

**REMEDIATION SYSTEM START-UP ENGINEERING EVALUATION**

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


Prepared for:

**United Refining Company of Pennsylvania**  
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P.O. Box 688  
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Prepared by:

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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))*

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ANALYTICAL

DPE System Groundwater Results
DPE System Vapor Recovery Results

## 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 H<sub>2</sub>O) (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<sup>®</sup> 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 volatilize. The ROI is measured in resulting inches of water (in H<sub>2</sub>O) vacuum. Generally, a level of 0.1 in H<sub>2</sub>O 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 2<sup>nd</sup> 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 2<sup>nd</sup> 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 did 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 at 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 2<sup>nd</sup> 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 Quick 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						

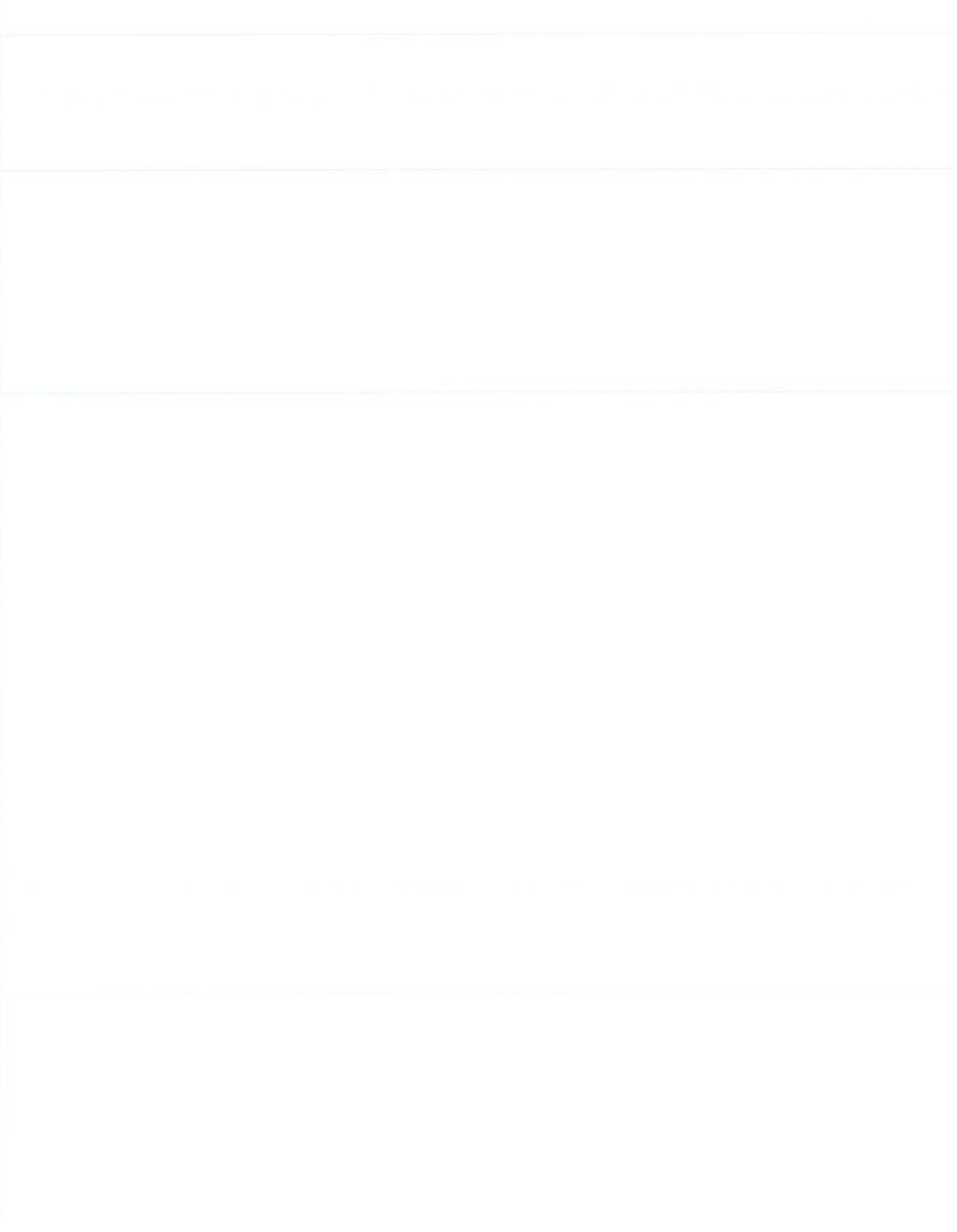
TABLE 2  
VAPOR RECOVERY SYSTEM  
HYDROCARBON REMOVAL CALCULATIONS  
(Field Quantification)

