Groundwater & Environmental Services, Inc.

WESTERN PENNSYLVANIA OFFICE

October 27, 2015

Mr. Don Hegburg
Pennsylvania Department of Environmental Protection
Northwest Regional Office
230 Chestnut Street
Meadville, PA 16335

RE: **Site Characterization Report Addendum/Remedial Action Plan**
Kwik Fill Station #M-061
PADEP ID #42-14809
227 East Main Street
Bradford, Pennsylvania

Dear Mr. Hegburg:

Attached please find a *Site Characterization Report Addendum/Remedial Action Plan* (SCRA/RAP) submitted on behalf of our client, United Refining Company of Pennsylvania (UPA) for the above-referenced facility. The SCRA/RAP includes a schedule for implementation of the RAP. Please note that the schedule includes consideration of expected weather delays and third party considerations that are based on previous project experience leading up to this submittal.

In response to the Pennsylvania Department of Environmental Protection (PADEP) Notice of Violation correspondence dated October 23, 2015, please consider that in order to ensure that a complete, approvable SCRA/RAP could be submitted in full accordance with 25 PA Code §245.311, an extension request was submitted via electronic mail on October 13, 2015, to extend the due date to October 30, 2015. The additional time was requested to address the data gaps identified in the March 2015 *Site Characterization Report*, and to ensure thorough consideration and stakeholder review of the site-specific complexities including multiple impacted water bearing zones, off-site impacts, and the proposed multi-faceted remedial systems required for site remediation to be successful.

If you have any questions, please contact Groundwater & Environmental Services, Inc. (GES) at (800) 267-2549 or Mr. Scott C. Wonsettler, P.G., the UPA Environmental Manager at (814) 726-4863.

Sincerely,

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.

Joseph Hinkle, E.I.T.
Project Manager
Ext. 3622

cc: UPA – S. Wonsettler
ICF International – G. Hawk
Excalibur – B. Brakewell
GE - Dresser – E. Jamison, Jr.
G. Carlough, Jr.

Facility Name: Kwik Fill Station #M-061 Bradford

Facility Address: 227 E. Main Street, Bradford, PA

Responsible Party : United Refining Company of Pennsylvania

RP Mailing Address: 814 Lexington Avenue
Warren, PA 16365

Storage Tank Facility ID#: 42-14809

Corrective Action Process Report /Plan Cover Sheet

CHAPTER 245
STORAGE TANK ACT

- ☐ **Site Characterization Report – Section 245.310(b)**
- ☐ **Site Characterization Report – Site-Specific Standard**
- ☐ **Site Characterization Report – Statewide Health or Background Standard**
- ☐ **Site Characterization Report PLUS – Statewide Health Standard**
- ✓ **Remedial Action Plan – Statewide Health or Background Standard**
- ☐ **Remedial Action Plan – Site Specific Standard**
- ☐ **Remedial Action Progress Report**
- ☐ **Remedial Action Completion Report – Statewide Health or Background Standard**
- ☐ **Remedial Action Completion Report – Site-Specific Standard**
- ☐ **Post Remediation Care Plan Report**
- ☐ **Environmental Covenant**

(check all that apply to the enclosed submission)

SITE CHARACTERIZATION REPORT ADDENDUM
AND
REMEDIAL ACTION PLAN

Kwik Fill Station #M-061
PADEP Facility ID #42-14809
USTIF Claim #2013-0035(F)
227 East Main Street
Bradford, Pennsylvania
McKean County

Prepared for:

United Refining Company of Pennsylvania
Retail Environmental Department
814 Lexington Avenue, P.O. Box 688
Warren, Pennsylvania 16365

Prepared by:

GROUNDWATER & ENVIRONMENTAL SERVICES, INC.
301 Commerce Park Drive
Cranberry Township, Pennsylvania 16066

October 2015

SITE CHARACTERIZATION REPORT ADDENDUM
AND
REMEDIAL ACTION PLAN
(Title 25 PA Code, Chapter 245)

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227 East Main Street
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Prepared by:

Joseph E. Hinkle, E.I.T.
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Scott L. Merritt, P.E.
Senior Project Engineer

Joseph Skurka
Senior Project Manager

By affixing my seal to this document, I am certifying that to the best of my knowledge the information is true and correct. I further certify that 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.

October 2015

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ABBREVIATIONS AND ACRONYMS

Act 2	Pennsylvania Land Recycling Act, Title 25, 25 PA Code Chapter 250
APH	adsorbed phase hydrocarbons
AS	air sparge
BCWA	Bradford City Water Authority
bgs	below ground surface
BuC	Buchanan Association
COC	constituents of concern
CSM	conceptual site model
D	deep injection point
DAPL	Data Acquisition and Processing Laboratory
DPH	dissolved phase hydrocarbons
DO	dissolved oxygen
EPA	Environmental Protection Agency
facility	Kwik Fill Station #M-061, 227 East Main Street, Bradford, Pennsylvania
ft	feet
GES	Groundwater & Environmental Services, Inc.
gpm	gallon per minute
HASP	Health and Safety Plan
Hp	horsepower
HQ	high quality
IDW	investigation-derived waste
in. Hg	inches of mercury
in w.c.	inches of water column
IP	injection point
LDS	Leak Detection Services, Inc.
LGAC	liquid-phase granular activated carbon
LNAPL	light non-aqueous phase liquid
LPS	Loss Prevention System
LRP	liquid ring pump
MEI	McCutcheon Enterprises, Inc. of Apollo, Pennsylvania
MSC	medium-specific concentration
MSC_{IAQ}	medium-specific concentration - indoor air quality
MSC_{sg}	medium-specific concentration - soil gas
MSL	mean sea level
MTBE	methyl tert-butyl ether
OM&M	operation, maintenance and monitoring
ORP	oxidation/reduction potential
OSHA	Occupational Safety and Health Administration
NORR	Notification of Reportable Release
NPDES	National Pollutant Discharge Elimination System
NR	non-residential
NWRO	Northwest Regional Office
PA	Pennsylvania
PADCNR	Pennsylvania Department of Conservation and Natural Resources
PADEP	Pennsylvania Department of Environmental Protection

ABBREVIATIONS AND ACRONYMS (continued)

PD	positive displacement
PID	photoionization detector
POC	point of compliance
POTW	Publically Owned Treatment Works
ppm	parts per million
ppmv	parts per million (volume)
psi	pounds per square inch
PVC	poly-vinyl chloride
R/NR	residential/non-residential
RACR	Remedial Action Completion Report
RAP	Remedial Action Plan
RAPR	Remedial Action Progress Reports
ROI	radius of influence
S	shallow injection point
SC	clayey sand with gravel
scfm	standard cubic feet per minute
SCR	Site Characterization Report
SCRA	Site Characterization Report Addendum
SHS	Statewide Health Standard
SVE	soil vapor extraction
TEFC	totally enclosed fan cooled
TPE	total phase extraction
µg/L	micrograms per Liter
U/NR	used aquifer, non-Residential
U/R	used aquifer, residential
UPA	United Refining Company of Pennsylvania
USCS	Unified Soil Classification System
USGS	U.S. Geological Survey
UST	underground storage tank
VGAC	vapor-phase granular activated carbon
VEGE	vacuum enhanced groundwater extraction
VLS	vapor liquid separator
VOC	volatile organic compound
WWF	warm water fishes

EXECUTIVE SUMMARY

Groundwater & Environmental Services, Inc. (GES) was contracted by United Refining Company of Pennsylvania (UPA) to complete additional site characterization and feasibility testing activities for an active Kwik Fill retail petroleum facility (facility) located at 227 East Main Street, Bradford, McKean County, Pennsylvania (Kwik Fill Station #M-061, PADEP ID #42-14809). Results of the additional site characterization and feasibility testing are summarized in the following *Site Characterization Report Addendum/Remedial Action Plan* (SCRA/RAP). Results of initial site characterization activities were summarized in a *Site Characterization Report* (SCR) submitted to the Pennsylvania Department of Environmental Protection - Northwest Regional Office (PADEP-NWRO) in March 2015 (GES, 2015).

On February 25, 2013, personnel from Leak Detection Services, Inc. (LDS) were making preparations for routine tightness testing when they detected unusual levels of vapors in the regular unleaded gasoline submersible pump pit. Further inspection revealed a small product "weep" from a threaded piping fitting. This fitting connected a metallic hose to steel product piping. The affected underground storage tank (UST) system was removed from service, repaired and returned to service on February 26, 2013. A verbal *Notification of Reportable Release* (NORR) was called in to the PADEP-NWRO on February 25, 2013, and a written NORR was submitted on March 1, 2013 (UPA, 2013).

Site characterization activities were initiated in June 2013 and assessment/delineation of soil, groundwater and soil gas continued through February 2015. Two water-bearing zones were observed during site characterization activities, a shallow on-site perched groundwater zone and an on- and off-site overburden aquifer. A total of ten on-site groundwater monitoring wells (MW-1R, MW-3R, MW-4 through MW-7, MW-12 and MW-14 through MW-16) were installed to monitor the on-site perched groundwater zone. A total of thirteen on- and off-site groundwater monitoring wells (MW-8 through MW-11, MW-13 and MW-17 through MW-24) were installed to monitor the overburden aquifer. Soil screening and sampling were performed during installation of the monitoring wells and at several soil boring locations. A total of four soil gas monitoring points (VP-1 through VP-4) were installed in October 2013 to assess potential vapor intrusion pathways.

