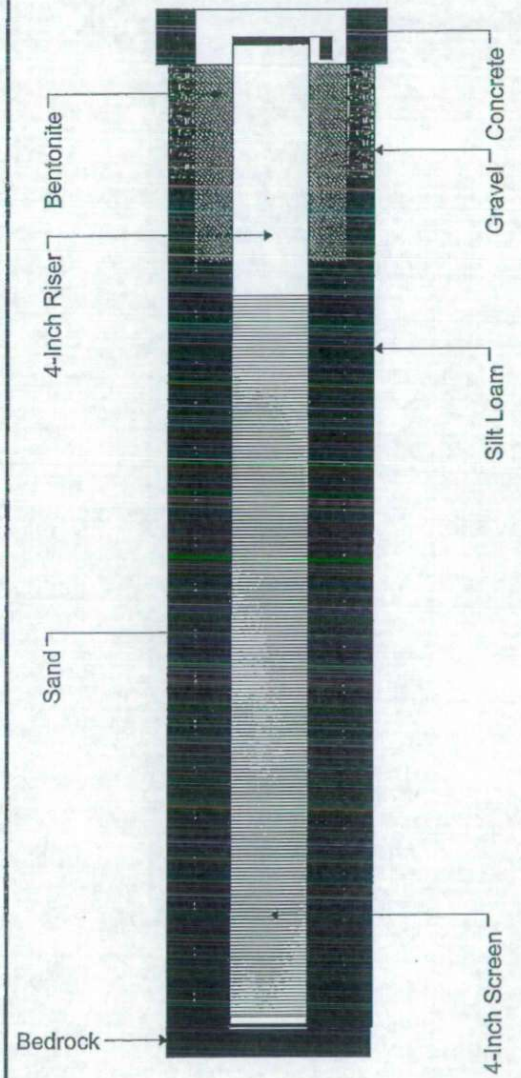
Location: Clearfield, PA

Monitoring Well: MW-34

Logger: S. Treschow, P.G.

Letterle & Associates, LLC
629 East Rolling Ridge Drive
Bellefonte, PA 16823

SUBSURFACE PROFILE			SAMPLE			Well Completion Details
Depth	Symbol	Description	Number	Type	Dry, Moist, Saturated	
0		Ground Surface				
0		***Asphalt***				
1		***Gravel*** Sub-base; Grey; Dry.				
3		***Silt Loam*** Brown, clayey silt. Moist to wet. No odors.				
18		***Limestone*** Auger Refusal; Bedrock.				
19		End of Borehole				



Drill Method: Auger Rig

Drill Date: May 21, 2012

Hole Size: 8.25 Inch

Datum: Local

Checked by: S. Treschow, P.G.

Sheet: 1 of 1

10/16/2012 10:44:55 AM

Project No: 277

Project: United Refining - Clearfield

Client: United Refining

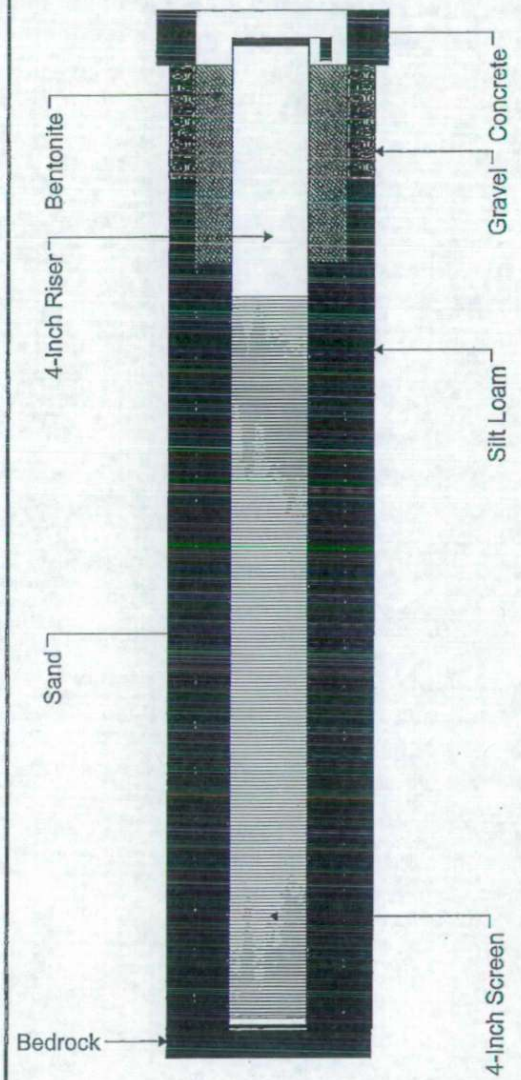
Location: Clearfield, PA

Monitoring Well: MW-35

Logger: S. Treschow, P.G.

Letterle & Associates, LLC
629 East Rolling Ridge Drive
Bellefonte, PA 16823

SUBSURFACE PROFILE			SAMPLE			Well Completion Details
Depth	Symbol	Description	Number	Type	Dry, Moist, Saturated	
0		Ground Surface				
0		***Asphalt***				
1		***Gravel*** Sub-base; Grey; Dry.				
3		***Silt Loam*** Brown, clayey silt. Moist to wet. No odors.				
18		***Limestone*** Auger Refusal; Bedrock.				
19		End of Borehole				



Drill Method: Auger Rig

Drill Date: May 21, 2012

Hole Size: 8.25 Inch

Datum: Local

Checked by: S. Treschow, P.G.

Sheet: 1 of 1

10/16/2012 10:44:56 AM

Project No: 277

Monitoring Well: MW-36

Project: United Refining - Clearfield

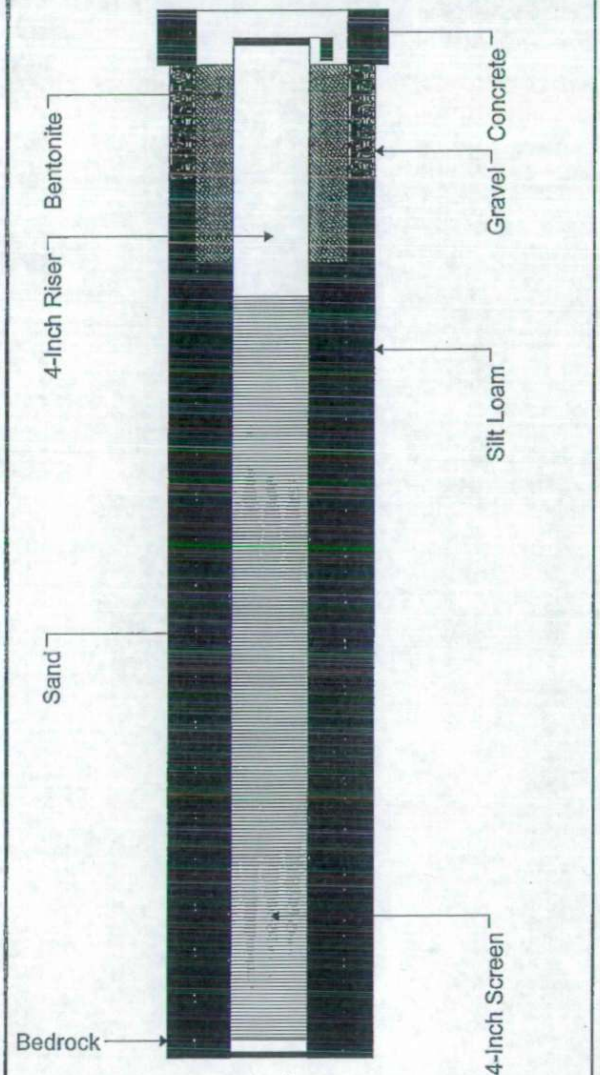
Client: United Refining

Location: Clearfield, PA

Logger: S. Treschow, P.G.

Letterle & Associates, LLC
629 East Rolling Ridge Drive
Bellefonte, PA 16823

SUBSURFACE PROFILE			SAMPLE			Well Completion Details
Depth	Symbol	Description	Number	Type	Dry, Moist, Saturated	
0		Ground Surface				
0		***Asphalt***				
1		***Gravel*** Sub-base; Grey; Dry.				
3		***Silt Loam*** Brown, clayey silt. Moist to wet. No odors.				
18		***Limestone*** Auger Refusal; Bedrock.				
19		End of Borehole				



Drill Method: Auger Rig

Drill Date: May 21, 2012

Hole Size: 8.25 Inch

Datum: Local

Checked by: S. Treschow, P.G.

Sheet: 1 of 1

10/16/2012 10:44:58 AM

APPENDIX C

Groundwater Analytical Laboratory Reports

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-2A	2I07068-01	Water	Grab	09/06/12 11:05	09/07/12 13:52
MW-3	2I07068-02	Water	Grab	09/06/12 13:40	09/07/12 13:52
MW-4	2I07068-03	Water	Grab	09/06/12 12:09	09/07/12 13:52
MW-7	2I07068-04	Water	Grab	09/06/12 14:32	09/07/12 13:52
MW-10	2I07068-05	Water	Grab	09/06/12 12:46	09/07/12 13:52
MW-14	2I07068-06	Water	Grab	09/06/12 10:47	09/07/12 13:52
MW-15	2I07068-07	Water	Grab	09/06/12 12:30	09/07/12 13:52
MW-21	2I07068-08	Water	Grab	09/06/12 13:57	09/07/12 13:52
MW-29	2I07068-09	Water	Grab	09/06/12 14:15	09/07/12 13:52
MW-30	2I07068-10	Water	Grab	09/06/12 13:10	09/07/12 13:52
MW-32	2I07068-11	Water	Grab	09/06/12 11:33	09/07/12 13:52
MW-33	2I07068-12	Water	Grab	09/06/12 11:20	09/07/12 13:52

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-2A **Date/Time Sampled:** 09/06/12 11:05

Laboratory Sample ID: 2I07068-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 11:35	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*70-130*		*09/11/12 11:35*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*120 %*	*70-130*		*09/11/12 11:35*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*113 %*	*70-130*		*09/11/12 11:35*	*EPA 8260B*	mlf	

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State Certifications: MD 275, WV 364

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-3 **Date/Time Sampled:** 09/06/12 13:40

Laboratory Sample ID: 2I07068-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Methyl tert-butyl ether	27.5		1.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 12:14	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*96.9 %*	*70-130*		*09/11/12 12:14*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*70-130*		*09/11/12 12:14*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*110 %*	*70-130*		*09/11/12 12:14*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-4 **Date/Time Sampled:** 09/06/12 12:09

Laboratory Sample ID: 2107068-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 12:54	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*97.2 %*	*70-130*		*09/11/12 12:54*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*120 %*	*70-130*		*09/11/12 12:54*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*114 %*	*70-130*		*09/11/12 12:54*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-7 **Date/Time Sampled:** 09/06/12 14:32

Laboratory Sample ID: 2107068-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Toluene	<2.00		2.00	ug/l	09/12/12 12:38	EPA 8260B	mlf	
Ethylbenzene	<2.00		2.00	ug/l	09/12/12 12:38	EPA 8260B	mlf	
Xylenes (total)	<4.00		4.00	ug/l	09/12/12 12:38	EPA 8260B	mlf	
Isopropylbenzene	<2.00		2.00	ug/l	09/12/12 12:38	EPA 8260B	mlf	
Methyl tert-butyl ether	10.6		2.00	ug/l	09/12/12 12:38	EPA 8260B	mlf	
Naphthalene	<2.00		2.00	ug/l	09/12/12 12:38	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*98.4 %*	*70-130*		*09/12/12 12:38*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*121 %*	*70-130*		*09/12/12 12:38*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*114 %*	*70-130*		*09/12/12 12:38*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-10 **Date/Time Sampled:** 09/06/12 12:46

Laboratory Sample ID: 2I07068-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Methyl tert-butyl ether	6.16		1.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 14:13	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*98.0 %*	*70-130*		*09/11/12 14:13*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*116 %*	*70-130*		*09/11/12 14:13*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*110 %*	*70-130*		*09/11/12 14:13*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-14 **Date/Time Sampled:** 09/06/12 10:47

Laboratory Sample ID: 2107068-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Methyl tert-butyl ether	19.8		1.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 05:54	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*100 %*	*70-130*		*09/11/12 05:54*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*125 %*	*70-130*		*09/11/12 05:54*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*112 %*	*70-130*		*09/11/12 05:54*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-15 **Date/Time Sampled:** 09/06/12 12:30

Laboratory Sample ID: 2I07068-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Methyl tert-butyl ether	5.64		1.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 06:34	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*101 %*	*70-130*		*09/11/12 06:34*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*132 %*	*70-130*		*09/11/12 06:34*	*EPA 8260B*	mlf	QF
Surrogate: Fluorobenzene		*120 %*	*70-130*		*09/11/12 06:34*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-21 **Date/Time Sampled:** 09/06/12 13:57

Laboratory Sample ID: 2I07068-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Toluene	<2.00		2.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Ethylbenzene	<2.00		2.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Xylenes (total)	<4.00		4.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Isopropylbenzene	<2.00		2.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Methyl tert-butyl ether	42.1		2.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Naphthalene	<2.00		2.00	ug/l	09/12/12 13:18	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*96.6 %*	*70-130*		*09/12/12 13:18*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*118 %*	*70-130*		*09/12/12 13:18*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*112 %*	*70-130*		*09/12/12 13:18*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-29 **Date/Time Sampled:** 09/06/12 14:15

Laboratory Sample ID: 2I07068-09 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Methyl tert-butyl ether	25.0		1.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 07:14	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*96.7 %*	*70-130*		*09/11/12 07:14*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*122 %*	*70-130*		*09/11/12 07:14*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*111 %*	*70-130*		*09/11/12 07:14*	*EPA 8260B*	mlf	

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-30 **Date/Time Sampled:** 09/06/12 13:10

Laboratory Sample ID: 2107068-10 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Methyl tert-butyl ether	10.8		1.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 07:55	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*101 %*	*70-130*		*09/11/12 07:55*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*125 %*	*70-130*		*09/11/12 07:55*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*113 %*	*70-130*		*09/11/12 07:55*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-32 **Date/Time Sampled:** 09/06/12 11:33

Laboratory Sample ID: 2I07068-11 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Methyl tert-butyl ether	4.07		1.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 08:35	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*100 %*	*70-130*		*09/11/12 08:35*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*125 %*	*70-130*		*09/11/12 08:35*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*115 %*	*70-130*		*09/11/12 08:35*	*EPA 8260B*	mlf	

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-33 **Date/Time Sampled:** 09/06/12 11:20

Laboratory Sample ID: 2I07068-12 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	09/11/12 09:14	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*97.7 %*	*70-130*		*09/11/12 09:14*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*125 %*	*70-130*		*09/11/12 09:14*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*116 %*	*70-130*		*09/11/12 09:14*	*EPA 8260B*	mlf	

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Letterle & Associates	Project:	KWIK FILL-CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	09/17/12 08:42
Project Manager: Jed Hill	Number of Containers:	24	

Notes

QF Surrogate recovery out of range due to possible matrix interference.

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

2107068 01
COC #

Page 1 of 2

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10/16/2012 10:45:07 AM

Client Name: Letterle & Associates
Address: 639 E Bellwood Bridge Dr
Bellefonte, PA 16823
Contact: Jed Hall
Phone #: 814-355-2241
Fax #: -2410
Project Name: Kurt Fell Clearfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: /__/__

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

	Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unl. Gas	Analyses Requested: 1998 Unl. Gas Exxon/Benzene	Bottle Type/Comments
1	MW-2A	X				9-6-12	1105		X		2	X		
2	MW-3						1340					X		
3	MW-4						1209					X		
4	MW-7						1432						X	
5	MW-10						1246					X		
6	MW-14						1047							
7	MW-15						1230							
8	MW-21						1357							
9	MW-29						1415							
10	MW-30						1310							
11	MW-32						1133							

	Date	Time		Date	Time
Sampled by:	9-6-12	1630	Received by:	9-7	1010
Relinquished by:	9-7	1726	Received by:	9-7-12	1230
Relinquished by:	9-7-12	1350	Received by:	9/7	1352
Relinquished by:	Date	Time	Received by:	Date	Time

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

10/16/2012 10:45:07 AM

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES *Environmental Laboratory*

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

25070680-02
COC #

Page 2 of 2

Client Name: Letterle & Associates
Address: 629 E Rolling Ridge Dr
Bellefonte, PA 16823
Contact: Bob Hill
Phone #: 814-355-2291
Fax #: -2410
Project Name: Kurtz Fill Clearfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

Analyses Requested: 1998 Dnl. Gas

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Bottle Type/Comments
2 MW-33	X				9-6-12	1120		X		2	X

	Date	Time		Date	Time
Sampled by:	9-6-12	1630	Received by:	9-7	1010
Relinquished by:	9-7	1225	Received by:	9-7-12	1230
Relinquished by:	9-7-12	1350	Received by:	9/7	1350
Relinquished by:			Received by:		

Remarks

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White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document

Page ___ of ___

Receiver: [signature]

Date/Time of this check: 9/7/12 14:45 Sample Temperature: 0.4 Client: Lettrle & Assoc Lab # 2I07068 03

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 0.4 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐ *	Properly Preserved ☐ *	Bacti	
1							2		N		
12							4				

* DEVIATION PRESENT:		CLIENT CALLED:	CLIENT RESPONSE:	
⊗ No Ice	( )	YES ( )	Proceed with analysis; qualify data	( )
⊗ Not at Proper Temperature	( )	By Whom:	Will Resample	( )
⊗ Wrong Container	( )		Provided Information	( )
⊗ Missing Information:	( )	_____ Date: _____	No Response; Proceed and qualified	( )
			Client Contact: _____ Date: _____	

* Comments: _____

Chain of Custody Receiving Document

This is a date sensitive document and may not be current after May 22, 2012.