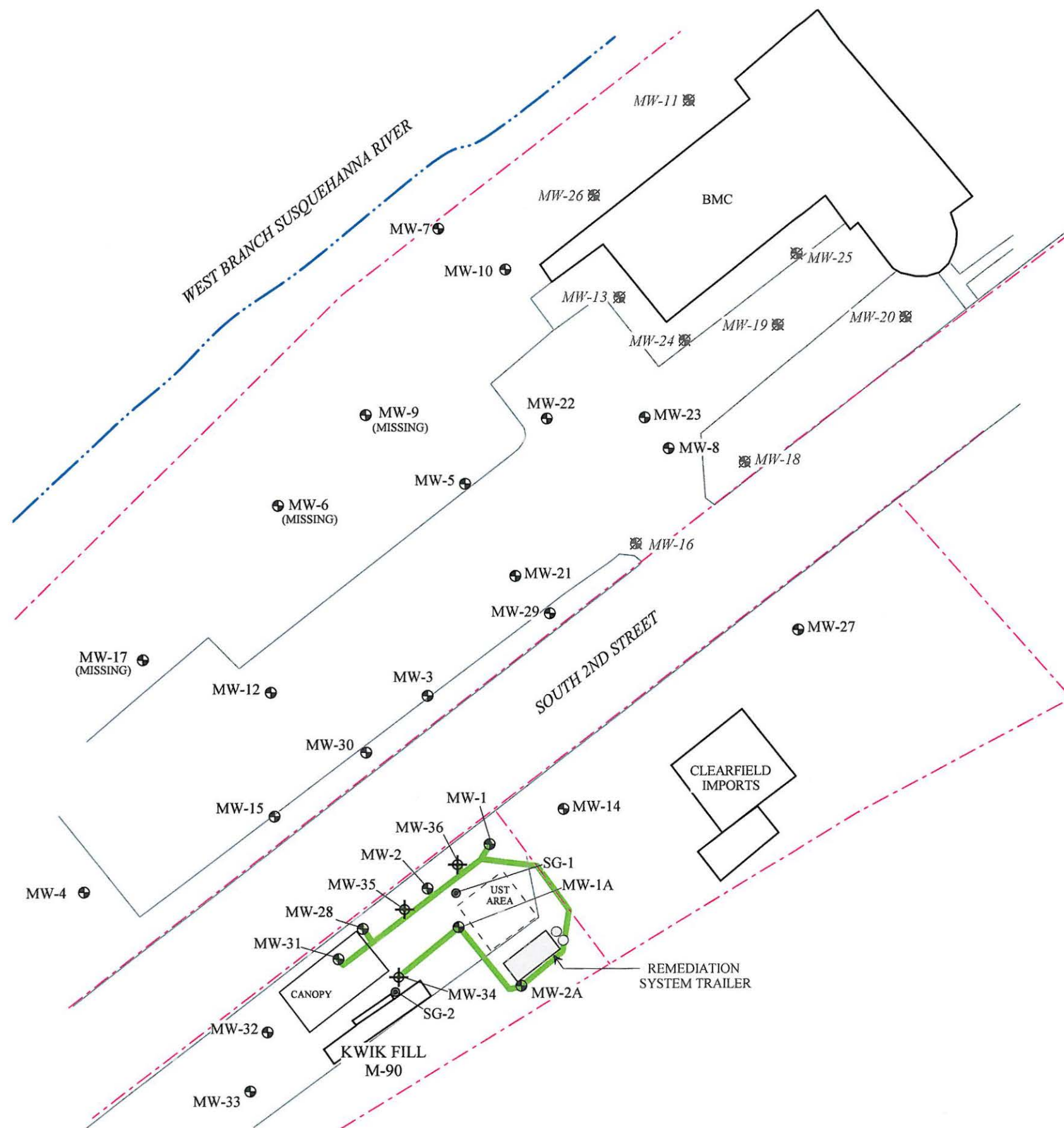
United Refining--Kwik Fill M-90  
1322 South 2nd Street  
Clearfield, Pennsylvania 16830