Site characterization activities indicate the subsurface, to a depth of approximately 35 feet below ground surface (bgs), consists of unconsolidated fill material underlain by clay with shallow lenses of silty and/or clayey sand. Off-site (from the Carlough property to beyond York Street to Tunungwant Creek) characterization activities indicate the subsurface, to a depth of approximately 30 feet bgs consists of clay with silty sand and clayey sand lenses underlain by layers of clayey sand, gravelly sand, clayey gravel, and silty gravel. Bedrock was not encountered during on- and off-site drilling activities.

Adsorbed phase hydrocarbon (APH) impacts were observed in site soil in the vicinity of the UST field (release area) and northwest (downgradient) of the UST field. Unleaded gasoline constituents were detected in soil between 5 and 11 feet bgs at concentrations above current Act 2 (Pennsylvania Land Recycling Act, Title 25, 25 PA Code Chapter 250) Statewide Health Standard (SHS) used aquifer, non-residential (U/NR) medium-specific concentrations (MSCs).

Residual shallow APH impacts were also observed in soil at an off-site, downgradient property (Carlough). Unleaded gasoline constituents were detected in soil between 2 and 3 feet bgs at concentrations above current Act 2 SHS used aquifer, residential (U/R) MSCs.

Groundwater monitoring wells have been gauged and/or sampled at the facility since June 2013. Dissolved phase hydrocarbon (DPH) impacts were detected in the perched groundwater zone near the release area (UST field) and to the northwest (downgradient) at concentrations above current U/R MSCs. DPH impacts were detected in groundwater in the overburden aquifer near the release area (UST field) and to the northwest (downgradient) towards York Street at concentrations above current U/R MSCs. Light non-aqueous phase liquid (LNAPL) has not been detected on- or off-site since groundwater gauging was initiated in June 2013. The most recent site groundwater sampling event was completed on August 26, 2015. Dissolved phase benzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene in the perched groundwater zone and dissolved phase methyl tert-butyl ether (MTBE) in the overburden aquifer were detected at concentrations above current, respective, U/R MSCs.

A vapor intrusion assessment was performed for the facility. Soil gas samples were collected from on-site soil gas monitoring points VP-1 through VP-4 in November 2013 and VP-1, VP-3 and VP-4 in January 2014. Sampling at soil gas monitoring point VP-2 was not possible during the January 2014 sampling event due to a faulty valve on the laboratory-supplied SUMA canister. Unleaded gasoline constituents were detected in soil gas to the immediate north of the UST field at concentrations above residential/non-residential (R/NR) medium-specific concentrations – soil gas (MSC_{SG}) screening criteria (i.e., medium-specific concentrations – indoor air quality [MSC_{IAQ}] adjusted for attenuation) and/or minimum laboratory reporting limits. However, based on data from the remaining soil gas sample locations near the on-site receptor (i.e., station building) and near potential preferential pathways (i.e., utility trenching) that extend off-site, there is an incomplete soil vapor intrusion exposure pathway for the facility.

A current conceptual site model (CSM) was developed based on evaluation of the site characterization observations and data. Results of the CSM were presented in the March 2015 SCR (GES, 2015) and were used to evaluate potential remedial options for remediation of on- and off-site APH and DPH impacts. The March 2015 SCR summarized initial site characterization activities and findings, described the CSM, evaluated potential exposure pathways and receptors, discussed the Act 2 standard selection rationale and presented planned supplemental site characterization and remedial feasibility testing activities.

Supplemental site characterization was completed on April 29, 2015, to determine the eventual outfall of surface water runoff on-site via the underground storm sewer (located in the norther portion of the facility) running downgradient beneath the adjacent (Carlough) property, and connecting to the underground storm sewer line parallel with Mill Street. A professional survey of the site and surrounding area was also completed on April 29, 2015. Results of the dye test indicated that the eventual outfall of the storm sewer is Tunungwant Creek.

Remedial feasibility testing was completed in April 2014 and August 2015. The April 2014 feasibility testing included groundwater extraction, vacuum enhanced groundwater extraction (VEGE) and total phase extraction (TPE) at on- and off-site well locations to remediate APH and DPH impacts in the perched groundwater zone and overburden aquifer to the selected attainment goals (i.e., Act 2 SHS, U/R-NR MSCs). Results of off-site feasibility testing in 2014 indicated that common remedial technologies such as VEGE and TPE would have limited effectiveness in remediating DPH impacts; therefore, additional feasibility testing was completed in August 2015 to evaluate the potential for passive injection of oxygen into the overburden aquifer to stimulate biodegradation and attenuation of remaining residual on- and off-site DPH impacts in the overburden aquifer and supplement remediation of on-site perched zone impacts. Based on the results of the two feasibility testing events a combination of VEGE and

passive oxygen injection is proposed to remediate APH and DPH impacts in the perched zone and overburden aquifer.

The following report summarizes supplemental site characterization activities and findings, describes the CSM, summarizes remedial feasibility testing, discusses the proposed remedial strategy and how remediation will reduce impacts, and presents an operation, maintenance and monitoring (OM&M) schedule and reporting requirements. Groundwater and soil attainment demonstration criteria are also presented in the report. The current Act 2 attainment goal for site soil is SHS, U/NR MSCs for on-site soil impacts, U/R MSCs for off-site soil impacts, and U/R MSCs for on- and off-site groundwater impacts.

1.0 INTRODUCTION

Unusual levels of vapors were detected during routine tightness testing of the UST system in February 2013. Upon further investigation, a small product "weep" from a threaded piping fitting was identified in the regular unleaded gasoline submersible pump pit. In response, corrective action activities were initiated consistent with the requirements of 25 PA Code § 245 (Administration of the Storage Tank and Spill Prevention Program, Subchapter D) (PADEP, 2001). The following report provides facility background, a summary of site characterization activities, discussion of additional site characterization activities completed after submittal of the March 2015 SCR, a remedial action plan to demonstrate attainment of the Act 2 Statewide Health Standard (PADEP, 2011) for unleaded gasoline constituents in on- and off-site soil and groundwater, and a vapor intrusion assessment.

2.0 FACILITY LOCATION AND DESCRIPTION

2.1 Location

The facility is located at 227 East Main Street, Bradford, McKean County, Pennsylvania. **Figure 1** (Site Location Map) illustrates the location of the facility on a United States Geological Survey (USGS) 7.5-Minute Topographic Quadrangle for 1983, Bradford, Pennsylvania - New York.

The facility is located in a mixed commercial and residential area, bordered to the north by residential properties on both sides of Mill Street; to the east, beyond East Main Street, by residential properties, to the west by residential properties; and to the south, an undeveloped property and commercial and residential properties on both sides of East Main Street. **Figure 2** (Local Area Map) illustrates the facility and adjacent properties.

2.2 Description

According to the McKean County Recorder of Deeds, the property is owned by UPA and has operated as a retail unleaded gasoline facility since December of 1989. Prior to UPA purchasing the site, the facility had operated as a retail petroleum station since at least 1960.

The facility occupies two rectangular shaped parcels (Parcel ID 06-025-205 and 06-205-207) that form one, irregular-shaped parcel that measures approximately 67 feet along the southern property boundary, approximately 101 feet along the northern property boundary (Mill Street), approximately 159 feet along the western property boundary and approximately 187 feet along the eastern property boundary (East Main Street). The property encompasses approximately 0.31 acres.

A one-story, masonry-block, slab-on-grade station building is located in the northern portion of the property. Three 12,000-gallon unleaded gasoline USTs are located along the southern property boundary south of the station building. One UST contains regular-grade unleaded gasoline, one UST contains premium-grade unleaded gasoline, and one UST contains mid-grade unleaded gasoline. According to the Regulated Storage Tank List for the PADEP-NWRO, one steel UST (tank #001) was installed December 1, 1967. Two additional steel USTs (tanks #002 and 003) were installed at the facility on December 1, 1980. Four product dispensers are located southeast of the station building on two dispenser islands.

The facility lot is comprised predominantly of asphalt. Grass was observed along the western and southern property boundaries, beyond the retaining wall. Based on current grading at the facility, surface water runoff in the asphalt-paved parking lot is multi-directional towards storm sewer basins located in the central and northern portions of the facility and along East Main Street.

Overhead electric lines run along the eastern property boundary and bisect the northeastern corner of the property with a line running to an off-site utility pole beyond Mill Street. Underground electric runs from the station building to the facility sign in the northeastern corner of the facility, to several light posts, and to the dispenser islands. An underground main potable water line runs parallel to the eastern and northern property boundaries with a service lateral entering the northwest corner of the station building from Mill Street. Underground sanitary sewer and natural gas service lateral lines enter the northwest corner of the station building and run out toward main lines existing parallel to Mill Street. An underground fiber optic line runs parallel to East Main Street along the eastern property boundary.

A six-foot storm sewer easement bisects the northern portion of the facility. A dye test confirmed that the underground storm sewer connects from the manhole located along the eastern property boundary (East Main Street) to the manhole located directly behind the station building beyond the western property boundary and then curves off-site toward the underground storm sewer line that parallels Mill Street. A second dye test confirmed that the eventual outfall of the storm sewer enters Tunungwant Creek to the northwest.