Cassel, Debra

From: Shirley Scheidell [delivery@yousendit.com]
Sent: Monday, February 11, 2013 3:45 PM
To: Cassel, Debra
Subject: 4th Qtr. 2012 RAPR - Claim #08-034(M), Kwik Fill M-90

YOUSENDIT

A file has been sent to you

from sscheidell@letterleassociates.com via YouSendIt.

Copy of the 4Q12 RAPR (supporting documentation) for completion of Milestone E1 of the 3/9/12 remediation agreement as requested.

United Refining Clearfield - 4th Qtr 2012 RAPR.pdf

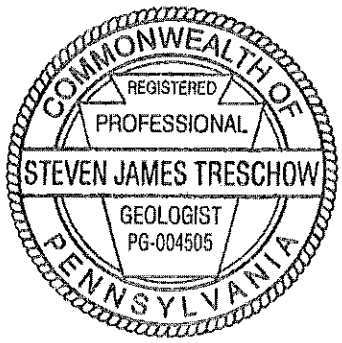
Size: **9.36 MB** Content will be available for download until **February 28, 2013 12:45 PST**.

REMEDIAL ACTION PROGRESS REPORT
4th Quarter 2012

PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
Kwik Fill #M-90
1322 South 2nd Street
Clearfield, Lawrence Township
Clearfield County, Pennsylvania 16830

Prepared for:

United Refining Company of Pennsylvania
15 Bradley Street
P.O. Box 688
Warren, Pennsylvania 16365



Prepared by:

Letterle & Associates, LLC
629 East Rolling Ridge Drive
Bellefonte, Pennsylvania 16823

Jed Hill
Project Manager

Steven James Treschow, P.G.
Professional Geologist

January 2013

"By affixing my seal to this document, I am certifying that the information is true and correct to the best of my knowledge. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information."

Steven James Treschow, P.G. (signed and sealed this day (January 24, 2013))

Letterle &
Associates, LLC

Environmental Consulting & Remediation Services

629 East Rolling Ridge Drive
Bellefonte, PA 16823

814. 355. 2241 office
814. 355. 2410 fax

January 24, 2013

Mr. Scott Ferguson, P.G.
PADEP
Environmental Cleanup Program
208 W. Third St., Suite 101
Williamsport, PA 17701-6448

RE: 4th Quarter 2012 Remedial Action Progress Report
PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
United Refining Company of Pennsylvania
Kwik Fill #M-90
1322 South 2nd Street, Clearfield, PA

Dear Mr. Ferguson:

Enclosed please find a copy of the 4th Quarter 2012 Remedial Action Progress Report prepared by Letterle & Associates, LLC, on behalf of United Refining Company of Pennsylvania, for the Kwik Fill #M-90, located at 1322 South 2nd Street, Clearfield, Pennsylvania.

If you have any questions please contact Jed Hill at (814) 355-2241 or jhill@letterleassociates.com.

Sincerely,

Jed Hill
Project Manager

Enclosure

cc: Mr. Scott C. Wonsettler, P.G., United Refining Company of Pennsylvania
Mr. Gerald Hawk, ICF International
Mr. Robert McDonald, Arch Street Management

TABLE OF CONTENTS

Table

Figures

Appendices

GENERAL INFORMATION

Client Contact:	Scott Wonsettler, P.G.
Letterle Project Manager:	Jed Hill
Regulatory Contact:	Scott Ferguson, P.G.
PADEP Facility ID #:	17-14821
PAUSTIF Claim #:	2008-0034 (M)
Number of Wells:	14 monitoring wells (on-site wells MW-2A, MW-32, and MW-33 and off-site monitoring wells MW-3, MW-4, MW-7, MW-9, MW-10, MW-14, MW-15, MW-17, MW-21, MW-29, and MW-30).
Wells Containing LNAPL:	0

SITE HISTORY

Letterle & Associates, LLC (Letterle) of Bellefonte, Pennsylvania (PA) is pleased to present this Remedial Action Progress Report (RAPR) for United Refining Company (United) of PA Kwik-Fill #M-90 (site), located in Lawrence Township, Clearfield, PA, for the period of October 1, 2012 through December 31, 2012. **Figure 1** depicts the site location and surrounding area.

The site is currently an active retail fueling (gasoline and diesel) station, which has two, 10,000-gallon and one, 8,000-gallon steel underground storage tanks (USTs). The two 10,000-gallon USTs were in installed in 1969 and the 8,000-gallon UST was installed in 1974. One 10,000-gallon UST and one 8,000-gallon contain unleaded gasoline and the remaining 10,000-gallon UST (in the middle) contains diesel fuel.

On June 15, 1995, the 10,000-gallon unleaded gasoline UST (#002) failed a tightness test. The PA Department of Environmental Protection (PADEP) was notified of the failure and subsequently, Mountain Research, Inc. (MRI) was retained by United in May 1996 to perform site characterization activities.

From June 1996 through October 1997, four soil boring/monitoring wells, MW-1, MW-1A, MW-2, and MW-2A, were installed on the site and five monitoring wells, MW-3 through MW-7, were installed off-site, on the Beckwith Machinery Company (Beckwith) property. Quarterly groundwater sampling began in February 1996. Groundwater analytical results for the monitoring wells indicated unleaded gasoline constituents at concentrations above their respective Medium-Specific Concentration (MSC) values. In June 1997, soil/groundwater samples were collected on-site and in the right-of-way of South 2nd Street. The results of the investigation indicated several soil/groundwater samples contained unleaded gasoline constituents at concentrations above their respective MSC values.

MRI prepared a Remedial Action Plan (RAP) in July 1999 proposing a Matrix Trailer Mounted Oxygen Injection System. The PADEP approved the RAP in January 2000. In February 2000, system installation was initiated. The system consisted of eight oxygen injection points and a small trailer to house any ancillary equipment. On April 12, 2000, the system was activated. The system was operational from April 12, 2000 until the first quarter of 2005. From February 1996 through

first quarter of 2005, MRI performed quarterly groundwater sampling from the monitoring well network.

From early 2005 through mid-2006, additional site investigations were initiated at the site to re-evaluate the remedial approach. In October 2006, a Supplemental Site Characterization Report (SCR) and RAP Addendum was submitted to the PADEP. The Supplemental SCR/RAP Addendum identified two separate source areas, one on-site and one off-site at the BMC property. The on-site source area (Source Area #1) was found to have impacted groundwater beneath the site and downgradient on the former BMC property. Impacted groundwater from Source Area #2 was found to be related to an off-site release and not associated with the Kwik Fill M-90 facility. The Supplemental SCR/RAP Addendum strategy included remediating groundwater via an air sparge/soil vapor extraction (AS/SVE) system. An additional RAP Addendum was submitted in December 2006. The PADEP approved the Supplemental SCR/RAP Addendum and additional RAP Addendum in January 2007, with modifications. An AS/SVE system was installed at the site and operated from November 2007 through the fourth quarter of 2008.

A second release of unleaded gasoline occurred at the site, and was reported in February 2008. Additional site characterization activities were initiated and an Additional SCR and RAP Addendum was submitted in June 2011. The June 2011 Additional SCR/RAP Addendum included the selection of a dual phase extraction (DPE)/SVE system to address on-site soil and groundwater and enhanced in-situ bioremediation (EB) to address off-site groundwater. The June RAP Addendum was approved by the PADEP in July 2011.

REMEDIAL ACTION PLAN IMPLEMENTATION

The PA Underground Storage Tank Indemnification Fund (PAUSTIF) and their administrator, ICF International (ICFI), put the site remedial work out for competitive bid. The proposed scope of work was based upon the July 2011 approved RAP. Letterle was awarded the bid in March of 2012 and began implementation of the approved RAP.

Remedial actions completed in previous quarters include off-site well abandonment, dual-phase extraction well installation, remedial system trenching and piping, remedial system installation, and the application of a chemical oxidant as part of an enhanced bioremediation feasibility study.

Remedial System

The remedial system trailer was constructed and mobbed to the site during the third quarter of 2012 and began operation during the fourth quarter of 2012. The principal DPE system components housed within the trailer include:

- One claw pump;
- One air compressor;
- One air/water separator (AWS) tank;
- One equalization tank;
- Two transfer pumps and level controls;
- Six pneumatic groundwater pumps;

- Four 300-pound liquid-phase granular activated carbon (GAC) vessels (high pressure units);
- Two 600-pound vapor-phase GAC vessels; and,
- Control panel for the claw pump, air compressor, and the transfer pumps (including all system interlocks).

The trailer is located along the southern property boundary. The dimensions of the trailer are approximately 8 feet in width, 20 feet in length, and 8 feet tall. The trailer includes wall and roof insulation and has adjustable wall louvers close to the floor, each complete with an exterior mounted mesh screen. Each louver contains an explosion-proof (XP) fan to circulate outside air into it. The fan is controlled both thermostatically and by a manual wall switch located near the side door. The trailer contains an XP radiant heater unit with adjustable thermostat to prevent freeze damage during the winter. The heater/thermostat is capable of maintaining a minimum ambient air temperature of 50 °F within the enclosure regardless of outside temperatures.

The trailer has a double door large enough to remove any piece of equipment housed within the trailer. The trailer includes a sump built into the floor equipped with a high level alarm switch that will terminate system operation if activated. The influent and effluent PVC pipes stubbed out of the ground by the installation contractor are inside 18-inch well vaults and are connected in the trailer with a pressure connection. The trailer includes an outside wall electrical receptacle, a lightning rod, and grounding. The trailer contains a mounted 20-pound fire extinguisher within three feet of the door.

A fenced area adjacent to the remediation trailer was constructed to accommodate the vapor phase treatment equipment and associated control panels. The fenced area is approximately 8 feet by 14 feet in size and consist of a 6-foot high privacy fence with one access gate.

The remediation system began operation during the fourth quarter of 2012. The recovered groundwater is treated and discharged to the sanitary sewer under an issued permit from the Clearfield Municipal Authority (CMA).

QUARTERLY SITE ACTIVITIES COMPLETED – 4TH QUARTER 2012

Remedial System Operation

The DPE remedial system was activated on October 30, 2012 and the system was in operation upon arrival at the site on November 26, 2012. The system was shutdown at the end of the day to allow for return of groundwater levels to static conditions prior to starting the engineering evaluation on November 27, 2012. All remediation system equipment was observed to be in good working condition prior to shutdown. All clear schedule 40 PVC sight-tubes on the influent manifold showed signs of only minor scaling to the system piping. Since remediation system startup, a total of 142,565 gallons of groundwater have been extracted at an average of 4.71 gallons per minute (gpm) over the time period. All equipment safety alarms have been tested and are in good working order. The recovered and treated groundwater is treated and discharged to the sanitary sewer under an issued permit from the CMA. Under the terms of the permit, analytical reports and totalizer readings are reported in Discharge Monitoring Reports (DMR) on a monthly basis to the CMA. Petroleum

impacted soil and groundwater remediation systems have been listed as exempt from the Plan Approval/Operating permit requirements by PADEP, Division of Air Quality. The remediation system is operated under the exemption requirements.

Remedial System Alterations

The over amping of the rotary claw SVE pumps has been eliminated by increasing the size of the exhaust piping. Heat tape and insulation have been installed on all hoses and piping that is exposed under the trailer to prevent freezing. Sediment filter changes will initially occur during every O&M event in order to minimize system downtime due to clogged sediment filters. The four 400-pound liquid-phase GAC pressure vessels will continue to be connected in a parallel/series arrangement to treat the groundwater. The existing vapor carbon treatment system will remain with two 600-pound vapor-phase GAC units connected in a series configuration.

Remedial System Summary

Based on the results of the system engineering evaluation, the remediation system at the Kwik Fill M-90 site is operating with influence results similar to the original design and currently, the influence of the DPE system is large enough to cover the majority of the down gradient contaminated plume area. The DPE system has been placed into operation and extraction from the recovery wells will continue. To allow for adequate vacuum levels with the addition of the VEGE system, DPE recovery wells MW-1 and MW-28, MW-31, and MW-34 will be continuously operated through 2013. Wells MW-1A, MW-2, MW-35 and MW-36 will remain shutdown to increase the vacuum of the DPE system and to prevent overwhelming the groundwater treatment system with excessive amounts of extracted groundwater. The system will be serviced twice a month for regularly scheduled preventative maintenance to ensure operational success. Future evaluations will include measurements of vacuum at the top of each recovery well, groundwater recovery rates from each DPE well, and water table drawdown after an extended period of system operation. For additional details concerning the operation and performance of the remedial system, please see the Remediation System Start-Up Engineering Evaluation included as **Appendix B**.

Groundwater Monitoring

Groundwater Gauging

Letterle completed a quarterly groundwater gauging and sampling event on December 14, 2012. A total of 12 monitoring wells were sampled: on-site wells MW-2A, MW-32, and MW-33 and off-site monitoring wells MW-3, MW-4, MW-7, MW-10, MW-14, MW-15, MW-21, MW-29, and MW-30 (MW-9 and MW-17 could not be located). Prior to well purging, the depth to groundwater in each well was measured using an electronic water level probe accurate to the nearest 0.01 foot. The groundwater gauging and elevation results are on **Table 1**.

Shallow Water-Bearing Zone

The groundwater gauging data collected during the sampling event indicated the following for the shallow water-bearing zone:

- Groundwater elevations in the shallow water-bearing zone ranged from 1,134.25 feet in MW-7 to 1,145.66 feet in MW-2A;
- The apparent groundwater flow direction in the shallow water-bearing zone is towards the north (towards the West Branch Susquehanna River) (**Figure 3**);
- Based on the groundwater elevation data for on-site monitor wells MW-2A (1,145.66 feet) and MW-7 (1,134.25 feet), the horizontal hydraulic gradient was approximately 0.030 feet per foot (ft/ft); and,
- The groundwater elevations observed in MW-10 was considered anomalous and was not used in groundwater contouring.

Groundwater Sampling

Sampling Methodology

Quarterly groundwater sampling at the site was completed on December 14, 2012. Monitoring wells MW-2A, MW-3, MW-4, MW-7, MW-10, MW-14, MW-15, MW-21, MW-29, MW-30, MW-32, and MW-33 (MW-9 and MW-17 could not be located) were purged and sampled using low flow techniques. The following field screening parameters were collected from the sampled monitor wells via an YSI Model 556 flow-through cell and water quality meter: pH, Temperature, Specific Conductance, total suspended solids (TSS), dissolved oxygen (DO), and oxidation-reduction potential (ORP).

The groundwater samples were submitted for analysis of PADEP pre-March 2008 short list of unleaded gasoline constituents via USEPA Method 8260B. The laboratory analyses included the following constituents: benzene, toluene, ethylbenzene, xylene(s) total, methyl tert-butyl ether (MTBE), cumene (isopropylbenzene), and naphthalene.

Sampling Results

Within the shallow water-bearing zone, analytical results from the groundwater sampling program conducted on December 14, 2012 indicated no exceedances of the applicable PADEP Used-Aquifer TDS $\leq$2,500 milligrams per liter (mg/L)) Residential Statewide Health Standard (UARSHS) MSCs.