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



### AS-BUILT TRENCHING DIAGRAM

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



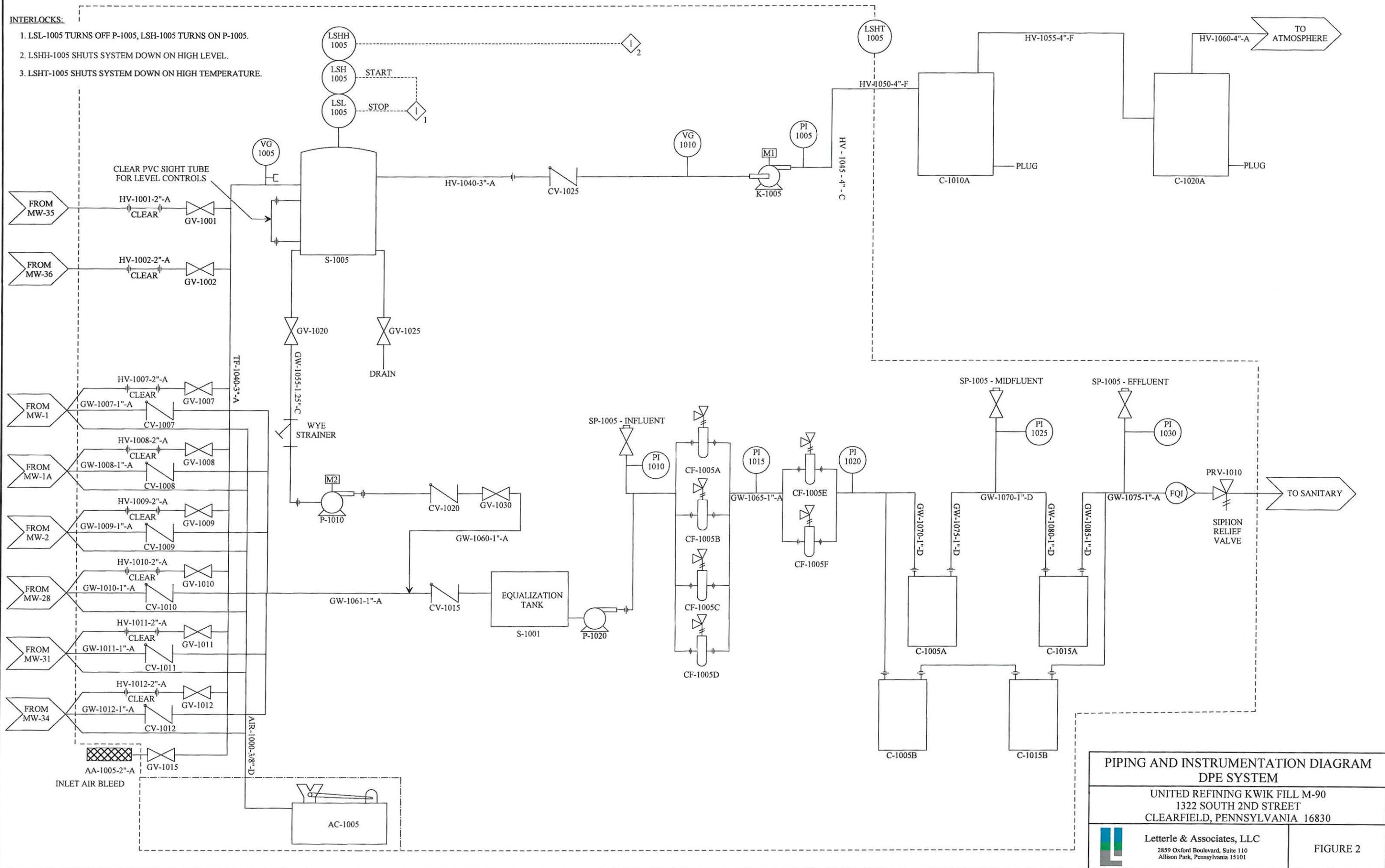
Letterle & Associates, LLC  
2859 Oxford Boulevard, Suite 110  
Allison Park, Pennsylvania 15101