A retaining wall is located along the southern and western property boundaries. Based on overall depths of 12,000-gallon USTs ranging from 12 to 13 feet bgs, and unconsolidated fill material observed during site characterization activities to approximately 12 feet bgs at groundwater monitoring well MW-13 (near the UST field), the depth of the retaining wall along the western property boundary is estimated to be 12 feet bgs.

Thirteen groundwater monitoring wells (MW-1R, MW-3R, MW-4 through MW-7, MW-12 through MW-16, MW-22 and MW-23), one nested injection point (IP-1S/D), one single injection point (IP-2) and four soil gas monitoring points (VP-1 through VP-4) are currently located on-site. Ten groundwater monitoring wells (MW-8 through MW-11, MW-17 through MW-21 and MW-24), two nested injection points (IP-3S/D and IP-4S/D) and one single injection point (IP-5) are currently located off-site. **Figure 3** (Site Map) illustrates the location of relevant facility features.

2.3 Sensitive Receptor Evaluation

An evaluation of sensitive receptors was presented in the March 2015 SCR (GES, 2015); results of the receptor survey are summarized in the following:

- Utilizing the Pennsylvania Department of Conservation and Natural Resources (PADCNR) *Ground Water Information System (PaGWIS v.3.0)*, three private potable wells and four industrial withdrawal well was identified within ½-mile of the facility. The identified potable wells do not appear to be hydraulically downgradient of the facility.
- Potable water is supplied the facility and surrounding area by the Bradford City Water Authority (BCWA).
- Correspondence with CCMA personnel on February 13, 2015, confirmed that an ordinance exists that requires all properties in the City of Corry to connect to the community water supply (City Of Bradford Code, Chapter 216-27). However, the ordinance does not prohibit the installation of wells for domestic, agricultural or industrial use.
- Potential sensitive receptors include:
  - the subject property and on-site station building;
  - residential properties located to the north (sidegradient), beyond Mill Street;
  - residential and commercial properties located to the south (sidegradient);
  - residential properties located to the east (upgradient), beyond East Main Street;
  - residential properties located to the west (downgradient); and
  - Tunungwant Creek located to the west (downgradient) of the facility.
- The nearest downgradient surface body of water to the facility is Tunungwant Creek. Tunungwant Creek is located approximately 0.09 miles west of the facility, and flows north of the facility.
- The waters of Tunungwant Creek are designated as high quality (HQ) waters and warm water fishes (WWF) by PADEP (PA Code Chapter 93).

- An ecological assessment was not warranted as unleaded gasoline constituents are the only constituents of concern (COC) at the facility.
- Complete potential migration pathways were not identified for soil gas and groundwater.
- The facility is currently an active retail petroleum facility. There are no plans for sale or redevelopment of the property at this time.

Additional details relative to potential sensitive receptors were provided in the March 2015 SCR (GES, 2015).

2.4 Physical Setting

2.4.1 Topography and Drainage

The facility is located at an elevation of approximately 1,466 feet above mean sea level (MSL) on an alluvial terrace of Tunungwant Creek. Local topography slopes towards Tunungwant Creek, which is at an elevation of approximately 1,421 feet above MSL. Tunungwant Creek flows to the north, discharging into the Allegheny River approximately 9.25 miles north of the facility.

The facility lot is comprised predominantly of concrete and asphalt. Based on current grading at the facility, surface water runoff in the parking lot is directed towards storm sewer basins located in the central and northern portions of the facility and along East Main Street. Supplemental site characterization activities determined that the storm sewer the runs beneath the site eventually outfalls into the Tunungwant Creek, west of the site.

2.4.2 Stratigraphy

Regional Soil Lithology

Soil type at the facility was evaluated using current U.S. Department of Agriculture Natural Resources Conservation Service Website data. Information obtained from the website indicates that facility soils belong to the Buchanan (BuC) association. The BuC association consists of Buchanan silt loam and approximately 5% of minor components, and 8 to 15 percent slopes. Buchanan silt loam is moderately well drained.

Regional Bedrock Geology

The facility is situated within the western portion of the Appalachian Plateau Physiographic Province, which is characterized by rounded hills and steep-sided valleys. Strata within this section are gently folded, with dips typically being less than five degrees (Shultz, 1999). The underlying bedrock at the site belongs to the Devonian-Age Chadakoin Formation (Berg, T.M. et. al., 1980). The Formation consists of lightly-gray (or brownish) siltstone and some sandstone interbedded with medium gray shale.

Facility Lithology

Recent site characterization activities indicate the subsurface, to a depth of approximately 35 feet bgs (on-site), consists of unconsolidated fill material underlain by clay with shallow lenses of silty and/or clayey sand. Site characterization activities indicate the subsurface, off-site (from the Carlough property to Tunungwant Creek) to a depth of approximately 30 feet bgs, consists of clay with silty sand and clayey sand lenses underlain by layers of clayey sand, gravelly sand, clayey gravel, and silty gravel. Bedrock was not encountered during on- and off-site drilling activities.

2.4.3 Hydrology

Surface Water

The facility is located at an elevation of approximately 1,466 feet above MSL on an alluvial terrace of Tunungwant Creek. Local topography slopes towards Tunungwant Creek, which is at an elevation of approximately 1,421 feet above MSL. Tunungwant Creek is located approximately 0.09 miles west of the facility at its closest point.

Tunungwant Creek is approximately 45 feet below the facility elevation at its closest point to the facility.Tunungwant Creek is located within the Bolivar Run-Tunungwant Creek Watershed (Watershed HUC12) and is located within the Upper Allegheny Subbasin (Subbasin HUC8). The waters within the Upper Allegheny Subbasin are located within the Allegheny River Basin (US Environmental Protection Agency - My Waters Mapper).

Groundwater

Groundwater has been identified on-site in a perched groundwater zone to a depth of approximately 16 feet bgs and in an on- and off-site overburden aquifer. The on-site perched groundwater zone has been gauged and/or sampled during six separate monitoring and sampling events between June 2013 and February 2015. Based on gauging data from the eight events, groundwater flow is generally towards the north towards Tunungwant Creek.

The on- and off-site overburden aquifer has been gauged and/or sampled during five separate events from November 2013 to February 2015. Based on gauging data from the seven events, groundwater flow in the overburden aquifer is generally north, towards Tunungwant Creek.

Groundwater monitoring data are summarized in **Table 1** (Groundwater Data Summary). **Figure 4** (Groundwater Contour Map [Perched Groundwater Zone] – February 3-4, 2015) and **Figure 5** (Groundwater Contour Map [Overburden Aquifer] – February 3-4, 2015) illustrate groundwater flow for the most recent groundwater gauging event in February 2015 for the perched groundwater zone and the overburden aquifer, respectively.

3.0 FACILITY HISTORY

3.1 1990 Release - Unleaded Gasoline

In June 1990, UPA personnel discovered a line leak at the facility. Neither a verbal or written NORR were provided to the PADEP. Following product line closure activities, three groundwater monitoring wells (MW-1 through MW-3) were installed by Erie Geological Contractors in June 1990. In March 1992, a soil vapor extraction (SVE) remedial system was installed. The system consisted of seven SVE points plumbed into a 1 1/2 horsepower (hp) regenerative blower. The system operated from 1992 until 2003. Dissolved phase concentrations decreased during (and after) operation of the SVE system. Elevated DPH concentrations were still present in groundwater monitoring well MW-1 in 2013. DPH concentrations in monitoring wells MW-2 and MW-3 were detected below concentrations of U/R MSCs. UPA searched the project file and is unable to locate any documentation regarding installation of the SVE system.

A PADEP file review was conducted on January 8, 2014. Based on the file contents, it appears this facility was characterized and remediated in accordance with PADEP corrective action policies that prevailed prior to Chapter 245. There was nothing in the file that indicated a "no further action" status or relief of liability was ever assigned for the 1990 release. However, it does seem apparent that a *de facto* "no further action" status was assigned to the facility in 2003. This is based on a lack of any type of corrective action directives by PADEP and that the facility was never listed on the PADEP Leaking Underground Storage Tank database.

3.2 2013 Reportable Release - Unleaded Gasoline

On February 25, 2013, LDS personnel were making preparations for routine tightness testing when they detected unusual levels of vapors in the regular unleaded gasoline submersible pump pit. Further inspection revealed a small product “weep” from a threaded piping fitting. This fitting connected a metallic hose to steel product piping. The affected UST system was removed from service, repaired and returned to service on February 26, 2013. A verbal NORR was called in to PADEP-NWRO on February 25, 2013, and a written NORR was submitted on March 1, 2013.

3.3 Site Characterization Summary

Site characterization and monitoring activities have been conducted at the site from June 2013 through 2015. The following summarizes key findings discussed in the March 2015 SCR.

- A NORR was never reported by UPA personnel to the PADEP from a line leak discovered at the facility in June 1990. However, site characterization and remediation activities were initiated and confirmed DPH impacts in site groundwater.
- Based on the suspected release of unleaded gasoline constituents following detections of unusual vapors in the regular unleaded gasoline submersible pit in February 2013, a NORR was submitted to the PADEP.
- Subsurface soil on-site is composed of unconsolidated fill material with varying amounts of gravel, sand silt and clay underlain by clay with lenses of silt and sand with varying amounts of clay and gravel. Subsurface soil off-site on the adjacent (Carlough) property to the west of the facility downgradient toward Tunungwant Creek is comprised of fill material underlain by clay with lenses of silt and sand with varying amounts of clay and gravel.