Table 1 summarizes the groundwater analytical results. The complete analytical laboratory reports are included in **Appendix A.**

PLANNED ACTIVITY

The following activity is currently planned for the 1st Quarter of 2013:

- Remedial system operation and maintenance (including permit-required sampling);
- Quarterly groundwater gauging and sampling; and,
- Quarterly reporting.

The targeted goals of the remedial action are the elimination of the potential exposure pathways identified during site characterization activities (i.e., inhalation via indirect contact with groundwater

and ingestion and dermal contact via direct contact with surface water) and the attainment of the applicable PADEP UARSHS MSCs.

TABLE

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-1	3/17/2010	**10.9**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.26	1147.28
	6/8/2010	**11.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.57	1146.97
	8/30/2010	**18.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.78	1144.76
	11/17/2010	**13.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.40	1146.14
	3/1/2011	**6.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.78	1147.76
	5/31/2011	**13.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.75	1145.79
	8/24/2011	**12.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.12	1145.42
	3/28/2012	**14.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.12	1147.42
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-1A	3/17/2010	**7.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.57	1147.20
	6/8/2010	**6.9**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.86	1146.91
	8/30/2010	**16.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.32	1144.45
	11/17/2010	**10.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.88	1145.89
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.04	1147.73
	5/31/2011	**4.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.29	1145.48
	8/24/2011	**8.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.65	1145.12
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.55	1147.22
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-2	3/17/2010	**20.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.07	1146.91
	6/8/2010	**20.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.36	1146.62
	8/30/2010	**20.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.61	1144.37
	11/17/2010	**20.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.36	1145.62
	3/1/2011	**11.0**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.73	1147.25
	5/31/2011	**10.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.68	1145.30
	8/24/2011	**14.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.90	1145.08
	3/28/2012	**11.5**	**1.1**	<1.00	<1.00	<3.00	<1.00	<2.00	2.85	1147.13
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-2A	3/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.21	1147.66
	6/8/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.27	1147.60
	8/30/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.23	1145.64
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.25	1146.62
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.91	1147.96
	5/31/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.16	1146.71
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.52	1146.35
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.45	1148.42
	6/25/2012	**5.22**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.51	1144.36
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.21	1145.66
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.12	1144.75
MW-3	3/18/2010	**43.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.43	1143.80
	6/7/2010	**44.0**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.40	1143.83
	8/31/2010	**41.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.92	1142.31
	11/17/2010	**40.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.48	1142.75
	3/2/2011	**33.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.81	1144.42
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**32.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.38	1142.85
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.40	1144.83
	6/25/2012	**21.9**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.17	1143.06
	9/6/2012	**27.5**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.17	1142.06
	12/14/2012	**18.4**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.63	1140.60
MW-4	3/18/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.97	1144.15
	6/7/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.17	1142.95
	8/31/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.44	1140.68
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.26	1141.86
	3/2/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.92	1144.20
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.24	1141.88
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.20	1143.92
	6/25/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.74	1142.38
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.11	1141.01
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.40	1141.72

Notes:
All results reported in ug/l.
Bold values indicate levels above LRL.
Bold and shaded values indicate exceedance of UARSHS MSCs.
NG - Not Gauged. NA - Not Available. NS - Not Sampled.

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-5	3/17/2010	**5.4**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.16	1143.51
	6/7/2010	**4.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.53	1143.14
	8/31/2010	**3.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.18	1141.49
	11/17/2010	**2.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.80	1141.87
	3/1/2011	**1.2**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.43	1144.24
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**5.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.64	1142.03
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.04	1143.63
	6/25/2012	Well not part of quarterly sampling program.							2.25	1142.42
	9/6/2012	Well not part of quarterly sampling program.							NG	NA
MW-6	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/7/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/31/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/1/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located. Well not part of quarterly sampling program.								
	9/6/2012	Well could not be located. Well not part of quarterly sampling program.								
MW-7	3/18/2010	**3.6**	**59.5**	**11.5**	**44.4**	**54.7**	**25.6**	**44.5**	2.60	1139.41
	6/7/2010	**3.1**	**57.7**	**12.9**	**55.2**	**60.3**	**35.4**	**61.3**	5.77	1136.24
	8/31/2010	**6.8**	**104**	**14.4**	**47.9**	**49.2**	**29.3**	**38.7**	7.92	1134.09
	11/17/2010	**7.2**	**97.9**	**12.5**	**46.5**	**47.4**	**27.3**	**57.7**	6.85	1135.16
	3/2/2011	**4.1**	**51.9**	**8.8**	**39.3**	**27.7**	**22.4**	**20.9**	3.93	1138.08
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**7.7**	**73.8**	**10.2**	**25.8**	**28.5**	**31.3**	**40.7**	7.21	1134.80
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	7.15	1134.86
	6/25/2012	**3.84**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	7.49	1134.52
	9/6/2012	**10.6**	NS	<2.00	<2.00	<4.00	<2.00	<2.00	7.76	1134.25
	12/14/2012	<2.00	**84.4**	**14.8**	**89.5**	**43.6**	**29.0**	**65.4**	5.80	1136.21
MW-9	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/8/2010	**32.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.00	1141.97
	8/30/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/1/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located.								
	9/6/2012	Well could not be located.								
MW-10	3/17/2010	**8.6**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.64	1147.90
	6/7/2010	**8.8**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.78	1148.76
	8/31/2010	**8.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.08	1147.46
	11/17/2010	**7.7**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.50	1147.04
	3/2/2011	**7.1**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.14	1149.40
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	**7.5**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.42	1148.12
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	1.42	1148.12
	6/25/2012	**5.01**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	1.23	1148.31
	9/6/2012	**6.16**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.10	1147.44
	12/14/2012	**5.56**	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.08	1147.46
MW-12	3/17/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/7/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/31/2010	NS	NS	NS	NS	NS	NS	NS	NG	NA
	11/17/2010	**30.3**	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.28	1142.28
	3/2/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well not part of quarterly sampling program.							2.83	1142.73
	9/6/2012	Well could not be located. Well not part of quarterly sampling program.							NG	NA

Notes:
All results reported in ug/l.
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NG - Not Gauged. NA - Not Available. NS - Not Sampled.

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Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-14	3/17/2010	23.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.97	1146.75
	6/7/2010	18.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.22	1146.50
	8/31/2010	35.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.43	1144.29
	11/17/2010	21.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.40	1145.32
	3/2/2011	2.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.62	1147.10
	5/31/2011	21.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1145.28
	8/24/2011	17.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.80	1143.92
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.71	1146.01
	6/25/2012	8.80	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.59	1145.13
	9/6/2012	19.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.63	1144.09
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	6.89	1141.83
MW-15	3/18/2010	6.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.73	1145.56
	6/7/2010	6.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.08	1145.21
	8/31/2010	7.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.88	1143.41
	11/17/2010	6.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1143.85
	3/2/2011	4.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.51	1145.78
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	6.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.27	1144.02
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.20	1145.09
	6/25/2012	6.98	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.11	1144.18
	9/6/2012	5.64	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.18	1143.11
	12/14/2012	2.23	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.45	1141.84
MW-17	3/18/2010	9.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.73	1142.53
	6/7/2010	1.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.09	1143.17
	8/31/2010	13.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.78	1141.48
	11/17/2010	11.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.70	1141.56
	3/1/2011	7.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	0.11	1143.15
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	Well could not be located.								
	9/6/2012	Well could not be located.								
MW-21	3/17/2010	41.3	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.86	1144.60
	6/7/2010	42.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.12	1144.34
	8/30/2010	40.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.43	1143.03
	11/17/2010	35.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.22	1143.24
	3/2/2011	33.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.50	1144.96
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	37.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.05	1143.41
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.10	1144.36
	6/25/2012	21.7	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	2.94	1143.52
	9/6/2012	42.1	<2.00	<2.00	<2.00	<4.00	<2.00	<2.00	3.79	1142.67
	12/14/2012	10.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.09	1141.37
MW-22	3/17/2010	5.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.79	1143.08
	6/7/2010	8.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.18	1142.69
	8/30/2010	8.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.60	1141.27
	11/17/2010	6.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.38	1141.49
	3/2/2011	6.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	1.42	1143.45
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	10.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.04	1141.83
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.11	1142.76
	6/25/2012	Well not part of quarterly sampling program.							2.81	1142.06
	9/6/2012	Well not part of quarterly sampling program.							3.43	1141.44
	12/14/2012	Well not part of quarterly sampling program.							4.06	1140.81

Notes:
All results reported in ug/l.
Bold values indicate levels above LRL.
Bold and shaded values indicate exceedance of UARSHS MSCs.
NG - Not Gauged. NA - Not Available. NS - Not Sampled.

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-23	3/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.51	1144.65
	6/7/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.03	1145.13
	8/31/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.63	1142.53
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.90	1143.26
	3/2/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.02	1145.14
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.93	1143.23
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.80	1144.36
	6/25/2012	Well not part of quarterly sampling program.							4.57	1142.59
	9/6/2012	Well not part of quarterly sampling program.							5.37	1141.79
	12/14/2012	Well not part of quarterly sampling program.							5.99	1141.17
MW-28	3/17/2010	4.5	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.13	1146.94
	6/8/2010	3.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.44	1146.63
	8/30/2010	6.4	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.64	1144.43
	11/17/2010	4.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.46	1145.61
	3/1/2011	7.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.01	1147.06
	5/31/2011	3.4	NS	NS	NS	NS	NS	NS	4.82	NA
	8/24/2011	4.9	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.97	1145.10
	3/28/2012	14.6	NS	NS	NS	NS	NS	NS	2.88	1147.19
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-29	3/17/2010	35.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.61	1144.65
	6/7/2010	39.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.83	1144.43
	8/30/2010	39.0	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.95	1142.31
	11/17/2010	37.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.95	1143.31
	3/2/2011	9.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.23	1145.03
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	37.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.81	1143.45
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	2.71	1144.55
	6/25/2012	22.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.58	1143.68
	9/6/2012	25.0	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.58	1142.68
	12/14/2012	3.13	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.77	1141.49
MW-30	3/18/2010	17.0	23.9	<1.00	14.5	12.2	1.9	2.5	2.23	1145.03
	6/7/2010	20.1	17.9	<1.00	12.4	10.5	1.9	<2.00	2.41	1144.85
	8/31/2010	22.7	<1.00	<1.00	3.1	<3.00	<1.00	<2.00	4.07	1143.19
	11/17/2010	25.9	<1.00	<1.00	1.8	<3.00	<1.00	<2.00	3.61	1143.65
	3/2/2011	22.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.35	1144.91
	5/31/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	8/24/2011	NS	NS	NS	NS	NS	NS	NS	NG	NA
	3/28/2012	NS	NS	NS	NS	NS	NS	NS	NG	NA
	6/25/2012	8.41	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	3.31	1143.95
	9/6/2012	10.8	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.30	1142.96
	12/14/2012	4.08	<2.00	<2.00	<2.00	<4.00	<2.00	<2.00	5.91	1141.35
MW-31	3/17/2010	7.8	668	783	265	2,700	26.4	119	3.16	1147.07
	6/8/2010	6.3	336	118	119	754	10.2	61.8	3.61	1146.62
	8/30/2010	8.0	18.8	1.1	10.5	34.1	1.3	3.3	5.73	1144.50
	11/17/2010	6.7	60.5	<1.00	20.6	20.4	1.8	4.3	4.73	1145.50
	3/1/2011	4.8	9.2	1.4	3.6	4.1	<1.00	<2.00	3.48	1146.75
	5/31/2011	6.3	66.1	<1.00	20.0	22.1	2.3	2.1	4.74	1145.49
	8/24/2011	14.3	439	7.2	135	272	12	35.7	5.03	1145.20
	3/28/2012	16.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.18	1147.05
	6/25/2012	Monitoring well converted to remedial extraction well.								
MW-32	5/28/2010	4.1	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.22	1145.58
	6/8/2010	2.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.21	1146.59
	8/30/2010	1.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.16	1144.64
	11/17/2010	2.2	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.64	1145.16
	3/1/2011	2.7	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.94	1146.86
	5/31/2011	2.6	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.15	1145.65
	8/24/2011	2.8	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.58	1145.22
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.49	1147.31
	6/25/2012	4.51	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.51	1145.29
	9/6/2012	4.07	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.51	1144.29
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.65	1144.15

Notes:
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NG - Not Gauged. NA - Not Available. NS - Not Sampled.

Table 1
Historic Groundwater Gauging and Analytical Data
United Refining - Kwik Fill M-90
Clearfield, Pennsylvania

Piezometer/Well	Date	Compound							Depth-to-Groundwater	Groundwater Elevation
		MTBE	Benzene	Toluene	Ethyl-benzene	Xylenes (Total)	Cumene	Naphthalene		
PADEP UARSHS MSCs		20	5	1,000	700	10,000	840	100		
MW-33	5/28/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.41	1145.72
	6/8/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.36	1146.77
	8/30/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	5.25	1144.88
	11/17/2010	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.96	1145.17
	3/1/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	3.42	1146.71
	5/31/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.38	1145.75
	8/24/2011	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	4.72	1145.41
	3/28/2012	<1.00	<1.00	<1.00	<1.00	<3.00	<1.00	<2.00	2.70	1147.43
	6/25/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.66	1145.47
	9/6/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	5.70	1144.43
	12/14/2012	<1.00	<1.00	<1.00	<1.00	<2.00	<1.00	<1.00	4.72	1145.41