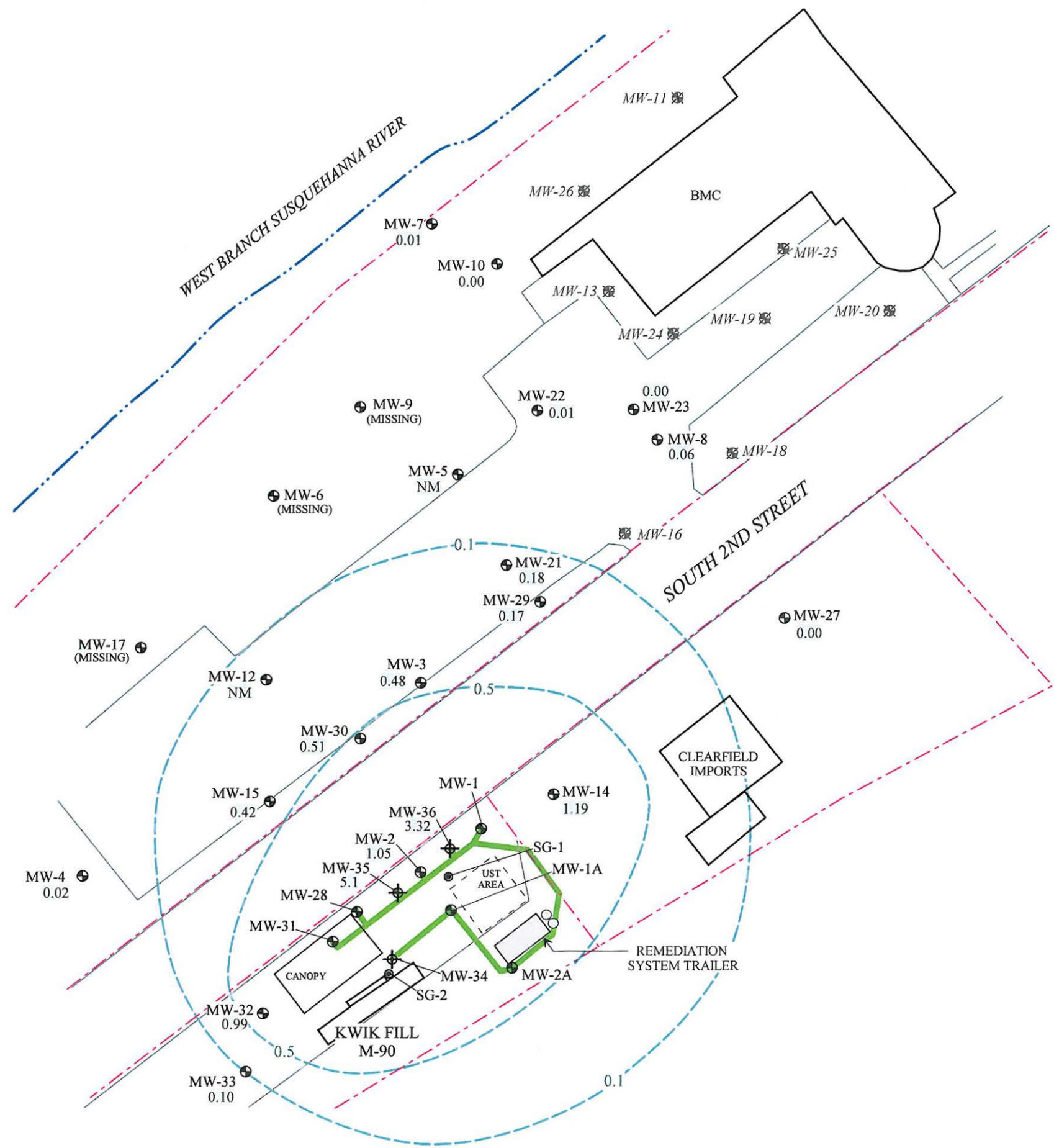
FIGURE 1



# INTERLOCKS:

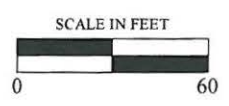
1. LSL-1005 TURNS OFF P-1005, LSH-1005 TURNS ON P-1005.
2. LSHH-1005 SHUTS SYSTEM DOWN ON HIGH LEVEL.
3. LSHT-1005 SHUTS SYSTEM DOWN ON HIGH TEMPERATURE.