- Soil samples collected from on-site groundwater monitoring wells MW-4, MW-6, MW-12 and soil boring SB-10 identified unleaded gasoline constituents in facility saturated and unsaturated soil at concentrations above current U/NR MSCs from approximately 5 to 11 feet bgs. On-site soil boring and monitoring well locations are illustrated on **Figure 6** (Soil Boring Location Map). Soil boring and monitoring well construction logs were included in the March 2015 SCR (GES, 2015). A summary of well construction is presented in **Table 2** (Well Construction Summary). On-site soil analytical results are summarized in **Table 3A** (On-Site Soil Data Summary). The current extent of APH impacts (i.e., benzene) in on-site unsaturated/periodically saturated soil is illustrated on **Figure 7** (Benzene Soil Isoconcentration Map, June 2013 - December 2014 [2-7 Feet bgs]). The current extent of APH impacts (i.e., benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene) in on-site saturated soil are illustrated on the following figures:
    - **Figure 8 -** Benzene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
    - **Figure 9 -** Toluene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
    - **Figure 10 -** Ethylbenzene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
    - **Figure 11 -** Naphthalene Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs),
    - **Figure 12 -** 1,2,4 TMB Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs); and
    - **Figure 13 -** 1,3,5-TMB Soil Isoconcentration Map, June 2013 - December 2014 (7-12 Feet bgs)
- Soil samples collected from off-site groundwater monitoring well MW-10 identified unleaded gasoline constituents (i.e., 1,3,5-trimethylbenzene) at concentrations above current U/R MSCs in unsaturated soil from approximately 2 to 3 feet bgs. Off-site soil sample locations are illustrated on **Figure 6.** Off-site well construction logs were included in March 2015 SCR. The current extent of 1,3,5-trimethylbenzene in off-site unsaturated soil is illustrated on **Figure 14 (**1,3,5-Trimethylenzene Soil Isoconcentration Map, June 2013 - December 2014 [2-4 Feet bgs]). Off-site soil analytical results are summarized in **Table 3B** (Off-Site Soil Data Summary)
- Observations during site characterization activities identified two separate water-bearing zones. A perched groundwater zone (on-site) and an overburden aquifer (on- and off-site).
- Groundwater gauging during site characterization activities identified a consistent flow direction to the northwest for both the perched groundwater zone and the overburden aquifer. Based on minimum and maximum depths to groundwater from on-site gauging data, unsaturated/periodically saturated soil is considered to range from 0 to 7 feet bgs and saturated soil is from 7 to 12 feet bgs the inferred depth of the perched zone based on evaluation of on-site lithology. Groundwater gauging data is summarized in **Table 1**.
- Groundwater samples collected from wells MW-1R, MW-4, MW-6, MW-7 and MW-14 monitoring the perched groundwater zone confirmed the presence of unleaded gasoline constituents (i.e., benzene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene) in facility groundwater from the UST field to the station building at concentrations above U/R MSCs. Groundwater analytical results are summarized in **Table 1**. The extent of dissolved phase benzene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene in the on-site perched groundwater zone in February 2015 are illustrated on **Figure 15** (Benzene Groundwater Isoconcentration Map, February 3-4, 2015), **Figure 16** (1,2,4-TMB Groundwater

Isoconcentration Map, February 3-4, 2015) and **Figure 17** (1,3,5-TMB Groundwater Isoconcentration Map, February 3-4, 2015), respectively.

- Groundwater samples collected from groundwater monitoring wells MW-8 through MW-10, MW-13, and MW-17 through MW-24 monitoring the overburden aquifer confirmed the presence of unleaded gasoline constituents (i.e., MTBE) in on- and off-site groundwater from the UST field (source area) downgradient to York Street at concentrations above U/R MSCs. Groundwater analytical data are summarized in **Table 1**. The extent of dissolved phase MTBE in the on- and off-site overburden aquifer in February 2015 is illustrated on **Figure 18** (MTBE Groundwater Isoconcentration Map [Overburden Aquifer], February 3-4, 2015).
- Soil gas samples collected from VP-2 confirmed the presence of unleaded gasoline constituents in facility soil near the UST field. However, based on data collected from soil gas monitoring points VP-1, VP-3 and VP-4, migration of soil gas to on-site receptors (i.e. station building) and off-site via potential preferential pathways (i.e. utility trenching) is not a concern.
- Fate and transport modeling was performed from groundwater monitoring well MW-19 (in York Street) to the off-site POC well MW-20 located approximately 191-feet prior to Tunungwant Creek. Based on conservative book values for hydraulic conductivity, modeling indicates there is a potential for dissolved phase MTBE will reach Tunungwant Creek at concentrations above U/R MSCs. However, active remediation will be implemented on- and off-site to mitigate further migration of DPH impacts.
- Fate and transport modeling was not completed for on-site perched groundwater zone DPH impacts due to the presence of the retaining wall likely acting as a barrier between the properties, and dissolved phase impacts in the perched groundwater zone appear to be confined horizontally to the UPA property.
- Due to the presence of potential sensitive receptors (i.e., residential and commercial properties), the selected approach to obtaining a liability relief for on-and off-site soil and groundwater is the used aquifer Statewide Heath Standard.

Unleaded gasoline constituents are present in on- and off-site soil and groundwater at concentrations above current U/R MSCs. The current attainment goal for on- and off-site soil and groundwater is the SHS; therefore, active remediation is necessary to reduce unleaded gasoline concentrations to below applicable MSCs. GES completed feasibility testing to evaluate potential remedial technologies to reduce unleaded gasoline concentrations in on- and off-site soil and groundwater in April 2014 and August 2015. Feasibility testing methodologies and results are summarized in **Section 5.0**.

4.0 SUPPLEMENTAL SITE INVESTIGATION - 2015

4.1 Storm Sewer Investigation

On April 29, 2015, GES, along with personnel from the City of Bradford, completed a dye test to determine the eventual outfall of on-site surface water runoff via the underground storm sewer (located in the northern portion of the facility) running downgradient beneath the adjacent (Carlough) property, and connecting to the underground storm sewer line parallel with Mill Street. Tracer dye was added to the water flowing in the storm sewer to determine the eventual discharge location. Based on results of the dye test, the storm sewer eventually discharges into Tunungwant Creek, approximately 506 feet to the west of the facility. The outfall location is illustrated on **Figure 3**.

A professional site survey of both on- and off-site relevant features was complete April 29, 2015. The following locations were surveyed:

- all top of casing and surface elevations for all groundwater monitoring wells and soil gas monitoring points;
- site features:
    - station building,
    - UST field,
    - property boundary(ies),
    - retaining wall (base and top-where applicable),
    - canopy, and
    - dispenser islands;
- random spot elevations to provide topography from on-site to Tunungwant Creek;
- surface elevation;
- depth to on- and off-site manholes connected to the underground storm sewer line including depth to underground storm sewer line; and
- Tunungwant Creek elevation (surface water and top of retaining wall).

Results of the survey were utilized to update the site map (**Figure 3**).

4.2 Injection Well Installation

From July 21 through 24, 2015, two on-site injection points (IP-1S/D and IP-2) and three off-site (Carlough property) injection points (IP-3S/D, IP-4S/D and IP-5) were installed for remedial feasibility testing. Prior to installation of the injection points a public utility mark out was completed utilizing the Pennsylvania One Call system and each proposed injection point location was precleared via air knife to a minimum of five feet bgs to prevent damage to underground utilities, when possible. Injection points were installed using an LC-60 drill rig with hollow-stem augers. Soil samples were collected via two-foot split spoons for lithologic description and screening with a calibrated photoionization detector (PID). Soil impacts had been delineated during prior site characterization activities; therefore, soil samples for laboratory analysis were not collected during injection point installation.

Injection points were constructed with five-foot lengths of 2-inch diameter stainless steel continuous wrapped screen set across observed high permeability (i.e., sand) lenses within the overburden aquifer. Lithologic observations from prior site characterization activities and during injection point installation activities were utilized to determine injection point screening intervals.

Schedule 40 polyvinyl chloride (PVC) riser was added to the screened interval to bring the injection point to ground surface. The screen annulus was backfilled with sand from the base of the borehole to one foot above the screen. The remaining annulus was filled to approximately 1.5 to 2 feet bgs with hydrated bentonite chips. Injection points IP-1S/D, IP-3S/D and IP-4S/D were construction as nested injection points (i.e., two, separate injection wells in the one borehole). The shallow (S) and deep (D) screen intervals were separated with a one-foot thick bentonite seal. Injection points IP-2 and IP-5 were constructed as single-point injection points (i.e., only one screen interval in the borehole). Injection points were finished flush with grade with an eight-inch diameter road box and threaded cap secured in a concrete pad. The following table summarizes injection point construction:

Well	Diameter (inches)	Length of Screen (feet)	Length of Riser (feet)	Total Well Depth (feet)
IP-1S	2	5	10	15
IP-1D	2	5	20	25
IP-2	2	5	32	37
IP-3S	2	5	14	19
IP-3D	2	5	30	35
IP-4S	2	5	20	25
IP-4D	2	5	38	43
IP-5	2	5	38	43

Injection point construction diagrams are provided in **Appendix A** (Injection Well Construction Diagrams).