Notes:
All results reported in ug/l.
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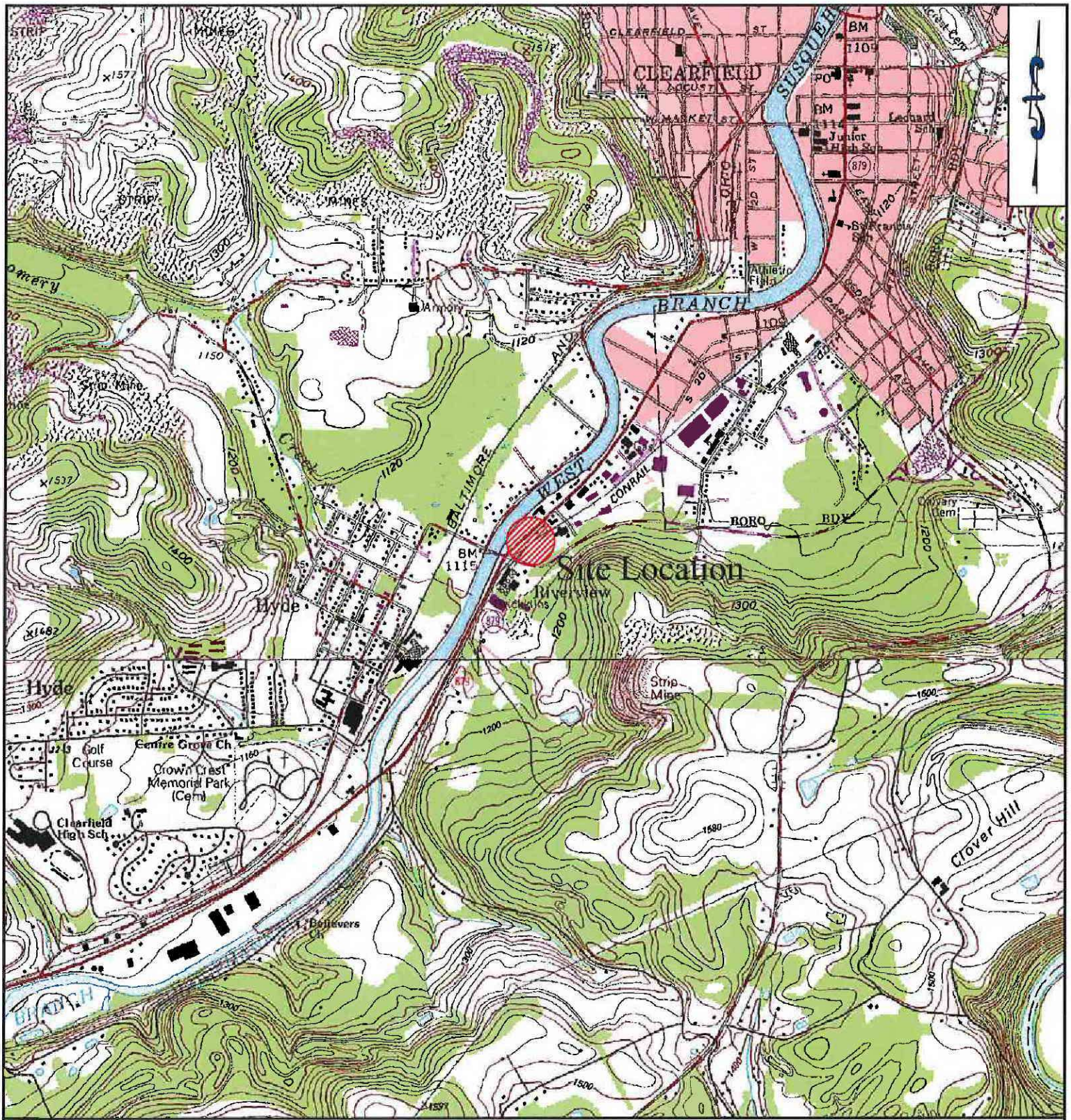
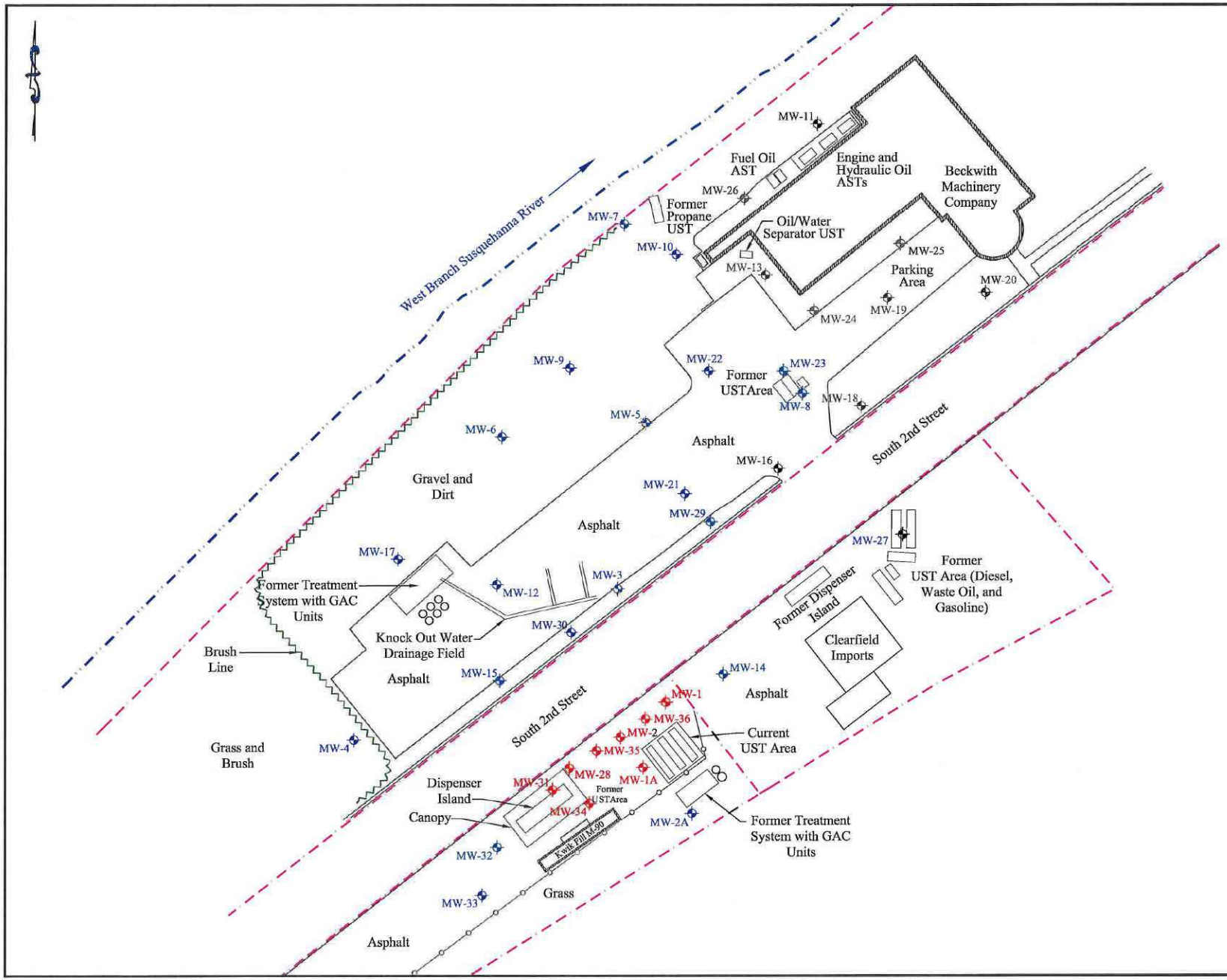
FIGURES



Reference: 7.5-minute United States Geological Survey Topographic Quadrangles of Clearfield and Glen Richey, Pennsylvania, DeLorme 3-D Topographic Quads Program.

Prepared For:	*Project Information:*	*Prepared By:*
United Refining Company, Kwik Fill M-90 1322 South 2nd Street, Lawrence Township, Clearfield County, Pennsylvania PADEP Facility ID #17-14821	Project Manager: Jed Hill Project Geologist: Steven Treschow, P.G.	Letterle & Associates, LLC 629 East Rolling Ridge Drive Bellefonte, PA 16823 P: 814-355-2241 F: 814-355-2410 www.letterleassociates.com
Title:	*Scale (feet):*	
Figure 1 Site Location Map	Scale: 1" = 2000' 0 2000 4000	



Prepared By:

Letterle & Associates, LLC

629 East Rolling Ridge Drive
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Project Manager: Jed Hill
Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 2
Site Layout Map

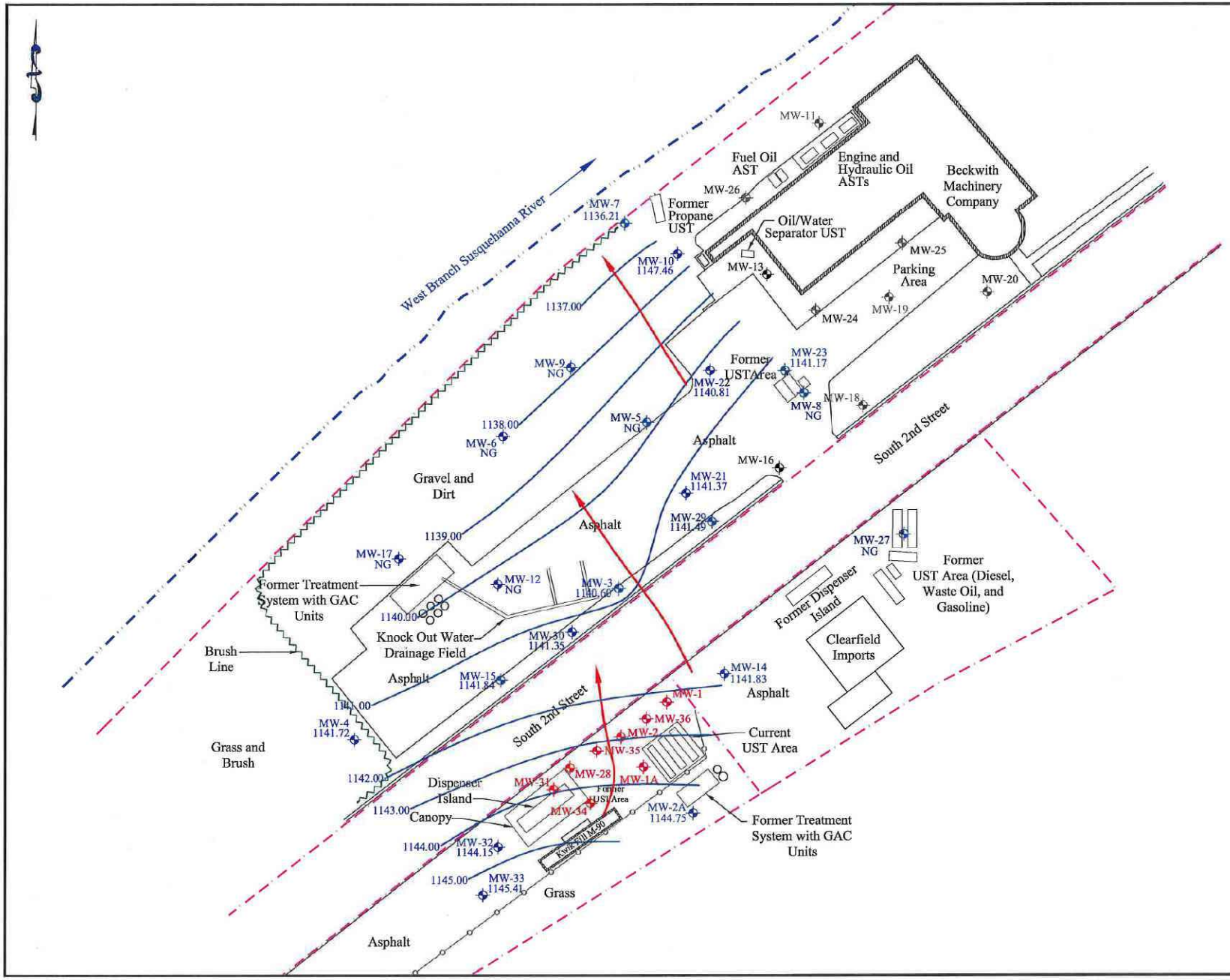
Legend:

- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120



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Project Geologist: Steven Treschow, P.G.

Prepared For:

United Refining Company
Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania

Title:

Figure 3
Groundwater Potentiometric
Surface Contour Map
December 14, 2012

Legend:

- Groundwater Monitoring Well Location
- Abandoned Groundwater Monitoring Well
- Vapor/Groundwater Extraction Well
- Property Boundary
- Guard Rail
- 1145.0 Groundwater Elevation (ft)
- Groundwater Elevation Contour (dashed where inferred)
- Groundwater Flow Direction

Scale (ft.):

1" = 60'
One Inch Equals Sixty Feet

0 60 120

APPENDICES

APPENDIX A

Groundwater Analytical Laboratory Reports

2019 Ninth Avenue
PO Box 1925
Altoona, PA 16603
(814) 946-4306
NELAP: PA 07-062, VA 460212

89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
MW-14	2L17019-01	Water	Grab	12/14/12 10:53	12/17/12 13:35
MW-2A	2L17019-02	Water	Grab	12/14/12 11:15	12/17/12 13:35
MW-33	2L17019-03	Water	Grab	12/14/12 11:29	12/17/12 13:35
MW-32	2L17019-04	Water	Grab	12/14/12 11:44	12/17/12 13:35
MW-4	2L17019-05	Water	Grab	12/14/12 12:02	12/17/12 13:35
MW-15	2L17019-06	Water	Grab	12/14/12 12:22	12/17/12 13:35
MW-10	2L17019-07	Water	Grab	12/14/12 12:34	12/17/12 13:35
MW-30	2L17019-08	Water	Grab	12/14/12 12:49	12/17/12 13:35
MW-3	2L17019-09	Water	Grab	12/14/12 13:02	12/17/12 13:35
MW-21	2L17019-10	Water	Grab	12/14/12 13:14	12/17/12 13:35
MW-29	2L17019-11	Water	Grab	12/14/12 13:25	12/17/12 13:35
MW-7	2L17019-12	Water	Grab	12/14/12 13:38	12/17/12 13:35

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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PaDEP: PA 41-04684

State Certifications: MD 275, WV 364

FAIRWAY LABORATORIES
www.fairwaylaboratories.com

Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-14 **Date/Time Sampled:** 12/14/12 10:53

Laboratory Sample ID: 2L17019-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 11:44	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*91.7 %*	*70-130*		*12/21/12 11:44*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*92.2 %*	*70-130*		*12/21/12 11:44*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.3 %*	*70-130*		*12/21/12 11:44*	*EPA 8260B*	wlm	

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FAIRWAY LABORATORIES
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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-2A **Date/Time Sampled:** 12/14/12 11:15

Laboratory Sample ID: 2L17019-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 12:22	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*97.9 %*	*70-130*		*12/21/12 12:22*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*87.9 %*	*70-130*		*12/21/12 12:22*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*89.6 %*	*70-130*		*12/21/12 12:22*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-33 **Date/Time Sampled:** 12/14/12 11:29

Laboratory Sample ID: 2L17019-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 13:00	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*88.3 %*	*70-130*		*12/21/12 13:00*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*86.5 %*	*70-130*		*12/21/12 13:00*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.0 %*	*70-130*		*12/21/12 13:00*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-32 **Date/Time Sampled:** 12/14/12 11:44

Laboratory Sample ID: 2L17019-04 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 13:38	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*92.4 %*	*70-130*		*12/21/12 13:38*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*91.0 %*	*70-130*		*12/21/12 13:38*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.6 %*	*70-130*		*12/21/12 13:38*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-4 **Date/Time Sampled:** 12/14/12 12:02

Laboratory Sample ID: 2L17019-05 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 14:16	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*91.1 %*	*70-130*		*12/21/12 14:16*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*93.6 %*	*70-130*		*12/21/12 14:16*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*93.9 %*	*70-130*		*12/21/12 14:16*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-15 **Date/Time Sampled:** 12/14/12 12:22

Laboratory Sample ID: 2L17019-06 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Methyl tert-butyl ether	2.23		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 14:54	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*89.8 %*	*70-130*		*12/21/12 14:54*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*97.0 %*	*70-130*		*12/21/12 14:54*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*96.2 %*	*70-130*		*12/21/12 14:54*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-10 **Date/Time Sampled:** 12/14/12 12:34

Laboratory Sample ID: 2L17019-07 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Methyl tert-butyl ether	5.56		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 15:33	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*93.0 %*	*70-130*		*12/21/12 15:33*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*92.0 %*	*70-130*		*12/21/12 15:33*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*95.1 %*	*70-130*		*12/21/12 15:33*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-30 **Date/Time Sampled:** 12/14/12 12:49

Laboratory Sample ID: 2L17019-08 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Toluene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	VC
Ethylbenzene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Xylenes (total)	<4.00		4.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Isopropylbenzene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Methyl tert-butyl ether	4.08		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Naphthalene	<2.00		2.00	ug/l	12/21/12 17:03	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*87.3 %*	*70-130*		*12/21/12 17:03*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*104 %*	*70-130*		*12/21/12 17:03*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*105 %*	*70-130*		*12/21/12 17:03*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-3 **Date/Time Sampled:** 12/14/12 13:02

Laboratory Sample ID: 2L17019-09 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Methyl tert-butyl ether	18.4		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 16:11	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*92.0 %*	*70-130*		*12/21/12 16:11*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*90.5 %*	*70-130*		*12/21/12 16:11*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*95.5 %*	*70-130*		*12/21/12 16:11*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-21 **Date/Time Sampled:** 12/14/12 13:14

Laboratory Sample ID: 2L17019-10 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Methyl tert-butyl ether	10.8		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 16:49	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*86.1 %*	*70-130*		*12/21/12 16:49*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*96.6 %*	*70-130*		*12/21/12 16:49*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*98.1 %*	*70-130*		*12/21/12 16:49*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-29 **Date/Time Sampled:** 12/14/12 13:25

Laboratory Sample ID: 2L17019-11 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Toluene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Ethylbenzene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Xylenes (total)	<2.00		2.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Isopropylbenzene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Methyl tert-butyl ether	3.13		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Naphthalene	<1.00		1.00	ug/l	12/21/12 17:27	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*86.8 %*	*70-130*		*12/21/12 17:27*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*94.7 %*	*70-130*		*12/21/12 17:27*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*97.7 %*	*70-130*		*12/21/12 17:27*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Client Sample ID: MW-7 **Date/Time Sampled:** 12/14/12 13:38

Laboratory Sample ID: 2L17019-12 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	84.4		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Toluene	14.8		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	VC
Ethylbenzene	89.5		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Xylenes (total)	43.6		4.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Isopropylbenzene	29.0		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Methyl tert-butyl ether	<2.00		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Naphthalene	65.4		2.00	ug/l	12/21/12 17:43	EPA 8260B	wlm	
Surrogate: 4-Bromofluorobenzene		*96.2 %*	*70-130*		*12/21/12 17:43*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*94.5 %*	*70-130*		*12/21/12 17:43*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*101 %*	*70-130*		*12/21/12 17:43*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UR CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/28/12 09:59
Project Manager: Jed Hill	Number of Containers:	24	

Notes

VC Check standard was outside the QC range. Data accepted based on acceptable LCS.