**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
- 0.01 DRAWDOWN (FT)
- NM NOT MEASURED



<b>HYDRAULIC RADIUS OF INFLUENCE DIAGRAM</b>	
UNITED REFINING KWIK FILL M-90 1322 SOUTH 2ND STREET CLEARFIELD, PENNSYLVANIA 16830	
 <b>Letterle &amp; Associates, LLC</b> 2859 Oxford Boulevard, Suite 110 Allison Park, Pennsylvania 15101	<b>FIGURE 3</b>

**CHARTS**

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

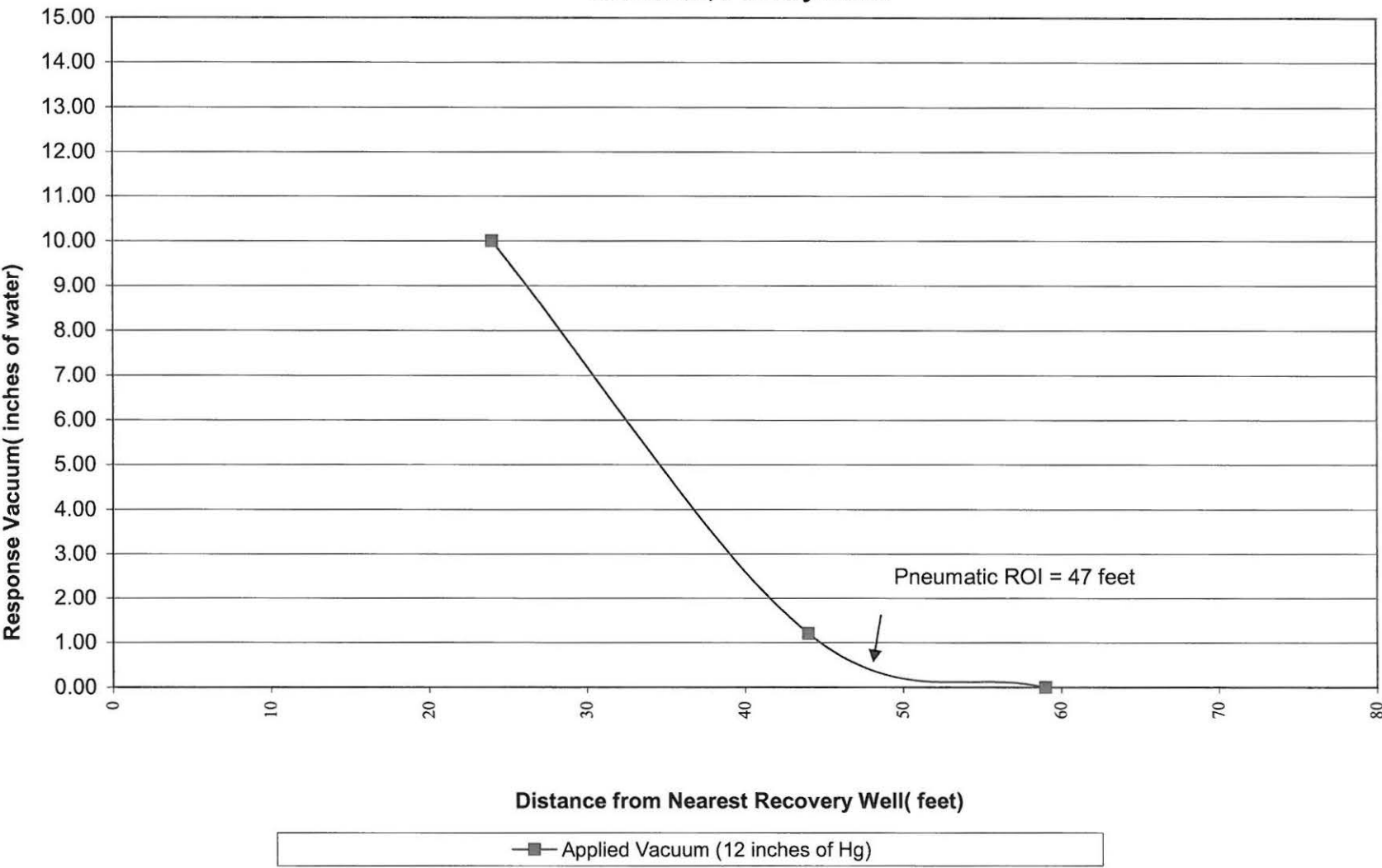
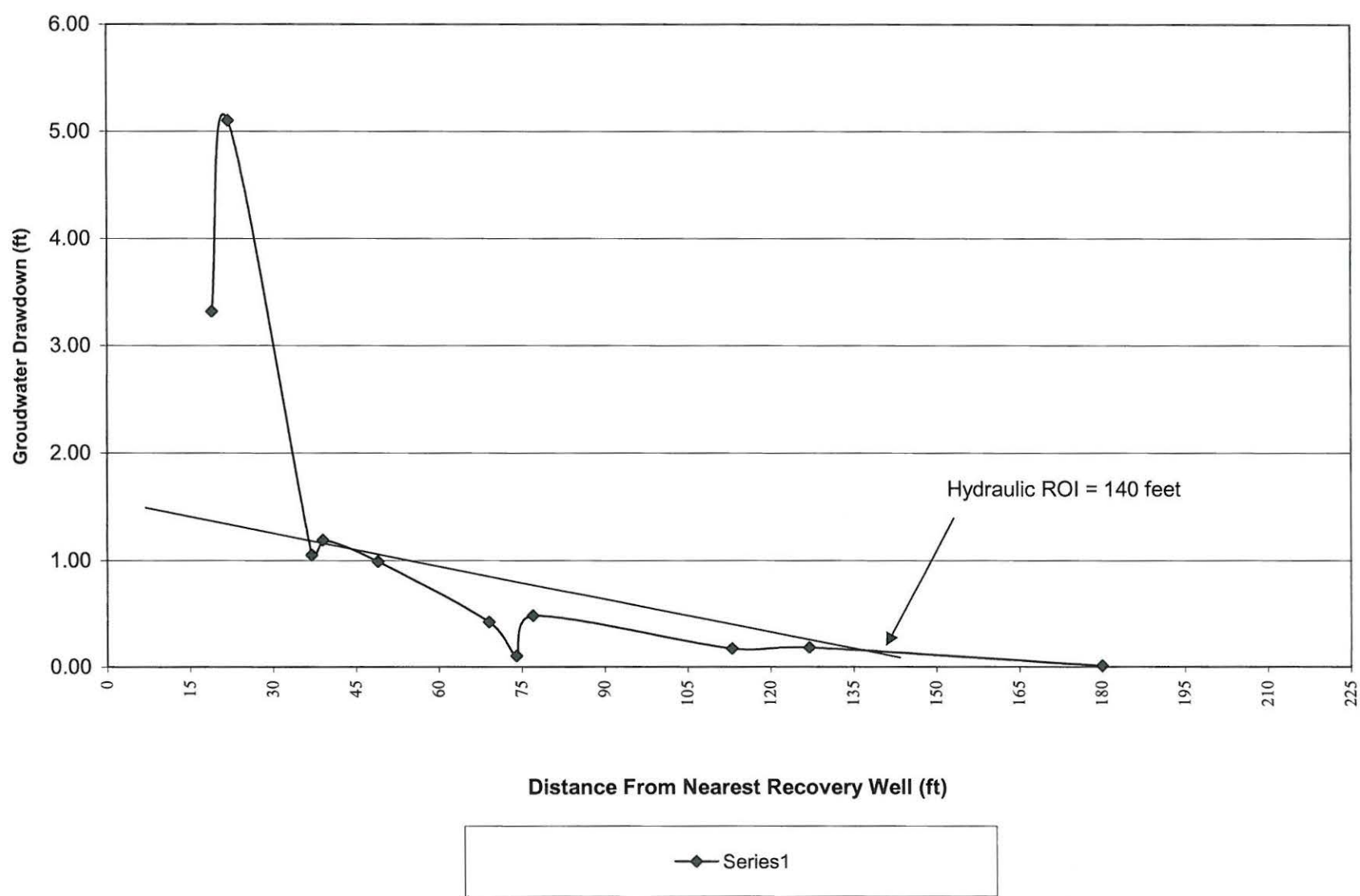