5.0 REMEDIATION FEASIBILITY STUDY

Remedial feasibility tests were performed by GES at the facility in April 2014 and August 2015. The tests were performed to evaluate various remedial technologies that could be viable in addressing on- and off-site petroleum hydrocarbon impacts. The study included the recovery of groundwater from designated extraction wells while monitoring the hydraulic and pneumatic influences in observation wells and injection of compressed air into the subsurface. The following table provides a brief summary of the methodologies and observed influences from the April 2014 feasibility test:

Remedial Technology	Stage/ Step	Groundwater Extraction Rate (gpm)	Hydraulic ROI (feet)	Applied Vacuum (in w.c.)	Pneumatic ROI (feet)	Air Flow Rate (scfm)	Influent PID (ppmv)
Pump Test at MW-1R	1	0.10	<9	NA	NA	NA	NA
VEGE at MW-1R	2/1	0.25	14	40	<9	31.42	45.60
	2/2	0.64	15	80	<9	34.61	129.40
	2/3	1.05	18	121.5	25	44.07	167.05
TPE at MW-1R	3	1.05	21	121.5	<9	29.66	169.05
Pump Test at MW-9	4	0.15	23	NA	NA	NA	NA
VEGE at MW-9	5/1	0.11	23	40	<30	6.47	1.25
	5/2	0.04	23	90	<30	7.79	1.50
	5/3	0.05	24	283.5	<30	10.30	0.00
TPE at MW-9	6/1	0.00	<30	283.5	<30	9.79	1.60

gpm - gallons per minute
ROI - radius of influence
in w.c. - inches of water column
scfm - standard cubic feet per minute
ppmv - parts per million (volume)

Limited hydraulic and pneumatic radii of influence (ROI) were observed during initial off-site feasibility testing at monitoring well MW-9; therefore, a supplemental feasibility test was completed to evaluate the potential for passive injection of oxygen into the overburden aquifer to stimulate biodegradation and attenuation of remaining residual on- and off-site DPH impacts in the overburden aquifer and supplement on-site perched zone remediation.

5.1 Remedial Feasibility Study Methodologies - April 23 and 24, 2014

The April 2014 feasibility test was performed on MW-1R and MW-9 using GES' mobile Data Acquisition and Processing Laboratory (DAPL). The test included groundwater extraction only utilizing pneumatic pumps, VEGE, and TPE studies at on-site monitoring well MW-1R and off-site monitoring well MW-9.

Magnahelic gauges calibrated in inches of water column (in w.c.) were connected to the observation wells to measure vacuum influence. Water level fluctuations were recorded using 15 pounds per square inch (psi) pressure transducers installed in the observation wells and the extraction well. In addition, manual water level readings were obtained using an oil/water interface probe. Airflow readings were monitored manually using a heated wire anemometer. Influent volatile organic compound (VOC) concentrations were monitored with a calibrated PID. Groundwater extraction flow rates were determined using a

totalizing flow meter. Groundwater recovered during the study was contained in a 1,500-gallon tank and transported off-site for disposal. Recovered soil vapors were treated through one Air-175 vapor-phase granulated activated carbon (VGAC) vessel.

Induced influences (e.g., vacuum response and water level fluctuations) were recorded in designated observation wells surrounding the extraction well. Vacuum response was recorded using vacuum transducers installed in the observation wells and extraction well. Magnehelic gauges calibrated in in w.c. were connected to the observation wells to serve as a manual check to ensure accurate data collection. Water level fluctuations were recorded using pressure transducers installed in the observation wells and the extraction well.

Remedial feasibility test data collected by the DAPL vehicle are provided in **Appendix B** (Remedial Feasibility Study Data). Analytical reports from the vapor and water samples (collected during various steps throughout the study) are provided in **Appendix C** (Remedial Feasibility Study Laboratory Analytical Reports). Remedial feasibility study calculations are provided in **Appendix D** (Engineering Calculations).

5.1.1 Stage 1, Groundwater Extraction at MW-1R

Prior to the groundwater extraction study at on-site monitoring well MW-1R on April 22, 2014, static groundwater elevations were gauged in surrounding observation wells. Once depths to groundwater were obtained, a QED AP-4 pneumatic pump was placed in MW-1R with the intake of the pump approximately five feet below the static water level. Hydraulic influences were recorded using the DAPL computer, which was connected to pressure transducers in MW-4, MW-5, MW-6 and MW-14, which are 9 feet, 41 feet, 21 feet, and 30 feet, respectively, from MW-1R.

During this stage, the groundwater extraction flow rate averaged 0.10 gpm. Collected hydraulic data was analyzed through linear regression to determine a pumping ROI. A response of 0.10 feet of groundwater drawdown was used as a baseline. Observations of less than 0.10 feet were deemed natural fluctuations. No hydraulic response greater than 0.10 feet was observed during the groundwater extraction study. As a result, the hydraulic extraction ROI is estimated to be less than 9 feet, which is the distance from MW-1R to the nearest observation well. Drawdown calculations are shown in **Appendix D**.

During Stage 1 of the test, an influent groundwater sample was collected for laboratory analysis of the revised list of PADEP unleaded gasoline constituents. Analytical reports are attached as **Appendix C** and analytical data from this step are presented in the following table.

Groundwater Extraction at MW-1R Groundwater Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (µg/L)***
Benzene	149
Toluene	25.3
Ethylbenzene	14.7
Total Xylenes	29.7
MTBE	2.7
Isopropyl Benzene	7.6
Naphthalene	12.9
1,2,4-Trimethylbenzene	48.8
1,3,5-Trimethylbenzene	14.7

µg/L - micrograms per liter
MTBE - methyl tert-butyl ether

5.1.2 Stage 2, Vacuum Enhanced Groundwater Extraction at MW-1R

Following 94 minutes of groundwater extraction only, the VEGE stage at MW-1R was initiated. Blower vacuums of 2.96, 5.93, 9.00 inches of mercury (in. Hg) were applied to MW-1R. Vapors were extracted from MW-1R utilizing a Rotron EN808 regenerative blower for the first and second steps and a Rietschle VLR-100 rotary claw blower was used for the third step. Groundwater was continuously extracted from MW-1R using the QED AP-4 pneumatic pump.

Stage 2, Step 1 - VEGE at MW-1R (40 in w.c.)

Groundwater was extracted at a rate of 0.25 gallons per minute (gpm) throughout the duration of the first VEGE step. An average applied vacuum of 40.00 in w.c. at the blower was applied to MW-1R. The resultant well vacuum averaged 37.53 in w.c. Soil vapors were recovered at an average vapor flow rate of 31.42 scfm and influent PID concentrations averaged 45.60 parts per million volume (ppmv).

Notable hydraulic influence was observed in observation well MW-4 during Stage 2, Step 1. Hydraulic influence data was analyzed through linear regression. A response of 0.10 feet of groundwater drawdown was used as a baseline. Observations of less than 0.10 feet were deemed natural fluctuations. The hydraulic ROI is estimated to be 14 feet. Notable pneumatic influence was not observed during the study. A pneumatic ROI of less than 9 feet is assumed. Groundwater drawdown and vacuum response data from Stage 2, Step 1 are provided in the following table:

Observation Well	**Distance from Extraction Well *(feet)***	**Hydraulic Response in Observation Well *(feet)***	**Pneumatic Response In Observation Well *(in w.c.)***
MW-1R	0	5.14	37.53
MW-4	9	0.14	0.08
MW-6	21	0.00	0.03
MW-14	30	0.06	0.00
MW-5	41	0.06	0.03

in w.c. - inches of water column

Stage 2, Step 2 - VEGE at MW-1R (80 in w.c.)

The second VEGE step at MW-1R consisted of applying an average well vacuum of 80 in w.c. using the Rotron EN808blower. The resultant applied well vacuum averaged 75.87 in w.c. Vapors were recovered at an average rate of 34.61 scfm and an influent concentration of 129.40 ppmv. Groundwater was extracted at a rate of 0.64 gpm throughout the duration of Stage 2, Step 2.

Hydraulic influences increased during Stage 2, Step 2. Hydraulic influence was observed in MW-4 and a hydraulic ROI of 15 feet is estimated for this step. Notable pneumatic influence was not observed during Step 2. As a result, a pneumatic ROI of less than 9 feet is assumed. Groundwater drawdown and vacuum response data from Step 2 are provided in the following table:

Observation Well	**Distance from Extraction Well *(feet)***	**Hydraulic Response in Observation Well *(feet)***	**Pneumatic Response In Observation Well *(in w.c.)***
MW-1R	0	5.07	75.87
MW-4	9	0.19	0.08
MW-6	21	0.01	0.05
MW-14	30	0.01	0.03
MW-5	41	0.00	0.05

in w.c. - inches of water column

During Stage 2, Step 2 of the study, an influent vapor sample was collected for laboratory analysis. Analytical reports are attached as **Appendix C** and analytical data from this step are presented in the following table.

VEGE at MW-1R Vapor Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (ppmv)***
Benzene	<0.313
Toluene	<0.265
Ethylbenzene	0.318
Total Xylenes	1.55
MTBE	<0.277
1,2,4-Trimethylbenzene	0.336
1,3,5-Trimethylbenzene	<0.203
Total C_4-C_{10} Hydrocarbons	235

ppmv - parts per million (volume)
MTBE - methyl tert-butyl ether

Stage 2, Step 3 – VEGE at MW-1R (121.5 in w.c.)