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

* P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.

< Represents "less than" - indicates that the result was less than reporting limit.

MDL Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.

RL Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

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2L1701901
COC #

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Client Name: Letterle Assoc.
Address: 624 E. Rolling Ridge Dr. Bellefonte, PA 16823
Contact: J. Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: UR Clearfield
Quote/PO #: —

Received on ice? Y N
Sample Temp:
Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

Analyses Requested

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

	Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	1998 Unleaded Gas	Bottle Type/Comments
1	MW-14	X				12-14-12	1053		X		2	X	
2	MW-2A	X				12-14-12	1115		X		2	X	
3	MW-33	X				12-14-12	1129		X		2	X	
4	MW-32	X				12-14-12	1144		X		2	X	
5	MW-4	X				12-14-12	1202		X		2	X	
6	MW-15	X				12-14-12	1222		X		2	X	
7	MW-10	X				12-14-12	1234		X		2	X	
8	MW-30	X				12-14-12	1249		X		2	X	
9	MW-3	X				12-14-12	1302		X		2	X	
10	MW-21	X				12-14-12	1314		X		2	X	
11	MW-29	X				12-14-12	1325		X		2	X	

	Date	Time		Date	Time
Sampled by:	12-14-12	1523	Received by:	12/7/12	1030
Relinquished by:	12/7/12	1230	Received by:	12/7/12	1230
Relinquished by:	12/7/12	1335	Received by:	12/7	1335
Relinquished by:	Date	Time	Received by:	Date	Time

Remarks

27

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
Fax: (814) 946-8791

FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

2L1701902
COC #

Page 2 of 2

Client Name: Letterle Assoc.
Address: 629 E Rolling Ridge Dr. Bellefonte, PA 16823
Contact: J. Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: UR Clearfield
Quote/PO #: —

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas w/ Benzene	Bottle Type/Comments
18 MW-7	X				12-14-12	1338		X		2	X	

	Date	Time		Date	Time
Sampled by:	12-14-12	1523	Received by:	12-17-12	10:30
Relinquished by:	12-17-12	12:30	Received by:	12/17	1335
Relinquished by:	12/17/12	1335	Received by:		
Relinquished by:			Received by:		

Remarks

27

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Chain of Custody Receiving Document

Receiver: AC Page ___ of ___

Date/Time of this check: 12/17/12 1345 Sample Temperature: 2.6 Client: Letterle & Assoc Lab # 2L1701903

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 2.6 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: Water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐ *	Properly Preserved ☐ *	Bacti	
1							2				
									N		
12							4				

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

Chain of Custody Receiving Document

APPENDIX B

Remediation System Start-Up Engineering Evaluation

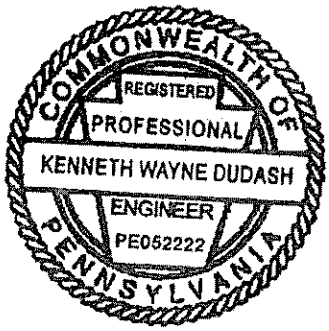
REMEDIATION SYSTEM START-UP ENGINEERING EVALUATION

PADEP Facility ID #17-14821
PAUSTIF Claim #2008-0034(M)
Kwik Fill #M-90
1322 South 2nd Street
Clearfield, Lawrence Township,
Clearfield County, PA 16830

Prepared for:

United Refining Company of Pennsylvania
15 Bradley Street
P.O. Box 688
Warren, PA 16365

Prepared by:



Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

Kenneth W. Dudash, P.E.
Senior Project Engineer

December 2012

"By affixing my seal to this document, I am certifying that the information is true and correct to the best of my knowledge. I further certify I am licensed to practice in the Commonwealth of Pennsylvania and that it is within my professional expertise to verify the correctness of the information."

Kenneth W. Dudash, P.E. (signed and sealed this day (December 21, 2012))

TABLE OF CONTENTS

1.0 INTRODUCTION

As per the approved Pennsylvania Department of Environmental Protection (PADEP) Remedial Action Plan (RAP), a remedial system was installed at the United Refining Kwik Fill #M-90 Clearfield site (Kwik Fill M-90) during September 2012. The remedial system utilizes Dual Phase Extraction (DPE) technology to extract subsurface vapor and groundwater. The system was started on October 30, 2012 with a remediation system engineering evaluation performed at the Kwik Fill M-90 on November 27, 2012. This engineering evaluation was performed to document site conditions during the operation of the remedial system and to evaluate the performance and effectiveness of the remediation system, and to determine if any changes or modifications are necessary. The remediation system was checked for overall operating condition, hydraulic influence zone, pneumatic radius of influence (ROI), and groundwater/soil vapor extraction rates. This evaluation also compares the current remediation system operation to the original system design and recommends future system enhancements, if required.

2.0 SITE HISTORY

Kleinfelder East, Inc. (Kleinfelder) performed dual-phase extraction (DPE) pilot testing at the Kwik Fill M-90 in September 2010. Pilot test activities were conducted in order to assess the applicability of groundwater extraction in conjunction with soil vapor extraction (SVE) to remediate hydrocarbon-impacted soil and groundwater at the site. The pilot test involved the simultaneous recovery of soil vapor and groundwater from a designated extraction well (MW-31), while monitoring water table drawdown and induced vacuum in surrounding monitor wells.

During the testing, an average of 150 inches of water (in H2O) (11 inches of mercury (in.Hg)) was applied to the test well, resulting in an extracted flow rate of 25 standard cubic feet per minute (scfm). The average aquifer yield was approximately 2 gallons per minute (gpm) with a groundwater capture zone of 134 to 190 feet. A pneumatic ROI could not be calculated due to a lack of vacuum response in the surrounding wells but the closest well was 17 feet from MW-31. VOC concentrations were detected at low levels in the vapor stream during the tests.

The pilot test results indicated that a DPE system would be an effective and aggressive remediation strategy to reduce adsorbed and dissolved phase petroleum hydrocarbons in subsurface soil and groundwater. However, additional shallow wells in the source area were needed to shorten the time for active remediation.

The results from the pilot test depict an accurate representation of the site's hydraulic and pneumatic properties. Based on previous investigations by others, the geology of the site generally consists of unconsolidated materials (primarily silty clay) to depths of 10 to 17 feet. Unconsolidated materials are underlain by bedrock consisting of primarily sandstone and shale (Pottsville Group). Groundwater is located within the unconsolidated materials at depths ranging from one to seven feet below ground surface (bgs) across the site and adjoining properties. Groundwater typically flows to the northwest towards the West Branch of the Susquehanna River.

The geology of the site with the confining silty clay overburden provides for a small pneumatic ROI and hydraulic influence zone in the shallow areas to be treated with the DPE. The fractured bedrock of the deep aquifer provides for a very large hydraulic influence zone for the pneumatic pumps to be effective.

A DPE system was installed at the site and was activated on October 30, 2012. The purpose of the remediation system is to achieve attainment of the PADEP SHS for a residential used aquifer at the on-site point of compliance (POC), and off-site monitoring wells identified in the Site Characterization Report.

3.0 REMEDIATION SYSTEM AS-BUILT

The remediation system installation was completed at the site in September 2012. The system was activated on October 30, 2012. The following section details the system construction.

3.1 Remediation System Construction

The remediation system utilizes DPE technology with two high vacuum rotary claw pumps and six pneumatic pumps to remove vapors and groundwater from the subsurface. Groundwater can be extracted by the pneumatic pumps from six recovery wells (MW-1, MW-1A, MW-2, MW-28, MW-31 and MW-34) and by the rotary claw pumps from MW-35 and MW-36. The claw pumps apply vacuum and provide vapor recovery in all the recovery wells. Following extraction, groundwater and soil vapor are routed through an air/water separator (AWS). Groundwater from the pneumatic pumps is combined in an equalization tank. After equalization or separation, the groundwater is pumped through six sediment filters (connected in parallel/series) and then treated with four liquid phase granular activated carbon (GAC) units connected in a parallel/series configuration. The treated groundwater is discharged to a sanitary sewer drain southwest of the existing building site for treatment by the local sanitary authority.

The extracted vapor is passed through a heat exchanger to cool the temperature to below 100 degrees Fahrenheit and then treated with two 600-pound vapor phase GAC units connected in series to remove hydrocarbons from the vapor stream.

3.2 Remediation System Piping and Equipment

The following subsurface piping is used to extract soil vapor and groundwater from the site:

- MW-1, MW-1A, MW-2, MW-28, MW-31, and MW-34 through MW-36 are 4-inch diameter poly vinyl chloride (PVC) recovery wells. MW-1 is constructed with 11 feet of slotted screen from 5 to 16 feet bgs. MW-1A is constructed with 10 feet of screen from 5 to 15 feet bgs. MW-2 is constructed with 4-inch screen from 5 to 18.5 feet bgs. MW-28 has a screen from 5 to 21.5 feet bgs. MW-31 has 14 feet of screen from 5 to 19 feet bgs and MW-34 through MW-36 was constructed with screen from 5 to 22 feet bgs.
- Each recovery well is protected by 3' x 3' concrete pads with 18-inch diameter manholes.
- Vapor and groundwater are extracted through 1-inch diameter drop tubes extended to depths of 10 feet bgs in MW-35, and 10 feet bgs in MW-36. Extracted vapor and groundwater are conveyed through 2-inch diameter schedule 40 PVC subsurface piping installed from the system trailer to each recovery well.
- Each recovery well with drop tubes is connected to the subsurface extraction piping with pitless adapters installed on the recovery well riser piping at approximately 3 feet bgs. The pneumatic

groundwater pumps in MW-1, MW-1A, MW-2, MW-28, MW-31, and MW-34 are installed with the pump inlets at 1 foot from the bottom of the well.
- Treated groundwater is discharged via a 2 inch PVC pipe under a local sanitary permit.

The following remediation equipment is currently used to extract and treat vapor and groundwater from the site:

- Two 10-hp Busch Rotary Claw Pumps 230-volt three-phase (Model MM-1252-AV)
- One 80-gallon Air/Water Separator (MS80)
- One 250-gallon Equalization Tank
- One 2-hp transfer pump (Goulds Pumps Model NPE)
- One 3-hp transfer pump (Goulds Pumps Model NPE)
- Six 20" Big Blue® cartridge filter canisters
- Six pneumatic pumps (QED AP-4 Short)
- One 5.0 hp air compressor
- One 1.0 hp heat exchanger
- Four 300-pound liquid phase GAC units
- Two 600-pound vapor phase GAC units
- One explosion-proof heater and exhaust fan
- Electrical supply is 120/240 three phase, 200-amp service.

A Trenching Diagram and an as-built Piping and Instrumentation Diagram (P&ID) are included as **Figures 1 and 2,** respectively.

4.0 CURRENT REMEDIATION SYSTEM OPERATIONS

The DPE remedial system was activated on October 30, 2012 and the system was in operation upon arrival at the site on November 26, 2012. The system was shutdown at the end of the day to allow for return of groundwater levels to static conditions prior to starting the evaluation on November 27, 2012. All remediation system equipment was observed to be in good working condition prior to shutdown.

All clear schedule 40 PVC sight-tubes on the influent manifold showed signs of only minor scaling to the system piping. Since remediation system startup, a total of 142,565 gallons of groundwater have been extracted at an average of 4.71 gpm over the time period. All equipment safety alarms have been tested and are in good working order.

5.0 REMEDIATION SYSTEM DESIGN EVALUATION

5.1 DPE Engineering Evaluation – November 27, 2012

Upon arrival at the site on November 27, 2012, a pneumatic ROI and hydraulic influence zone test was initiated upon restart of the system. The remedial system had been in continuous operation for more than 7 days prior to the test. During initial system startup during the week of October 30, 2012, the system was adjusted to extract from wells MW-1, MW-28, MW-31 and MW-34 only. The number of recovery wells used for system operation was limited due to the volume of groundwater that exists at the

site and the high flow rate that can be obtained. If all the recovery wells are utilized together, the groundwater extraction flow rate would exceed treatment equipment flow rate specifications.

The system was adjusted to provide a vacuum of 12 inches of mercury (inHg) (99 scfm) during the test. Photo ionization detection (PID) reading of the vapor was measured at 124.9 parts per million volume (ppmv). Data obtained from monitoring the vacuum influence at the observation wells was used to obtain an approximate ROI. The pneumatic ROI is the transient pressure distribution created by the vacuum that results in an area in which the air flow rate through the soil decreases to the point in which the contaminants will not volatize. The ROI is measured in resulting inches of water (in H_2O) vacuum. Generally, a level of 0.1 in H_2O is the industry accepted standard extent that volatilization is limited due to a lack of subsurface vapor flow, and the extent of the ROI can be calculated.

Since MW-35 and MW-36 were not utilized for extraction, these wells were included in the monitoring during the evaluation. Vacuum levels of greater than 0.1 inches of water were found in adjacent wells MW-32, MW-35, and MW-36. All other monitor wells exhibited no vacuum response. The groundwater levels in all the monitor wells were below the well screen which allowed for a vacuum response if produced in these wells. The observed influence vacuum resulted in an average calculated pneumatic ROI of approximately 47 feet to the southwest but does not extend to MW-14 (40 feet to the northeast). The areas southeast of the existing tank field and north across South 2nd Street do not appear to be influenced by the vacuum of the DPE remediation system. Hydrocarbon content was recorded in the field with the PID during the evaluation.

Groundwater levels were recorded at all monitoring wells and were compared to static levels. From the difference in the observed groundwater levels, it was apparent that drawdown was occurring at a distance of approximately 140 feet to the northeast across South 2nd Street to MW-21. Drawdown was also recorded to the southwest to MW-33 at 0.1 feet. MW-27, which is located 180 feet east of the nearest recovery well MW-1, did not exhibit any drawdown. A hydraulic zone of influence map is included as **Figure 3**. **Table 1** shows the groundwater and vacuum influence readings collected during the DPE evaluation. **Chart 1** shows the calculated pneumatic ROI from the operating recovery wells during the DPE system evaluation. **Chart 2** shows the calculated hydraulic zone of influence.

Hydrocarbon recovery was measured in the field with a PID at 116.8 ppm-v. This resulted in a calculated removal rate of 1.04 lbs per day. A summary of vapor recovery system hydrocarbon removal calculations is included as **Table 2.**

Since system startup, the remediation system has operated at an average of 81% runtime for the groundwater pumps and 56% for the vacuum pumps. The lower runtime for the vacuum pumps is due to an over amping problem which causes the claw pumps to shut down. The problems were diagnosed by a close examination of the effluent piping which contains multiple valves and piping diameters that caused excessive exhaust pressure which resulted in the over amping of the units. All exhaust piping and valves were replaced with larger diameter sizes from the rotary claw units to the heat exchanger.

The telemetry unit was connected during the initial operation of the system and has responded during alarm conditions. With only MW-1, MW-28, MW-31, and MW-34 DPE recovery wells in operation; the petroleum-impacted shallow area near the tank field is being affected by the system operation (based on groundwater drawdown and vacuum response produced by the wells during the evaluation). Vacuum short circuiting is apparent into the tank field with the LRP operating at <5 in. Hg with MW-1 in full operation. This results in a low availability of vacuum pump capacity to apply to the other DPE recovery

wells in operation. The applied vacuum was valved off to MW-1 to increase the vacuum of the system. Areas beyond MW-21 to the north/northeast due not appear to be influenced by the DPE system.

The DPE remediation system recovery wells are producing a hydraulic influence zone similar to the size calculated from the site pilot test data and predicted in the RAP. The pneumatic ROI appears to be larger than predicated in the pilot test study. The remediation system was designed to be able to establish a hydraulic influence zone and pneumatic ROI to encompass the entire onsite shallow impacted plume and extend down gradient to influence the plume. When the pneumatic ROI is overlaid over the contaminant plume map, results show that the majority of the shallow contaminated area on-site is affected by the current DPE remediation system.

5.2 Key Criteria of System Feasibility

Key criteria and quantified ranges of values that were expected during the system testing in order to ensure a technology is a technically feasible application and for the system to operate as planned and meet the clean-up schedule included the following:

- If the maximum attainable groundwater extraction rate realized during system operation is below 2 gpm DPE technology would be deemed infeasible;

The remedial system has averaged greater than 4 gpm since the system startup and averaged 3.6 gpm during the evaluation.

- The groundwater capture zone will be defined as a decrease in the elevation of groundwater of at least 0.1 feet at a distance from the extraction point of a least 134 feet for two of the observation points at varied directions from the test well;

The calculated hydraulic zone of influence from the evaluation results is 145 feet and includes the majority of the plume area north of the site across South 2nd Street.