CHART 2: DPE System Hydraulic Zone of Influence  
December 20, 2012  
United Refining M-90  
Clearfield, Pennsylvania







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,

A handwritten signature in black ink, appearing to read 'David J. Masdea', written in a cursive style.

David J. Masdea

Enclosure:

# 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

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

Reviewed by: 

## CHAIN-OF-CUSTODY RECORD



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

Company Name: Letter M T Associates, LLC  
Address: 629 E. Rolling Ridge Drive  
City: Bel Air State: PA Zip: 16823  
Proj. Manager: Jed Hill  
Proj. Location: United Charfield  
Proj. Number: #277  
Phone #: 814-355-2241 Fax #: 814-355-2410

**Sampler's signature:**

**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)

[illegible]

Results to : ~~Redmond~~ Ken Oudash

**Invoice to :**

Relinquished by : <i>[Signature]</i>	Company : <i>Letterke &amp; Assoc.</i>	Date : <i>10-5-12</i>	Time : <i>1100</i>	Received by : <i>[Signature]</i>	Company : <i>Uspertech</i>	Date : <i>10/8/12</i>	Time : <i>930</i>
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**



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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

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Letterle & Associates  
629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: CLIENT  
Number of Containers: 7

Reported:  
10/25/12 12:32

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

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629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: CLIENT  
Number of Containers: 7

Reported:  
10/25/12 12:32

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

629 East Rolling Ridge Drive

Bellefonte PA, 16823

Project Manager: Jed Hill

Project: UNITED CLEARFIELD

Project Number: [none]

Collector: CLIENT

Number of Containers: 7

Reported:

10/25/12 12:32

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
<b>Volatile Organic Compounds by EPA Method 8260B</b>								
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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629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: CLIENT  
Number of Containers: 7

Reported:  
10/25/12 12:32

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
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**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]	<b>Reported:</b>
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.

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

**FAIRWAY LABORATORIES**  
Environmental Laboratory

2J110590/  
COC #  
Page 1 of 1

Page 6 of 7

Receiver: MS

Chain of Custody Receiving Document

Page of

Date/Time of this check: 10/11/12 14:03 Sample Temperature: 2.2 Client: Letterk 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?)	Other	Properly Preserved	Bacti	
							HCL	<input type="checkbox"/> *	<input type="checkbox"/> *		
1							2		NA		
2							2		NA		
3				1			2		Y		

<b>* DEVIATION PRESENT:</b> <input checked="" type="checkbox"/> No Ice ( ) <input checked="" type="checkbox"/> Not at Proper Temperature ( ) <input checked="" type="checkbox"/> Wrong Container ( ) <input checked="" type="checkbox"/> Missing Information: ( )	<b>CLIENT CALLED:</b> YES ( ) By Whom: _____ Date: _____	<b>CLIENT RESPONSE:</b> Proceed with analysis; qualify data ( ) Will Resample ( ) Provided Information ( ) No Response; Proceed and qualified ( ) Client Contact: _____ Date: _____
---	---	--

\* Comments: \_\_\_\_\_

Chain of Custody Receiving Document





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Letterle & Associates  
629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: TW  
Number of Containers: 7

Reported:  
11/26/12 11:41

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
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**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  
629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: TW  
Number of Containers: 7

Reported:  
11/26/12 11:41

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
<b>Volatile Organic Compounds by EPA Method 8260B</b>								
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  
629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: TW  
Number of Containers: 7