The third VEGE step at MW-1R consisted of applying an average well vacuum of 121.5 in w.c. using the Rietschle VLR-100 rotary claw blower. Soil vapors were recovered at an average rate of 44.07 scfm and an influent concentration of 167.05 ppmv. Groundwater was extracted at a rate of 1.05 gpm throughout the duration of Stage 2, Step 3.

During Stage 2, Step 3, hydraulic influence was observed in MW-4 and a hydraulic ROI of 18 feet is estimated for this step. Notable pneumatic influence was observed in MW-6 during Step 3. As a result, a pneumatic ROI of less than 25 feet is assumed. Groundwater drawdown and vacuum response data from Step 3 are provided in the following table:

Observation Well	**Distance from Extraction Well** ***(feet)***	**Hydraulic Response in Observation Well** ***(feet)***	**Pneumatic Response In Observation Well** ***(in w.c.)***
MW-1R	0	5.08	95.04
MW-4	9	0.39	0.08
MW-6	21	0.03	0.10
MW-14	30	0.04	0.03
MW-5	41	0.00	0.02

in w.c. - inches of water column

During Stage 2, Step 3 of the study, a groundwater sample was collected for laboratory analysis. Analytical reports are attached as **Appendix C** and analytical data from this step are presented in the following table.

VEGE Step 3 at MW-1R Groundwater Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (µg/L)***
Benzene	305
Toluene	12.1
Ethylbenzene	421
Total Xylenes	2,440
MTBE	5.2
Isopropyl Benzene	49.0
Naphthalene	140
1,2,4-Trimethylbenzene	1,430
1,3,5-Trimethylbenzene	412

µg/L - micrograms per liter
MTBE - methyl tert-butyl ether

5.1.3 Stage 3, TPE at MW-1R

Following the VEGE stage at MW-1R, the TPE stage was initiated using the same monitoring wells as the VEGE study. In preparation of the total phase extraction study, a 1.25-inch diameter drop tube was placed in MW-1R at 5 feet below the initial static water level. The study was initiated by connecting the drop tube to a vacuum pump and applying an average drop tube vacuum of 121.5 in. Hg for 58 minutes. A resultant average well casing vacuum of 95.04 in w.c. was observed at MW-1R. Vapors were recovered at an average rate of 29.66 scfm and an influent concentration of 169.50 ppmv. Groundwater was recovered at an average rate of 1.05 gpm during Stage 3.

During Stage 3, hydraulic influence was observed in MW-4, and a hydraulic ROI of 21 feet is estimated for this step. Notable pneumatic influence was not observed during Stage 3. A pneumatic ROI of less

than 9 feet is estimated, which is the distance from MW-1R to the nearest observation well. Groundwater drawdown and vacuum response data from Stage 3 are provided in the following table:

Observation Well	**Distance from Extraction Well *(feet)***	**Hydraulic Response in Observation Well *(feet)***	**Pneumatic Response In Observation Well *(in w.c.)***
MW-1R	0	8.50	54.27
MW-4	9	0.65	0.08
MW-6	21	0.09	0.02
MW-14	30	0.05	0.00
MW-5	41	0.00	0.08

in w.c. - inches of water column

During Stage 3 of the study, groundwater and vapor samples were collected for laboratory analysis. Analytical reports are attached as **Appendix C** and analytical data from this step is presented in the following table.

TPE at MW-1R Groundwater Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (µg/L)***
Benzene	250
Toluene	9.9
Ethylbenzene	175
Total Xylenes	976
MTBE	4.4
Isopropyl Benzene	27.2
Naphthalene	73.0
1,2,4-Trimethylbenzene	537
1,3,5-Trimethylbenzene	157

µg/L - micrograms per liter
MTBE - methyl tert-butyl ether

TPE at MW-1R Vapor Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (ppmv)***
Benzene	0.523
Toluene	<0.265
Ethylbenzene	0.362
Total Xylenes	1.72
MTBE	<0.277
1,2,4-Trimethylbenzene	1.07
1,3,5-Trimethylbenzene	<0.203
Total C_4-C_{10} Hydrocarbons	112

ppmv - parts per million (volume)
MTBE - methyl tert-butyl ether

5.1.4 Stage 4, Groundwater Extraction at MW-9

Prior to the groundwater extraction study at MW-9 on April 23, 2014, static groundwater elevations were gauged in surrounding monitoring wells. Once depths to groundwater were obtained, a QED AP-2 pneumatic pump was placed in MW-9 with the intake of the pump approximately four feet below the static water level. Hydraulic influences were recorded using the DAPL computer, which was connected to pressure transducers in MW-8, MW-10, MW-11 and MW-13, which are 30 feet, 36 feet, 49 feet and 40 feet, respectively, from MW-9.

During this stage, the groundwater extraction flow rate averaged 0.15 gpm. Collected hydraulic data was analyzed through linear regression to determine a pumping ROI. A response of 0.10 feet of groundwater drawdown was used as a baseline. Observations of less than 0.10 feet were deemed natural fluctuations. The hydraulic extraction ROI is estimated to be 23 feet. Drawdown calculations are shown in **Appendix D**.

During Stage 4 of the study, a groundwater sample was collected for laboratory analysis. Analytical reports are attached as **Appendix C** and analytical data from this step are presented in the following table.

Groundwater Extraction at MW-9
Groundwater Analytical Results

Volatile Organic Compounds	***Influent Concentrations (µg/L)***
Benzene	<1.0
Toluene	37.3
Ethylbenzene	4.1
Total Xylenes	30.2
MTBE	3,420
Isopropyl Benzene	<1.0
Naphthalene	14.4
1,2,4-Trimethylbenzene	40.5
1,3,5-Trimethylbenzene	11.6

µg/L - micrograms per liter
MTBE - methyl tert-butyl ether

5.1.5 Stage 5, VEGE at MW-9

Following 75 minutes of groundwater extraction only, the VEGE stage at MW-9 was initiated. Blower vacuums of 40.00, 90.00, and 283.50 in w.c. were applied to MW-9. Vapors were extracted from MW-9 utilizing a Rotron EN808 regenerative blower for the first and second steps and a Rietschle VLR-100 rotary claw blower was used for the third step. Groundwater was continuously extracted from MW-9 using the QED AP-2 pneumatic pump.

Stage 5, Step 1 – VEGE at MW-9 (40.00 in w.c.)

Groundwater was extracted at a rate of 0.11 gpm throughout the duration of the first VEGE step. An average applied vacuum of 40.00 in w.c. at the blower was applied to MW-9. The resultant well vacuum averaged 33.21 in w.c. Soil vapors were recovered at an average vapor flow rate of 6.47 scfm and influent PID concentrations averaged 1.25 ppmv.

Notable hydraulic influence was observed in observation well MW-13 during Stage 5, Step 1. The hydraulic ROI is estimated to be 23 feet. Notable pneumatic influence was not observed during the study. A pneumatic ROI of less than 30 feet is assumed. Groundwater drawdown and vacuum response data from Stage 5, Step 1 are provided in the following table:

Observation Well	Distance from Extraction Well *(feet)*	Hydraulic Response in Observation Well *(feet)*	Pneumatic Response In Observation Well *(in w.c.)*
MW-9	0	4.03	33.21
MW-8	30	0.05	0.02
MW-10	36	0.00	0.00
MW-13	40	0.11	0.01
MW-11	49	0.00	0.01

in w.c. - inches of water column

Stage 5, Step 2 – VEGE at MW-9 (90.00 in w.c.)

The second VEGE step at MW-9 consisted of applying an average well vacuum of 90.00 in w.c. using the Rotron EN808 blower. The resultant well vacuum averaged 84.51 in w.c. Vapors were recovered at an average rate of 7.79 scfm and an influent concentration of 1.50 ppmv. Groundwater was extracted at a rate of 0.04 gpm throughout the duration of Stage 5, Step 2.

Hydraulic influences increased during Stage 5, Step 2. Hydraulic influence was observed in MW-13, and a hydraulic ROI of 23 feet is estimated for this step. Notable pneumatic influence was not observed during Step 2. As a result, a pneumatic ROI of less than 30 feet is assumed. Groundwater drawdown and vacuum response data from Step 2 are provided in the following table:

Observation Well	Distance from Extraction Well *(feet)*	Hydraulic Response in Observation Well *(feet)*	Pneumatic Response In Observation Well *(in w.c.)*
MW-9	0	4.01	84.51
MW-8	30	0.05	0.01
MW-10	36	0.00	0.01
MW-13	40	0.11	0.00
MW-11	49	0.00	0.01

in w.c. - inches of water column

Stage 5, Step 3 – VEGE at MW-9 (283.5 in w.c.)

The third VEGE step at MW-9 consisted of applying an average well vacuum of 283.5 in w.c. using the Rietschle VLR-100 rotary claw blower. Soil vapors were recovered at an average rate of 10.30 scfm and an influent concentration of 0.00 ppmv. Groundwater was extracted at a rate of 0.05 gpm throughout the duration of Stage 5, Step 3.