- If the maximum attainable vacuum realized during the extraction is below 11 in. Hg, the specified vacuum equipment would be deemed infeasible and other vacuum equipment such as a regenerative blower will be the utilized equipment;

Although several of the recovery wells exhibited low vacuum yields during the evaluation, the majority of the site geology requires the applied vacuum to be above 11 in. Hg which requires the use of the existing vacuum equipment.

- The pneumatic ROI as defined by an observed vacuum of 0.1 inches of water after stabilization of the readings will be observed at a minimum distance of 15 feet from the extraction point for two observation points located at varied directions from the test well;

The calculated pneumatic ROI was 25 feet in a measured response at the site in a northeast and southwest direction from the operating recovery wells.

- The VOC recovery rate in the extracted vapor will be greater than 0.5 pounds per day, as calculated from the analytical results of the extracted vapor or field measured levels, and the attainable flow rate measured during the interval of the test.

*The VOC recovery rate as calculated from the initial analytical results of the extracted vapor is 0.25 lbs/day which is below the 0.5 lbs/day criteria however, when calculated by the field measured levels, the system has been extracting 7.49 lbs/day (**Table 2**).*

Due to the location of the site next to the West Branch of the Susquehanna River and the high water table, the available extracted groundwater rate is greater than 10 gpm for the initial 24 hours of system operation. Once the site has been dewatered, the recovery rate slows to less than 1.0 gpm per recovery well. It appears from the evaluation data that the remedial extraction equipment may have been

overdesigned and can provide the hydraulic influence with fewer recovery wells in operation. If the remedial system has been down for longer than 24 hours, the groundwater extraction rate during restart is greater than the design flow. This flow rate provides a groundwater pump air usage that exceeds the capacity of the air compressor. The actual groundwater flow rate is higher than the anticipated design flow rate which has overwhelmed the treatment units and transfer pump shutting down the system. Utilizing a lower number of recovery wells has allowed the system to remain in operation.

The extracted groundwater flow rate decreases with the dewatering of the site and allows the air compressor to operate at an optimum 30% duty cycle after approximately 24 hours of operation. The high groundwater levels at the site also inhibit vapor recovery due to the lack of available open soil pore space. Once the site is dewatered, the groundwater table falls and opens areas of the soil that was not available for vapor extraction without the dewatering of the site.

6.0 REMEDIATION SYSTEM UPGRADES

The over amping of the rotary claw SVE pumps has been eliminated by increasing the size of the exhaust piping. Heat tape and insulation have been installed on all hoses and piping that is exposed under the trailer to prevent freezing. Sediment filter changes will initially occur during every O&M event in order to minimize system downtime due to clogged sediment filters. The four 400-pound liquid-phase GAC pressure vessels will continue to be connected in a parallel/series arrangement to treat the groundwater. The existing vapor carbon treatment system will remain with two 600-pound vapor-phase GAC units connected in a series configuration.

7.0 REMEDIATION SYSTEM PERMITTING

The recovered groundwater is treated and discharged directly to the sanitary pipe under a permit issued by the Clearfield Municipal Authority (CMA). Under the terms of the permit, analytical reports and totalizer readings are reported in Discharge Monitoring Reports (DMR) on a monthly basis to the CMA.

Petroleum impacted soil and groundwater remediation systems have been listed as exempt from the Plan Approval/Operating permit requirements by PADEP, Division of Air Quality. The remediation system is operated under the exemption requirements.

8.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the results of this system engineering evaluation, the remediation system at the Kwik Fill M-90 site is operating with influence results similar to the original design and currently, the influence of the DPE system is large enough to cover the majority of the down gradient contaminated plume area. The DPE system has been placed into operation and extraction from the recovery wells will continue. To allow for adequate vacuum levels with the addition of the VEGE system, DPE recovery wells MW-1 and MW-28, MW-31, and MW-34 will be continuously operated through 2013. MW-1A, MW-2, MW-35 and MW-36 will remain shutdown to increase the vacuum of the DPE system and to prevent overwhelming the groundwater treatment system with excessive amounts of extracted groundwater. The system will be serviced twice a month for regularly scheduled preventative maintenance to ensure operational success. Future evaluations will include measurements of vacuum at the top of each

recovery well, groundwater recovery rates from each DPE well, and water table drawdown after an extended period of system operation.

TABLES

TABLE 1: DPE SYSTEM EVALUATION EVENT SUMMARY

SITE: M-90 Clearfield Kwik Fill

DATE: 11/20/2012

VEGE EXTRACTION WELLS: MW-1, MW-28, MW-31, MW-34

GROUNDWATER GAUGING DATA
ELAPSED TIME (IN HRS.)

Well	Initial DTW	10:10	11:10	12:10	13:10	14:10	Total Drawdown
MW-2	5.15	5.34	5.63	5.78	5.86	6.2	1.05
MW-3	6.47	6.6	6.71	6.79	6.82	6.95	0.48
MW-4	5.04	5.05	5.05	5.06	5.06	5.06	0.02
MW-7	7.73	7.75	7.75	7.73	7.73	7.74	0.01
MW-8	6.4	6.4	6.41	6.48	6.51	6.46	0.06
MW-10	3.00	3.00	3.00	3.00	3.00	3.00	0.00
MW-14	8.12	8.51	8.81	8.98	9.1	9.31	1.19
MW-15	6.37	6.47	6.54	6.60	6.63	6.79	0.42
MW-21	5.72	5.74	5.81	5.81	5.86	5.9	0.18
MW-22	4.84	4.86	4.88	4.87	4.88	4.85	0.01
MW-23	6.31	6.35	6.25	6.25	6.25	6.24	-0.07
MW-27	6.7	6.67	6.69	6.67	6.66	6.67	-0.03
MW-29	6.47	6.51	6.55	6.57	6.58	6.64	0.17
MW-30	6.71	6.81	6.93	7.02	7.03	7.22	0.51
MW-32	7.51	7.65	7.93	8.16	8.3	8.5	0.99
MW-33	7.11	7.12	7.12	7.12	7.17	7.21	0.10
MW-35	9.45	11.88	12.46	12.66	12.81	14.55	5.10
MW-36	7.85	10.06	10.51	10.66	10.80	11.17	3.32
Totalizer	141695.4	142109.4	142283		142565.3		3.62 gpm

SOIL VAPOR GAUGING DATA
ELAPSED TIME (IN HRS.)

Well	1:00	2:00	3:00	4:00	5:00	
MW-2A				0	0	
MW-14				0	0	
MW-32				0.11	0.12	
MW-35				>10	>10	
MW-36				0.62	0.64	
PID				124.9	116.8	
Blower VAC (i.e., applied)				15	12	
Well VAC						

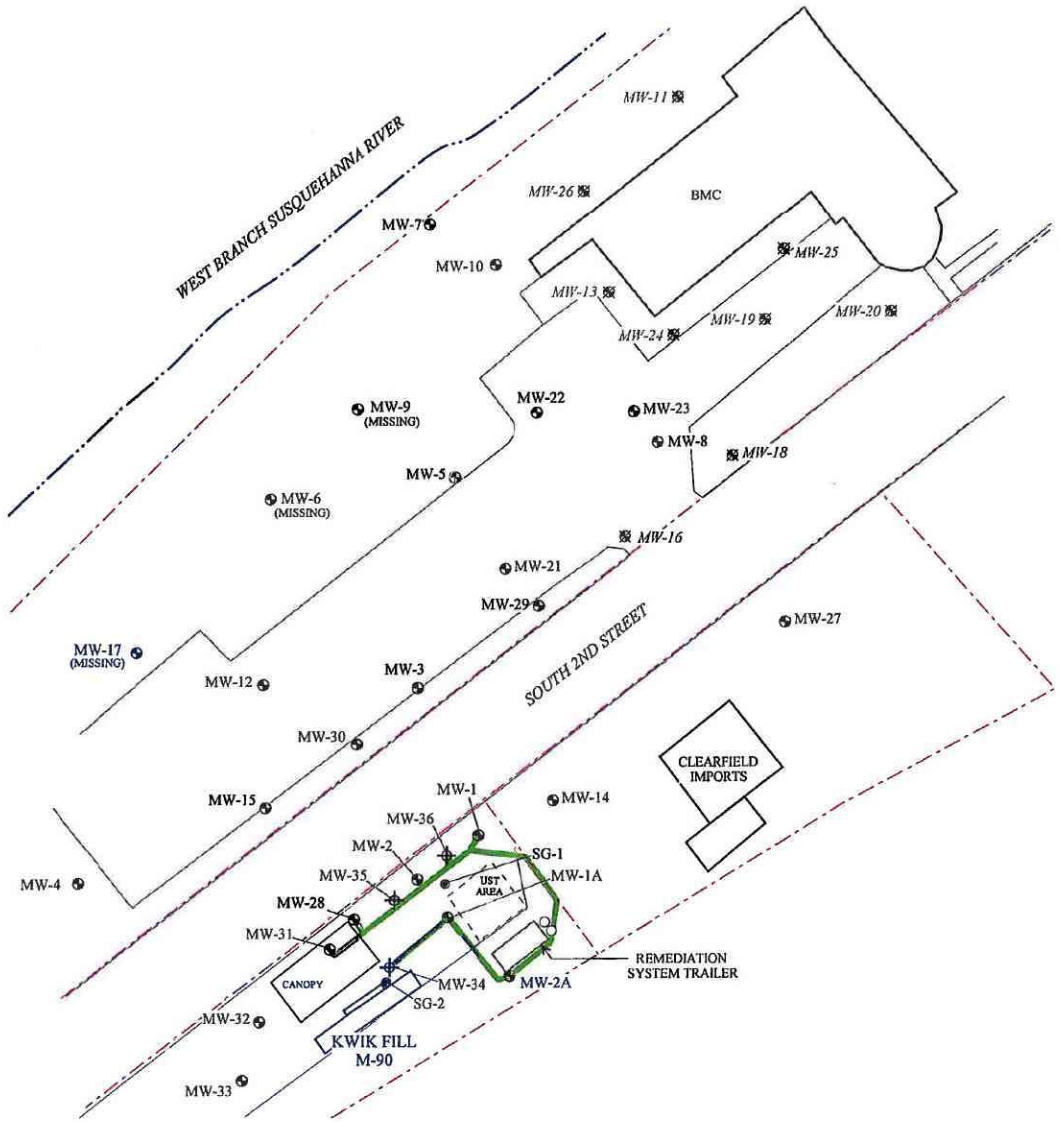
TABLE 2
VAPOR RECOVERY SYSTEM
HYDROCARBON REMOVAL CALCULATIONS
(Field Quantification)

United Refining--Kwik Fill M-90
1322 South 2nd Street
Clearfield, Pennsylvania 16830

Sample Location	Date	Extracted Vapor rate (scfm)	PID Hydrocarbon concentration (ppm)	Hydrocarbon Mass Removed (lb/day)	Hydrocarbon Mass Removed To Date (lb)
Influent	10/04/12	158	126	1.79	1.79
	10/17/2012	158	227	3.22	43.69
	11/7/2012	158	75.3	1.07	37.07
	11/20/2012	99	116.8	1.04	77.97

Notes:
NA denotes Not Analyzed.
NS denotes Not Sampled.

FIGURES



LEGEND

- PROPERTY BOUNDARY
- MW-1 EXISTING MONITOR WELL
- *MW-11* MONITOR WELL - ABANDONED
- SG-1 SOIL GAS MONITORING POINT
- MW-34 DPE WELL
- TRENCH LOCATION