Reported:  
11/26/12 11:41

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]
Bellefonte PA, 16823	Collector:	TW
Project Manager: Jed Hill	Number of Containers:	7
	Reported:	11/26/12 11:41

### 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.

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

**FAIRWAY LABORATORIES**  
Environmental Laboratory

2K08082-01  
COC #  
Page 1 of 1

[illegible]



Receiver: CB

Page      of

Date/Time of this check: 11/12 14:12

Sample Temperature: 1

Client: LETENUC

Lab # 2K08082-02

Received at Lab on ICE ? ☒ \* Sample Temperature when arrived at Lab: 1

Acceptable? ☒ \* or In cool down process? ☐ \*

Custody Seals? ☒ Intact? ☒

COC/Labels on bottles agree? ☒ \* Correct containers for all the analysis requested? ☒ \* 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 <input type="checkbox"/> *	Properly Preserved <input type="checkbox"/> *	Bacti	
INF							2H2O		N/A		
MID							↓		N/A		
EFF				1					Y		

<div>* DEVIATION PRESENT: <input checked="" type="checkbox"/> No Ice ( ) <input checked="" type="checkbox"/> Not at Proper Temperature ( ) <input checked="" type="checkbox"/> Wrong Container ( ) <input checked="" type="checkbox"/> Missing Information: ( )</div>	<div>CLIENT CALLED: YES ( ) By Whom: _____ Date: _____</div>	<div>CLIENT RESPONSE: Proceed with analysis; qualify data ( ) Will Resample ( ) Provided Information ( ) No Response; Proceed and qualified ( ) Client Contact: _____ Date: _____</div>
---	--	---

\* Comments: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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PaDEP: PA 41-04684



www.fairwaylaboratories.com

Letterle & Associates

629 East Rolling Ridge Drive

Bellefonte PA, 16823

Project Manager: Jed Hill

Project: UNITED CLEARFIELD

Project Number: [none]

Collector: TW

Number of Containers: 7

Reported:

12/14/12 10:12

# 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.



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

State Certifications: MD 275, WV 364

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Pennsdale, PA 17756  
(570) 494-6380  
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Letterle & Associates  
629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: CLIENT  
Number of Containers: 7

Reported:  
12/14/12 10:12

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
<b>Volatile Organic Compounds by EPA Method 8260B</b>								
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
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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  
629 East Rolling Ridge Drive  
Bellefonte PA, 16823  
Project Manager: Jed Hill

Project: UNITED CLEARFIELD  
Project Number: [none]  
Collector: CLIENT  
Number of Containers: 7

Reported:  
12/14/12 10:12

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
<b>Volatile Organic Compounds by EPA Method 8260B</b>								
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
<b>Conventional Chemistry Parameters by SM/EPA Methods</b>								
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] <b>Reported:</b>
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.

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

**FAIRWAY LABORATORIES**  
Environmental Laboratory

2104 066-01  
COC #

Page 1 of 1[illegible]

Chain of Custody Receiving Document

Receiver: PC

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 ? 4 \* Sample Temperature when arrived at Lab: 0.4 Acceptable? 4 \* or In cool down process? 4 \*

Custody Seals? 4 Intact? 4

COC/Labels on bottles agree? 4 \* Correct containers for all the analysis requested? 4 \* 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	
							HCl	<input type="checkbox"/> *	<input type="checkbox"/> *		
<u>1</u>				<u>1</u>			<u>2</u>		<u>4</u>		
<u>2</u>							<u>2</u>		<u>N/A</u>		
<u>3</u>							<u>2</u>				

<b>* DEVIATION PRESENT:</b> <input checked="" type="checkbox"/> No Ice ( ) <input checked="" type="checkbox"/> Not at Proper Temperature ( ) <input checked="" type="checkbox"/> Wrong Container ( ) <input checked="" type="checkbox"/> Missing Information: ( )	<b>CLIENT CALLED:</b> YES ( ) By Whom: _____ Date: _____	<b>CLIENT RESPONSE:</b> Proceed with analysis; qualify data ( ) Will Resample ( ) Provided Information ( ) No Response; Proceed and qualified ( ) Client Contact: _____ Date: _____
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\* Comments: \_\_\_\_\_