During Stage 5, Step 3, hydraulic influence was observed in MW-13 and a hydraulic ROI of 24 feet is estimated for this step. Notable pneumatic influence was not observed during Step 3. As a result, a pneumatic ROI of less than 30 feet is assumed. Groundwater drawdown and vacuum response data from Step 3 are provided in the following table:

Observation Well	Distance from Extraction Well *(feet)*	Hydraulic Response in Observation Well *(feet)*	Pneumatic Response In Observation Well *(in w.c.)*
MW-9	0	3.88	281.48
MW-8	30	0.08	0.00
MW-10	36	0.00	0.00
MW-13	40	0.11	0.04
MW-11	49	0.00	0.00

in w.c. - inches of water column

During Stage 5, Step 3 of the study, groundwater and vapor samples were collected for laboratory analysis. Analytical reports are attached as **Appendix C** and analytical data from this step are presented in the following tables.

VEGE Step 3 at MW-9 Groundwater Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (µg/L)***
Benzene	<1.0
Toluene	79.6
Ethylbenzene	4.2
Total Xylenes	30.8
MTBE	3,130
Isopropyl Benzene	<1.0
Naphthalene	7.6
1,2,4-Trimethylbenzene	41.2
1,3,5-Trimethylbenzene	12.2

µg/L - micrograms per liter
MTBE - methyl tert-butyl ether

VEGE Step 3 at MW-9 Vapor Analytical Results	
Volatile Organic Compounds	***Influent Concentrations (ppmv)***
Benzene	<0.313
Toluene	<0.265
Ethylbenzene	<0.230
Total Xylenes	<0.461
MTBE	<0.277
1,2,4-Trimethylbenzene	<0.203
1,3,5-Trimethylbenzene	<0.203
Total C_4-C_{10} Hydrocarbons	<2.45

ppmv - parts per million (volume)
MTBE - methyl tert-butyl ether

5.1.6 Stage 6, TPE at MW-9

Following the VEGE stage at MW-9, the TPE stage was initiated using the same monitoring wells as the VEGE study. In preparation of the TPE study, a 0.5-inch diameter drop tube was placed in MW-9 at approximately three feet below the initial static water level. The study was initiated by connecting the drop tube to a vacuum pump and applying an average drop tube vacuum of 283.5 in w.c. for 53 minutes. A resultant average well casing vacuum of 233.82 in w.c. was observed at MW-9. Vapors were recovered at an average rate of 9.79 scfm and an influent concentration of 1.60 ppmv. There was no groundwater recovery during Stage 6.

During Stage 6, no hydraulic or pneumatic influence was observed. As a result, a ROI of less than 30 feet is assumed for Stage 6.

During Stage 6 of the study, an influent vapor sample was collected for laboratory analysis. Analytical reports are attached as **Appendix C** and analytical data from this step are presented in the following table.

TPE Step 6 at MW-9
Vapor Analytical Results

Volatile Organic Compounds	***Influent Concentrations (ppmv)***
Benzene	<0.313
Toluene	<0.265
Ethylbenzene	<0.230
Total Xylenes	<0.461
MTBE	<0.277
1,2,4-Trimethylbenzene	<0.203
1,3,5-Trimethylbenzene	<0.203
Total C_4-C_{10} Hydrocarbons	<2.45

ppmv - parts per million (volume)
MTBE - methyl tert-butyl ether

5.2 Remedial Feasibility Testing Methodologies - August 25 and 26, 2015

The August 2015 test was performed utilizing GES' DAPL vehicle. During the feasibility test, individual low flow injection tests were completed at injection points IP-1S/D, IP-2, IP-3S/D, IP-4S/D and IP-5 utilizing compressed air to determine if subsurface conditions were favorable for low flow (i.e., passive) injection.

The injection airflow rate was monitored using a magnehelic gauge, which measures differential pressure at each injection well during each test.

Well head VOC, aquifer parameters (temperature, pH, oxidation/reduction potential [ORP], conductivity and dissolved oxygen [DO]) and induced influences (groundwater level fluctuations) were recorded in designated observation wells surrounding the extraction/injection wells. Well head VOC readings were monitored with a calibrated PID. Aquifer parameters were monitored with a multi-parameter meter (YSI). Water level fluctuations were recorded using 15 psi pressure transducers installed in the observation wells. The observation data was utilized to infer an injection ROI for each injection point to evaluate additional injection point spacing, as necessary.

Remedial feasibility study data collected by the DAPL vehicle are provided in **Appendix B**.

5.2.1 Stage 1, Air Injection at IP-2

Prior to initiating Stage 1 on August 25, 2015, static depth to water and baseline well head VOC and aquifer parameters readings were collected from observation well MW-23, which is 7 feet from injection point IP-2. Following data collection compressed air was then injected into injection point IP-2 at varying flow rates over three steps. Results of Stage 1 are summarized below.

Stage 1, Step 1 Air Injection at IP-2 (1 scfm)

The air injection pressure was increased until the breakout pressure (i.e., pressure at which groundwater is displaced in the injection point and air flow begins) was observed at 18 psi; however, as Step 1 progressed the air injection pressure decreased while the air injection flow rate increased. The air injection pressure decreased from 18 psi to 11.9 psi and the resulting air flow rate averaged 1.18 scfm, during Stage 1, Step 1.

Notable groundwater fluctuation (i.e., greater than 0.10 feet) and/or significant changes in aquifer parameters in the surrounding observations well were not observed during Stage 1, Step 1. Based on observations, an injection ROI of less than 7 feet (the distance from injection point IP-2 to the nearest observation well) was inferred.

Stage 1, Step 2, Air Injection at IP-2 (3 scfm)

Following 25 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 3 scfm). The resulting air injection pressure averaged 12.9 psi. The air injection pressure again decreased, while the air flow rate averaged 2.42 scfm, during Stage 1, Step 2.

Observed response data (i.e., groundwater fluctuations and aquifer parameters) were evaluated to infer a conservative injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) and in aquifer parameters were not observed in the surrounding observation well during Stage 1, Step 2. A hydraulic ROI was estimated to be less than 7 feet, the distance from IP-2 to the nearest observation well.

Stage 1, Step 3, Air Injection at IP-2 (6 scfm)

Following 25 minutes, the injection pressure was increased until the air injection flow rate increased by 4 scfm (i.e., 6 scfm). The resulting air injection pressure averaged 14.5 psi and the air flow rate averaged 6.16 scfm, during Stage1, Step 3.

Observed response data were evaluated to infer an injection ROI. Notable changes in groundwater elevation and in aquifer parameters were observed in surrounding observation well MW-23, during Stage 1, Step 3. A conservative injection ROI was inferred to be 7 feet.

Hydraulic response data from Stage 1 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
1/1	MW-23	7.00	1	0.00
1/2	MW-23	7.00	3	0.00
1/3	MW-23	7.00	6	0.10

scfm - standard cubic feet per minute

It should be noted that, although response data was not observed during Stage 1, air was able to be injected at injection point IP-2 at low pressure and flow rate during each step.

5.2.2 Stage 2, Air Injection at IP-5

Following the air injection test at IP-2, the air injection test at IP-5 commenced. Observation well MW-11, which is 11 feet from injection point IP-5, was monitored for groundwater elevation changes, well head VOC readings and aquifer parameters during Stage 2.

Stage 2, Step 1 Air Injection IP-5 (1 scfm)

The air injection pressure was increased at IP-5 until the breakout pressure was observed at 11.8 psi, and the resulting air injection flow rate average 1.01 scfm.

Observed response data were evaluated to infer an injection ROI. Notable changes in groundwater elevation and/or aquifer parameters were not observed during Stage 2, Step 1. An injection ROI was inferred to be less than 11 feet, the distance to the nearest observation well (monitoring well MW-11) from injection point IP-5.

Stage 2, Step 2, Air Injection at IP-5 (3 scfm)

Following 32 minutes, the air injection pressure was increased until the air injection flow rate increased by 2 scfm (i.e., 3 scfm). The resulting air injection pressure averaged 14.6 psi and the air injection flow rate averaged 2.74 scfm.

Observed response data were evaluated to infer an injection ROI. Notable changes in groundwater elevation and/or aquifer parameters were not observed during Stage 2, Step 2. An injection ROI was inferred to be less than 11 feet, the distance to the nearest observation well (monitoring well MW-11) from injection point IP-5.

Stage 2, Step 3, Air Injection at IP-5 (4 scfm)

Following 11 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 4 scfm). The resulting air injection pressure averaged 16.4 psi and the air injection flow rate averaged 3.51 scfm.

Observed response data were evaluated to infer an injection ROI. Notable changes in groundwater elevation and/or aquifer parameters were not observed during Stage 2, Step 3. An injection ROI was inferred to be less than 11 feet, the distance to the nearest observation well (monitoring well MW-11) from injection point IP-5.

Hydraulic response data from Stage 2 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
2/1	MW-11	11.00	1	0.00
2/2	MW-11	11.00	3	0.00
2/3	MW-11	11.00	4	0.00

scfm - standard cubic feet per minute

As noted previously, while response data was not observed, air flow at low pressure and flow rate was observed at injection point IP-5 during each step.

5.2.3 Stage 3, Air Injection at IP-3S

Following the air injection test at injection point IP-5, the air injection test at injection point IP-3S commenced. Prior to initiating Stage 3, surrounding observations wells MW-8 and MW-9, which are 14 feet and 19 feet from injection point IP-3S, respectively, were gauged for static water elevations, well head VOC readings and aquifer parameters readings.

Stage 3, Step 1 Air Injection IP-3S (1 scfm)

The air injection pressure was increased at injection point IP-3S until the breakout pressure was observed at 11.4 psi. The resulting air injection flow rate average 0.75 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation and aquifer parameters were not observed in surrounding observation wells during Stage 3, Step 1. An injection ROI was inferred to be less than 14 feet, the distance from injection point IP-3S to the nearest observation well (monitoring well MW-8).