SCALE IN FEET

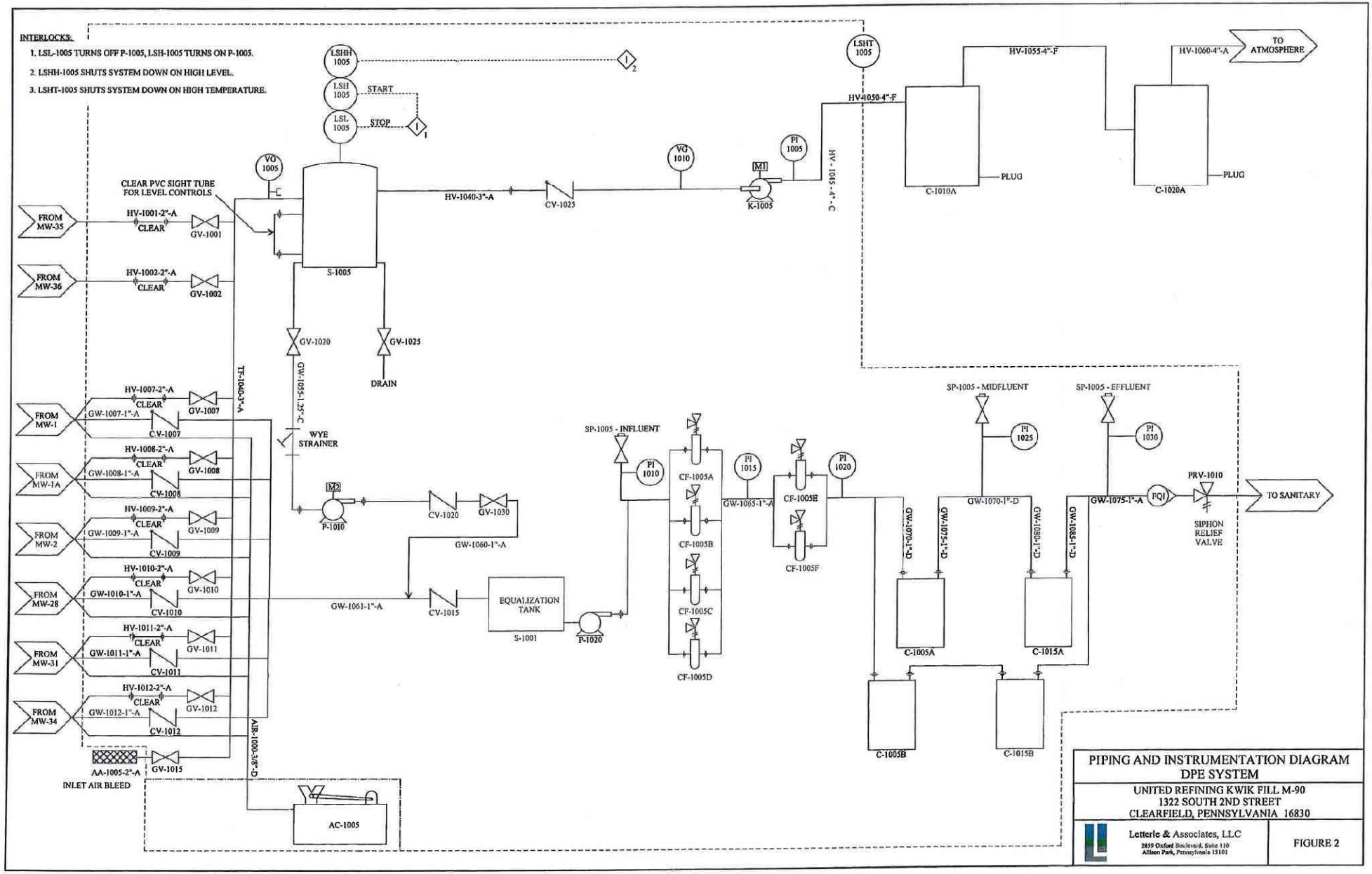
0 60

AS-BUILT TRENCHING DIAGRAM

UNITED REFINING KWIK FILL M-90
1322 SOUTH 2ND STREET
CLEARFIELD, PENNSYLVANIA 16830

Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

FIGURE 1

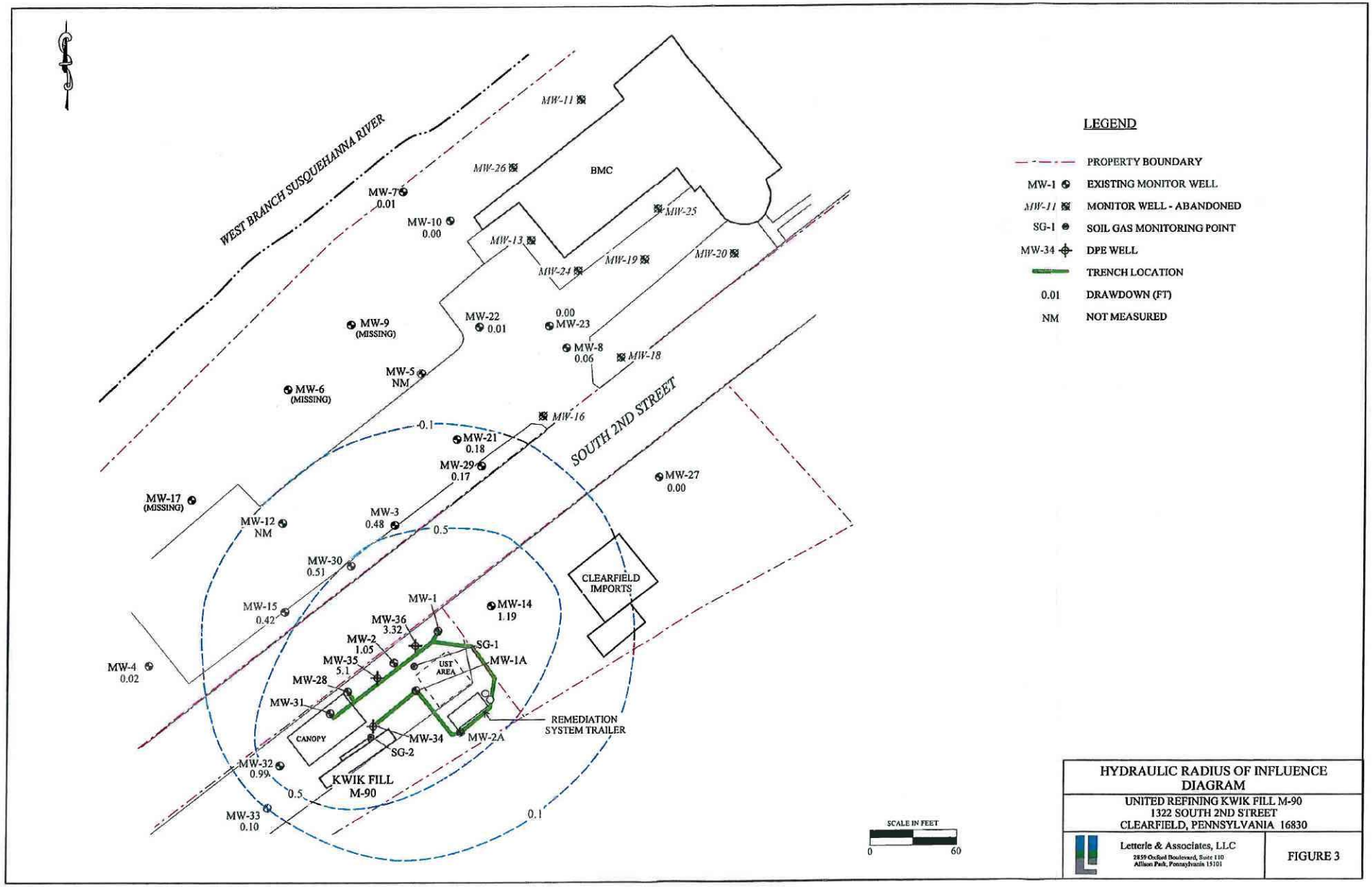


PIPING AND INSTRUMENTATION DIAGRAM
DPE SYSTEM

UNITED REFINING KWIK FILL M-90
1322 SOUTH 2ND STREET
CLEARFIELD, PENNSYLVANIA 16830

Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

FIGURE 2



HYDRAULIC RADIUS OF INFLUENCE DIAGRAM

UNITED REFINING KWIK FILL M-90
1322 SOUTH 2ND STREET
CLEARFIELD, PENNSYLVANIA 16830

Letterle & Associates, LLC
2859 Oxford Boulevard, Suite 110
Allison Park, Pennsylvania 15101

FIGURE 3

CHARTS

CHART 1: DPE System Pneumatic ROI
November 20, 2012
United Refining M-90
Clearfield, Pennsylvania

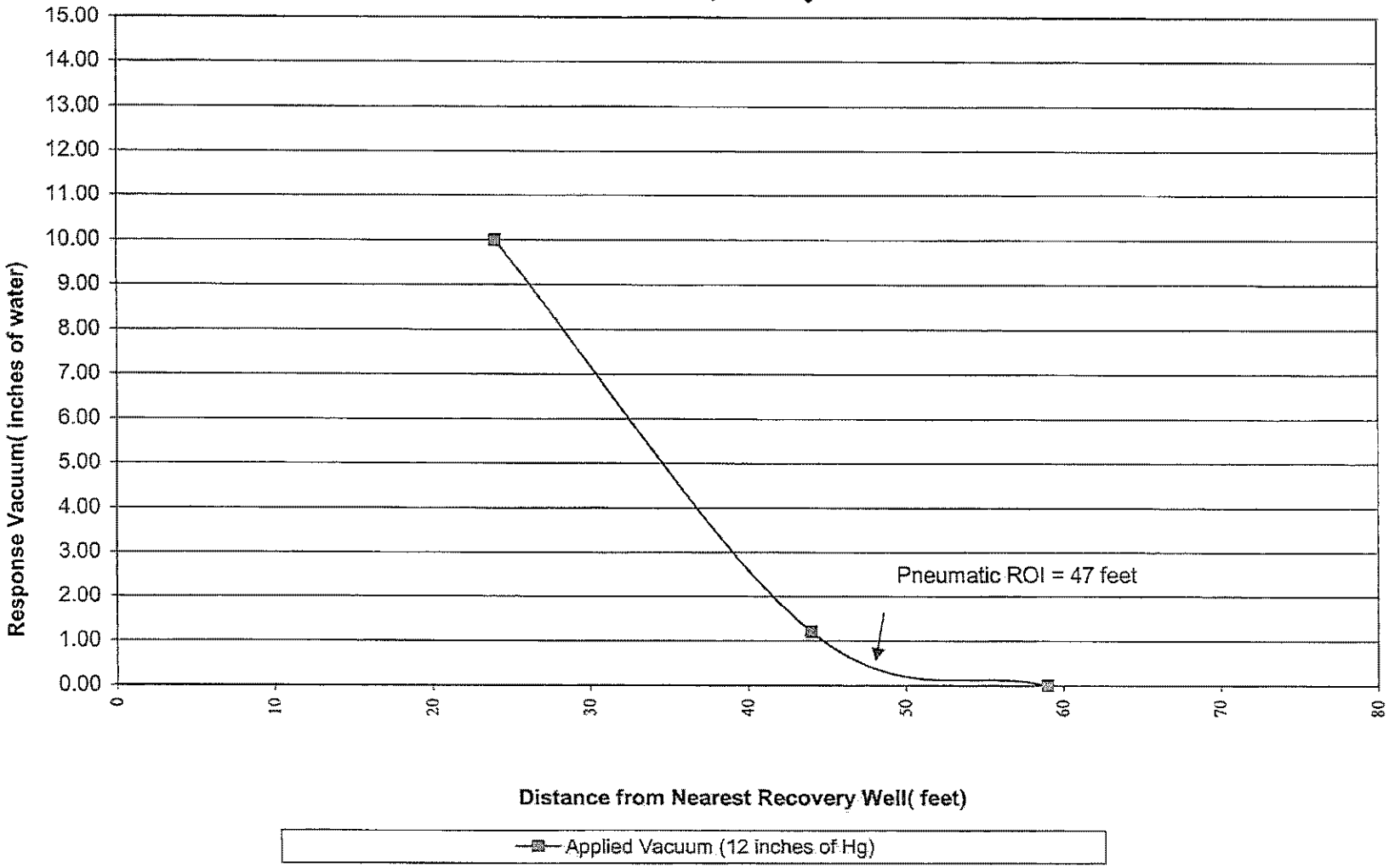
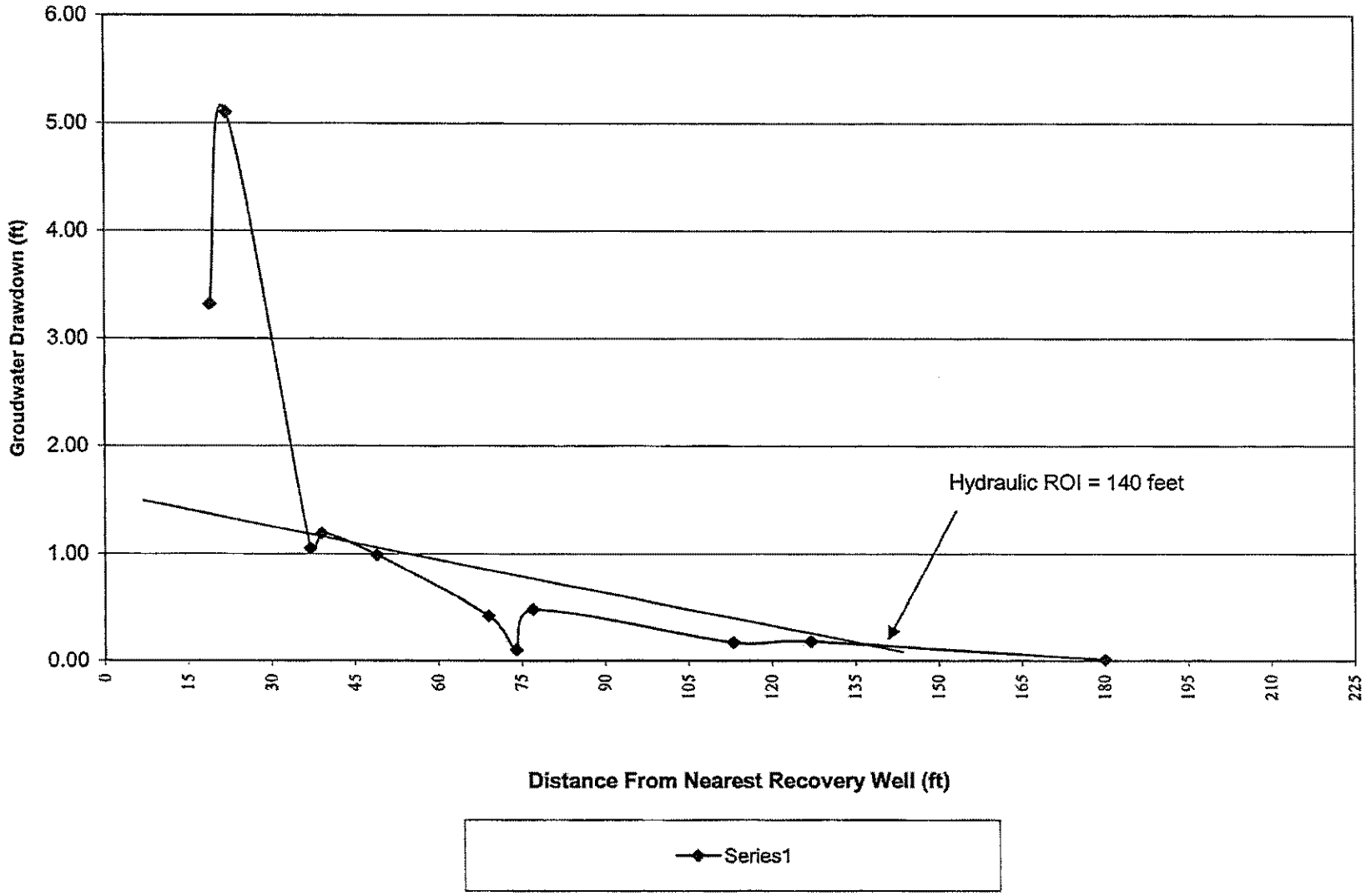


CHART 2: DPE System Hydraulic Zone of Influence
December 20, 2012
United Refining M-90
Clearfield, Pennsylvania



VAPORTECH Services, Inc.

10/17/2012

Mr. Jed Hill
Letterle and Associates, LLC
2859 Oxford Blvd, Suite 110
Allison Park, PA 15101

Dear Jed:

Enclosed are the sample data report, chain of custody record and quality control data for the sample(s) received on October 8, 2012 for your project; 277 - United Clearfield.

Please give me a call if you have questions or I can be of further assistance. Thank you for using Vaportech Services.

Sincerely,

David J. Masdea

Enclosure:

1158 Pittsburgh Road, Suite 201, Valencia, PA 16059
Ph: 724-898-2622 Fx: 724-898-2633 www.vaportechservices.com

Vaportech Service, Inc

LET38-2655

Letterle and Associates, LLC
Project: 277 - United Clearfield

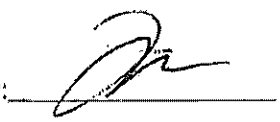
CONCENTRATIONS IN PPMV

COMPOUND	EFFLUENT	BETWEEN	INFLUENT	PQL
MTBE	ND	ND	ND	0.07
BENZENE	ND	ND	1.84	0.07
TOLUENE	ND	ND	0.66	0.07
ETHYL BENZENE	ND	ND	0.27	0.07
M&P XYLENE	ND	ND	1.29	0.07
O-XYLENE	ND	ND	0.13	0.07
CUMENE	ND	ND	ND	0.07
NAPHTHALENE	ND	ND	ND	0.07

FILE NAME	V73A.581.BND	V73A.582.BND	V73A.583.BND
DATE SAMPLED	10/04/12	10/04/12	10/04/12
DATE RECEIVED	10/08/12	10/08/12	10/08/12
DATE ANALYZED	10/11/12	10/11/12	10/11/12

PQL - denotes lower 'Practical Quantitation Limit'
ND - 'Not Detected' at or above the lower practical quantitation limit

17-Oct-12

Reviewed by: 

Vaportech Service, Inc

Letterle and Associates, LLC
Quality Control
Laboratory Project(s): 2655, 2663, 2664, 2665

CONCENTRATIONS IN PPMV

CONTINUING CALIBRATION CHECK

STANDARDS: STD 21V R4 PA-BTEX-H
FILE NAME: V73A.571.BND V73A.575.BND
DATE ANALYZED: 10/10/12 10/10/12

COMPOUND	KNOWN (PPMV)	RESULT (PPMV)	PERCENT DIFFERENCE
MTBE	50.33	48.00	4.63
BENZENE	1.25	1.26	0.64
TOLUENE	1.06	1.10	3.30
ETHYL BENZENE	0.92	0.96	4.24
M&P XYLENE	1.84	1.94	5.65
O-XYLENE	0.92	0.96	4.24
CUMENE	36.91	34.62	6.21
NAPHTHALENE	34.61	32.68	5.58

LABORATORY BLANK RESULTS

BLANK: N2 IN VIAL
FILE NAME: V73A.570.BND
DATE ANALYZED: 10/10/12

COMPOUND	BLANK (PPMV)	PRACTICAL QUANTITATION LIMIT (PPMV)
MTBE	ND	0.07
BENZENE	ND	0.07
TOLUENE	ND	0.07
ETHYL BENZENE	ND	0.07
M&P XYLENE	ND	0.07
O-XYLENE	ND	0.07
CUMENE	ND	0.07
NAPHTHALENE	ND	0.07

ND - 'Not Detected' at or above the lower practical quantitation limit

16-Oct-12

Reviewed by: 

LET 38-2655

CHAIN-OF-CUSTODY RECORD

VAPORTECH Services, Inc.

1158 Pittsburgh Road • Suite 201 • Valencia, PA 16059
Tel: 724-898-2622 • Fax: 724-898-2633

Company Name: Letterle & Associates, LLC
Address: 629 E. Rolling Ridge Drive
City: Bellefonte State: PA Zip: 16823
Proj. Manager: Jed Hill
Proj. Location: United Clearfield
Proj. Number: #277
Phone #: 814-355-2241 Fax #: 814-355-2410

Sampler's signature:

Analysis Options: Enter letters in Requested Analysis columns below.

A	Light Hydrocarbons	F	BTEX
B	Permanent Gases	G	BTEX & C5 - C10
C	Methane	H	TPH (C4 - C12 range)
D	Methane, Ethane, Ethylene	I	Chlorinated Hydrocarbons
E	Hydrogen	J	624 Compound List

Light Hydrocarbons: Methane, Ethane, Ethylene, Propane, Propylene, iso-Butane, n-Butane
Permanent Gases: Carbon Dioxide, Oxygen, Nitrogen, Methane, Carbon Monoxide
BTEX: Benzene, Toluene, Ethyl Benzene, m & p -Xylene, o-Xylene
C5-C10: Pentane, Hexane, Heptane, Octane, Nonane, Decane
Chlorinated HC: 1,1-DCE, 1,1-DCA, Methylene Chloride, trans-1,2-DCE, cis-1,2-DCE, Chloroform 1,1,1-TCA, Carbon Tetrachloride, Trichloroethylene (TCE), Tetrachloroethylene (PCE)

Collection Date	Collection Time	Number of Containers	Sample Type	Sample Identification	Requested Analysis	(Other)	Remarks
10/4/12		3	Air	Influent	F	Cumene, MTBE, and Naphthalene	
↓		↓	↓	Between	F	↓ ↓	↓
↓		↓	↓	Effluent	F	↓ ↓	↓

Results to : ~~Ted Rapp~~ Ken Dudash

Invoice to :

Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
	Letterle & Assoc.	10-5-12	1100		Vaportech	10/8/12	930
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :
Relinquished by :	Company :	Date :	Time :	Received by :	Company :	Date :	Time :

WHITE COPY : Laboratory to return. YELLOW COPY : Laboratory PINK COPY : Submitter

2019 Ninth Avenue
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(814) 946-4306
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89 Kristi Road
Pennsdale, PA 17756
(570) 494-6380
PaDEP: PA 41-04684

FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
INFLUENT	2J11059-01	Water	Grab	10/04/12 11:00	10/11/12 13:45
BETWEEN	2J11059-02	Water	Grab	10/04/12 11:05	10/11/12 13:45
EFFLUENT	2J11059-03	Water	Grab	10/04/12 11:10	10/11/12 13:45

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: INFLUENT **Date/Time Sampled:** 10/04/12 11:00

Laboratory Sample ID: 2J11059-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Toluene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Ethylbenzene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Xylenes (total)	<4.00		4.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Isopropylbenzene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Methyl tert-butyl ether	20.1		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	
Naphthalene	<2.00		2.00	ug/l	10/15/12 22:29	EPA 8260B	mlf	VC
Surrogate: 4-Bromofluorobenzene		*110 %*	*70-130*		*10/15/12 22:29*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*114 %*	*70-130*		*10/15/12 22:29*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*77.7 %*	*70-130*		*10/15/12 22:29*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: BETWEEN **Date/Time Sampled:** 10/04/12 11:05

Laboratory Sample ID: 2J11059-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	VH
Naphthalene	<1.00		1.00	ug/l	10/17/12 17:38	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*109 %*	*70-130*		*10/17/12 17:38*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*70-130*		*10/17/12 17:38*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*77.7 %*	*70-130*		*10/17/12 17:38*	*EPA 8260B*	mlf	

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State Certifications: MD 275, WV 364

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: EFFLUENT **Date/Time Sampled:** 10/04/12 11:10

Laboratory Sample ID: 2J11059-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	VH
Naphthalene	<1.00		1.00	ug/l	10/17/12 18:16	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*107 %*	*70-130*		*10/17/12 18:16*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*105 %*	*70-130*		*10/17/12 18:16*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*76.9 %*	*70-130*		*10/17/12 18:16*	*EPA 8260B*	mlf	
Conventional Chemistry Parameters by SM/EPA Methods								
Oil & Grease	<6.30		6.30	mg/l	10/23/12 10:39	EPA 1664A	cdb	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	10/25/12 12:32
Project Manager: Jed Hill	Number of Containers:	7	

Notes

VC	Check standard was outside the QC range. Data accepted based on acceptable LCS.
VH	LCS value was outside the QC range. Data accepted based on acceptable check standard.

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY / REQUEST FOR ANALYSIS

Please print. See back of COC for instructions/terms and conditions.

2019 9th Ave.
P.O. Box 1925
Altoona, PA 16602
Phone: (814) 946-4306
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FAIRWAY LABORATORIES
Environmental Laboratory

89 Kristi Rd
Pennsdale, PA 17756
Phone: (570) 494-6380

2J1105901
COC #

Page 1 of 1

Client Name: Letterle Associates
Address: 629 E. Rolling Ridge Drive
Bellefonte, PA 16823
Contact: Jed Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: United Clearfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

	Sample Description/Location	GRAB	Composite	Composite Start Date	Composite Start Time	GRAB -or- Composite End Date	GRAB -or- Composite End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas	Analyses Requested: Oil & Grease	Bottle Type/Comments
1	Influent	X				10-4-12	1100		X		2	X		
2	Between	X				↓	1105		X		2	X		
3	Effluent	X				↓	1110		X		3	X	X	

	Date	Time		Date	Time
Sampled by:	10-4-12	1500	Received by: MD	10-11	0910
Relinquished by: MD	10-11	1250	Received by: Ky Hebe	10/11	1250
Relinquished by: RH	10/11	15:45	Received by:		
Relinquished by:			Received by: MS	10/11/12	1345

Remarks

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document

Receiver: YS Page ___ of ___

Date/Time of this check: 10/11/12 14:03 Sample Temperature: 2.2 Client: Letterle Assoc. Lab # 2J1105902

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 2.2 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐ * Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCL	Other ☐ *	Properly Preserved ☐ *	Bacti	
1							2		NA		
2							2		NA		
3				1			2		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	Date:	No Response; Proceed and qualified ( )
		Client Contact: Date:

* Comments: _____

Chain of Custody Receiving Document

This is a date sensitive document and may not be current after October 5, 2012.

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FAIRWAY LABORATORIES

State Certifications: MD 275, WV 364

www.fairwaylaboratories.com

Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
INFLUENT	2K08082-01	Water	Grab	11/07/12 09:40	11/08/12 13:30
BETWEEN	2K08082-02	Water	Grab	11/07/12 09:45	11/08/12 13:30
EFFLUENT	2K08082-03	Water	Grab	11/07/12 09:50	11/08/12 13:30

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: INFLUENT **Date/Time Sampled:** 11/07/12 09:40

Laboratory Sample ID: 2K08082-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Toluene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Ethylbenzene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Xylenes (total)	<4.00		4.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Isopropylbenzene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Methyl tert-butyl ether	17.6		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Naphthalene	<2.00		2.00	ug/l	11/09/12 07:08	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*98.9 %*	*70-130*		*11/09/12 07:08*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*107 %*	*70-130*		*11/09/12 07:08*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*96.1 %*	*70-130*		*11/09/12 07:08*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: BETWEEN **Date/Time Sampled:** 11/07/12 09:45

Laboratory Sample ID: 2K08082-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	11/09/12 08:57	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*91.1 %*	*70-130*		*11/09/12 08:57*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*108 %*	*70-130*		*11/09/12 08:57*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*106 %*	*70-130*		*11/09/12 08:57*	*EPA 8260B*	mlf	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: EFFLUENT **Date/Time Sampled:** 11/07/12 09:50

Laboratory Sample ID: 2K08082-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	11/09/12 09:35	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*90.3 %*	*70-130*		*11/09/12 09:35*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*106 %*	*70-130*		*11/09/12 09:35*	*EPA 8260B*	mlf	
Surrogate: Fluorobenzene		*102 %*	*70-130*		*11/09/12 09:35*	*EPA 8260B*	mlf	
Conventional Chemistry Parameters by SM/EPA Methods								
Oil & Grease	<6.30		6.30	mg/l	11/19/12 16:00	EPA 1664A	rhb	

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PaDEP: PA 41-04684

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State Certifications: MD 275, WV 364

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	11/26/12 11:41
Project Manager: Jed Hill	Number of Containers:	7	

Definitions

Surrogate values must be within the indicated range, otherwise the results are considered to be estimated.

Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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2K08082-01
COC #

Page 1 of 1

Client Name: Letterlup Associates
Address: 629 E. Rolling Ridge Drive
Bellefonte, PA 16823
Contact: Jed Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: United Clearfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: __/__/__

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas	Analyses Requested: Oil & Grease	Bottle Type/Comments
Influent	X				11-7-12	0940		X		2	X		
Midfluent	X				↓	0945		X		2	X		
Effluent	X				↓	0950		X		3	X	X	

	Date	Time		Date	Time
Sampled by: Tyler Dahl	11-7-12	1220	Received by: Ky Hoke	11-8-12	8:15
Relinquished by: Ky Hoke	11-8-12	1230	Received by: fld	11-8-12	1230
Relinquished by: fld	11-8-12	1330	Received by:		
Relinquished by:			Received by: CB	11/8	13:30

Remarks

#38

By relinquishing my sample to Fairway Laboratories, Inc., I hereby agree to the terms and conditions printed on the reverse.

White Original - FLI File Canary - FLI Copy Pink - Customer Receipt Copy

Chain of Custody Receiving Document

Receiver: CB Page ___ of ___

Date/Time of this check: 11/8 14:12 Sample Temperature: 1 Client: Lenexa Lab # 240808Z-CL

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 1 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: WATER

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?)	Other ☐ *	Properly Preserved ☐ *	Bacti	
INF							2HCl		N/A		
MID							↓		N/A		
EFF				1			↓		Y		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
☹ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
☹ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
☹ Wrong Container ( )		Provided Information ( )
☹ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

Chain of Custody Receiving Document

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State Certifications: MD 275, WV 364

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	TW	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Sample Type	Date Sampled	Date Received
INFLUENT	2L04066-01	Water	Grab	12/03/12 15:25	12/04/12 14:30
BETWEEN	2L04066-02	Water	Grab	12/03/12 15:27	12/04/12 14:30
EFFLUENT	2L04066-03	Water	Grab	12/03/12 15:30	12/04/12 14:30

Fairway Laboratories, Inc.

Reviewed and Submitted by:

Michael P. Tyler
Laboratory Director

Fairway Labs in Altoona, PA is a NELAP (National Environmental Laboratory Accreditation Program) accredited lab, and as such, certifies that all applicable test results meet the requirements of NELAP, unless otherwise stated on the analytical report.

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: INFLUENT **Date/Time Sampled:** 12/03/12 15:25

Laboratory Sample ID: 2L04066-01 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Toluene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Ethylbenzene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Xylenes (total)	<4.00		4.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Isopropylbenzene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Methyl tert-butyl ether	12.5		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	
Naphthalene	<2.00		2.00	ug/l	12/11/12 02:49	EPA 8260B	wlm	VC
Surrogate: 4-Bromofluorobenzene		*92.4 %*	*70-130*		*12/11/12 02:49*	*EPA 8260B*	wlm	
Surrogate: 1,2-Dichloroethane-d4		*113 %*	*70-130*		*12/11/12 02:49*	*EPA 8260B*	wlm	
Surrogate: Fluorobenzene		*106 %*	*70-130*		*12/11/12 02:49*	*EPA 8260B*	wlm	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: BETWEEN **Date/Time Sampled:** 12/03/12 15:27

Laboratory Sample ID: 2L04066-02 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	QB, VC
Toluene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Methyl tert-butyl ether	1.85		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	12/06/12 11:55	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*86.8 %*	*70-130*		*12/06/12 11:55*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*173 %*	*70-130*		*12/06/12 11:55*	*EPA 8260B*	mlf	QF
Surrogate: Fluorobenzene		*140 %*	*70-130*		*12/06/12 11:55*	*EPA 8260B*	mlf	QF

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Client Sample ID: EFFLUENT **Date/Time Sampled:** 12/03/12 15:30

Laboratory Sample ID: 2L04066-03 (Water/Grab)

Analyte	Result	MDL	RL	Units	Date / Time Analyzed	Method	* Analyst	Note
Volatile Organic Compounds by EPA Method 8260B								
Benzene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Toluene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Ethylbenzene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Xylenes (total)	<2.00		2.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Isopropylbenzene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Methyl tert-butyl ether	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Naphthalene	<1.00		1.00	ug/l	12/06/12 14:46	EPA 8260B	mlf	
Surrogate: 4-Bromofluorobenzene		*88.8 %*	*70-130*		*12/06/12 14:46*	*EPA 8260B*	mlf	
Surrogate: 1,2-Dichloroethane-d4		*169 %*	*70-130*		*12/06/12 14:46*	*EPA 8260B*	mlf	QF
Surrogate: Fluorobenzene		*144 %*	*70-130*		*12/06/12 14:46*	*EPA 8260B*	mlf	QF
Conventional Chemistry Parameters by SM/EPA Methods								
Oil & Grease	<6.30		6.30	mg/l	12/13/12 14:15	EPA 1664A	cdb	

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Letterle & Associates	Project:	UNITED CLEARFIELD	
629 East Rolling Ridge Drive	Project Number:	[none]	**Reported:**
Bellefonte PA, 16823	Collector:	CLIENT	12/14/12 10:12
Project Manager: Jed Hill	Number of Containers:	7	

Notes

QB	The spike recovery was outside acceptance limits for the MS and/or MSD due to sample matrix interferences. The batch was accepted based on acceptable CCV recovery.
QF	Surrogate recovery out of range due to possible matrix interference.
VC	Check standard was outside the QC range. Data accepted based on acceptable LCS.

Definitions

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Reporting limits are adjusted accordingly when samples are analyzed at a dilution due to the matrix.

The following analyses are to be performed immediately upon sampling: pH, sulfite, chlorine residual, dissolved oxygen and ferrous iron. The date and time reported reflect the time the samples were analyzed at the laboratory.

If the solid sample weight for VOC analysis does not fall within the 3.5-6.5 gram range, the results are considered estimated values.

*	P indicates analysis performed by Fairway Laboratories, Inc. at the Pennsdale location. This location is PaDEP Chapter 252 certified.
<	Represents "less than" - indicates that the result was less than reporting limit.
MDL	Method Detection Limit - is the lowest or minimum level that provides 99% confidence level that the analyte is detected. Any reported result values that are less than the MDL are considered estimated values.
RL	Reporting Limit - is the lowest or minimum level at which the analyte can be quantified.

CHAIN OF CUSTODY/ REQUEST FOR ANALYSIS

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2L04066-A
COC #

Page 1 of 1

Client Name: Letterle & Associates
Address: 629 E. Rolling Ridge Dr
Bellefonte, PA 16823
Contact: Jed Hill
Phone #: 814-355-2241
Fax #: 814-355-2410
Project Name: United Churchfield
Quote/PO #:

Received on ice? Y N
Sample Temp:

Reportable to PADEP? Yes ☐
PWSID #

TAT: Normal ☒ Rush ☐
Rush TAT subject to pre-approval and surcharge.
Date Required: ___/___/___

LAB USE ONLY
FedEx USPS
UPS Other
Tracking #

Sample Description/Location	GRAB	Composite	Composite Start: Start Date	Composite Start: Start Time	GRAB -or- Composite End: End Date	GRAB -or- Composite End: End Time	Matrix: Solid	Matrix: Water	Matrix: Other	# of Containers	Analyses Requested: 1998 Unleaded Gas	Analyses Requested: Oil & Grease	Bottle Type/Comments
1 Influent	X				12-3-12	1525		X		2	X		
2 Midfluent	X				↓	1527		X		2	X		
3 Effluent	X				↓	1530		X		3	X	X	

	Date	Time		Date	Time
Sampled by:	12-3-12	1715	Received by:	12-4-12	1145
Relinquished by:	12-4-12	1205	Received by:	12/4/12	1305
Relinquished by:	12/4/12	1445	Received by:	12/4	1445
Relinquished by:	Date	Time	Received by:	Date	Time

Remarks
14:30

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#662

Chain of Custody Receiving Document

Receiver: AC Page ___ of ___

Date/Time of this check: 12/4/12 14:46 Sample Temperature: 0.4 Client: Letterle & Assoc Lab # 2104066-02

Received at Lab on ICE ? Y ☐ * **Sample Temperature when arrived at Lab:** 0.4 **Acceptable?** Y ☐ * **or In cool down process?** ☐ *

Custody Seals? Y Intact? Y

COC/Labels on bottles agree? Y ☐* Correct containers for all the analysis requested? Y ☐ * Matrix: water

COC #	Number and Type of BOTTLES										Comments
	Poly Non-Pres.	Poly H2SO4	Poly HNO3	Amber H2SO4	Amber Non-Pres.	Poly NaOH	VOCS (Head space?) HCl	Other ☐ *	Properly Preserved ☐ *	Bacti	
1				1			2		Y		
2							2				
3							2		N/A		

* DEVIATION PRESENT:	CLIENT CALLED:	CLIENT RESPONSE:
⊗ No Ice ( )	YES ( )	Proceed with analysis; qualify data ( )
⊗ Not at Proper Temperature ( )	By Whom:	Will Resample ( )
⊗ Wrong Container ( )		Provided Information ( )
⊗ Missing Information: ( )	_____ Date: _____	No Response; Proceed and qualified ( )
		Client Contact: _____ Date: _____

* Comments: _____

Chain of Custody Receiving Document

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