Stage 3, Step 2, Air Injection at IP-3S (2 scfm)

Following 42 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 2 scfm). The resulting air injection pressure averaged 14.0 psi and the air injection flow rate averaged 1.59 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation aquifer parameters were not observed in surrounding observation wells during Stage 3, Step 2. An injection ROI was inferred to be less than 14 feet, the distance from injection point IP-3S to the nearest observation well (monitoring well MW-8).

Stage 3, Step 3, Air Injection at IP-3S (4 scfm)

Following 18 minutes, the air injection pressure was increased until the air injection flow rate increased by 2 scfm (i.e., 4 scfm). The resulting air injection pressure averaged 15.1 psi and the air injection flow rate averaged 3.93 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes groundwater elevation (i.e., greater than 0.10 feet) were observed in surrounding observation well MW-9, during Stage 3, Step 3. An injection ROI was inferred to be 19 feet, the distance to the nearest observation well (monitoring well MW-8).

Hydraulic response data from Stage 3 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
3/1	MW-8	14.00	1	0.00
	MW-9	19.00	1	0.00
3/2	MW-8	14.00	2	0.00
	MW-9	19.00	2	0.01
3/3	MW-8	14.00	4	0.06
	MW-9	19.00	4	0.58

scfm - standard cubic feet per minute

Air flow was observed during each step during Stage 3.

5.2.4 Stage 4, Air Injection at IP-3D

Following the air injection test at injection point IP-3S, the air injection test at injection point IP-3D commenced. Observation wells MW-8 and MW-9, which are 14 feet and 19 feet from injection point IP-3D, were monitored for groundwater elevation changes, well head VOC readings and aquifer parameters during Stage 4.

Stage 4, Step 1 Air Injection IP-3D (1 scfm)

The air injection pressure was increased at injection point IP-3D until the breakout pressure was observed at 20.4 psi. The resulting air injection flow rate average 0.25 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation were observed in observation well MW-9, during Stage 4, Step 1. An injection ROI was inferred to be 19 feet, the distance to monitoring well MW-9 where notable changes in groundwater elevation were noted.

Stage 4, Step 2, Air Injection at IP-3D (2 scfm)

Following 15 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 2 scfm). The resulting air injection pressure averaged 25.8 psi and the air injection flow rate averaged 1.07 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation wells MW-8 and MW-9, during Stage 4, Step 2. An injection ROI was inferred to be 19 feet.

Stage 4, Step 3, Air Injection at IP-3D (5 scfm)

Following 16 minutes, the air injection pressure was increased until the air injection flow rate increased by 3 scfm (i.e., 5 scfm). The resulting air injection pressure averaged 27.0 psi and the air injection flow rate averaged 5.82 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation wells MW-8 and MW-9, during Stage 4, Step 3. An injection ROI was inferred to be 19 feet.

Hydraulic response data from Stage 4 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
4/1	MW-8	14.00	1	0.07
	MW-9	19.00	1	0.19
4/2	MW-8	14.00	2	0.10
	MW-9	19.00	2	0.32
4/3	MW-8	14.00	5	0.24
	MW-9	19.00	5	0.68

scfm - standard cubic feet per minute

Air flow was observed during each step of Stage 4.

5.2.5 Stage 5, Air Injection at IP-4D

Following the air injection test at IP-3D, the air injection test at injection point IP-4D commenced. Observation wells MW-9 and MW-10, which are 30 feet and 13 feet from injection point IP-4D, respectively, were monitored for groundwater elevation changes, well head VOC readings and aquifer parameters during Stage 5.

Stage 5, Step 1 Air Injection IP-4D (1 scfm)

The air injection pressure was increased at injection point IP-4D until the breakout pressure was observed at 14.8 psi. The resulting air injection flow rate average 0.63 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 5, Step 1. An injection ROI was inferred to be 30 feet.

Stage 5, Step 2, Air Injection at IP-4D (2 scfm)

Following 19 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 2 scfm). The resulting air injection pressure averaged 19.70 psi and the air injection flow rate averaged 1.07 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 5, Step 2. An injection ROI was inferred to be 30 feet.

Stage 5, Step 3, Air Injection at IP-4D (3 scfm)

Following 25 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 3 scfm). The resulting air injection pressure averaged 24.4 psi and the air injection flow rate averaged 2.05 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 5, Step 3. An injection ROI was inferred to be 30 feet.

Hydraulic response data from Stage 5 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
5/1	MW-10	13	1	0.00
	MW-9	30	1	0.47
5/2	MW-10	13	2	0.00
	MW-9	30	2	0.63
5/3	MW-10	13	3	0.01
	MW-9	30	3	0.83

scfm - standard cubic feet per minute

Air flow was observed during each step during Stage 5.

5.2.6 Stage 6, Air Injection at IP-4S

Following the air injection test at injection point IP-4D, the air injection test at injection point IP-4S commenced. Observation wells MW-9, MW-10 and MW-21, which are 30 feet, 13 feet and 63 feet from injection point IP-4S, respectively, were monitored for groundwater elevation changes, well head VOC readings and aquifer parameters during Stage 6.

Stage 6, Step 1 Air Injection IP-4S (1 scfm)

The air injection pressure was increased at injection point IP-4S until the breakout pressure was observed at 10.9 psi. The resulting air injection flow rate average 0.52 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 6, Step 1. An injection ROI was inferred to be 30 feet.

Stage 6, Step 2, Air Injection at IP-4S (2 scfm)

Following 19 minutes, the air injection pressure was increased until the air injection flow rate increased by 1 scfm (i.e., 2 scfm). The resulting air injection pressure averaged 15.4 psi and the air injection flow rate averaged 1.32 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 6, Step 2. An injection ROI was inferred to be 30 feet.

Stage 6, Step 3, Air Injection at IP-4S (4 scfm)

Following 15 minutes, the air injection pressure was increased until the air injection flow rate increased by 2 scfm (i.e., 4 scfm). The resulting air injection pressure averaged 16.9 psi and the air injection flow rate averaged 6.27 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 6, Step 3. An injection ROI was inferred to be 30 feet.

Hydraulic response data from Stage 6 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
6/1	MW-10	13	1	0.00
	MW-9	30	1	0.12
	MW-21	63	1	0.00
6/2	MW-10	13	2	0.00
	MW-9	30	2	0.17
	MW-21	63	2	0.00
6/3	MW-10	13	4	0.00
	MW-9	30	4	0.28
	MW-21	63	4	0.00

scfm - standard cubic feet per minute

Air flow was observed during each step of Stage 6. Following completion of Stage 6, Step 3, the feasibility testing was ended for August 25, 2015.

5.2.7 Stage 7, Air Injection at IP-1S

On August 26, 2015, feasibility testing continued with air injection testing at injection point IP-1S. Observation wells MW-14, MW-1R, MW-4 and MW-7, which are 11 feet, 18 feet, 29 feet and 29 feet from injection point IP-1S, respectively, were monitored for groundwater elevation changes, well head VOC readings and aquifer parameters during Stage 7.

Stage 7, Step 1 Air Injection IP-1S (1 scfm)

The air injection pressure was increased at injection point IP-1S until the breakout pressure was observed at 2.6 psi. The resulting air injection flow rate average 0.95 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in surrounding observation well MW-14 during Stage 7, Step 1. An injection ROI was inferred to be 11 feet.

Stage 7, Step 2, Air Injection at IP-1S (2 scfm)

Following 23 minutes, the air injection pressure was increased until the air injection flow rate increased by 2 scfm (i.e., 3 scfm). The resulting air injection pressure averaged 3.6 psi and the air injection flow rate averaged 2.98 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-14, during Stage 7, Step 2. An injection ROI was inferred to be 11 feet.

Stage 7, Step 3, Air Injection at IP-1S (6 scfm)

Following 23 minutes, the air injection pressure was increased until the air injection flow rate increased by 2 scfm (i.e., 4 scfm). The resulting air injection pressure averaged 4.6 psi and the air injection flow rate averaged 5.98 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 7, Step 3. An injection ROI was inferred to be 13 feet.

Hydraulic response data from Stage 7 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
7/1	MW-14	11	1	0.11
	MW-1R	18	1	0.02
	MW-4	29	1	0.00
	MW-7	29	1	0.00
7/2	MW-14	11	2	0.11
	MW-1R	18	2	0.02
	MW-4	29	2	0.00
	MW-7	29	2	0.00
7/3	MW-14	11	4	0.21
	MW-1R	18	4	0.02
	MW-4	29	4	0.04
	MW-7	29	4	0.00

scfm - standard cubic feet per minute

Air flow was observed during each step of Stage 7.

5.2.8 Stage 8, Air Injection at IP-1D

Following completion of the air injection test at injection point IP-1S, the air injection test at injection point IP-1D commenced. Observation wells MW-14, MW-13, MW-22 and MW-9, which are 11 feet, 14 feet, 40 feet and 48 feet from injection point IP-1D, respectively, were monitored for groundwater elevation changes, well head VOC readings and aquifer parameters during Stage 8.

Stage 8, Step 1 Air Injection IP-1D 2 (scfm)

The air injection pressure was increased at IP-1D until the breakout pressure was observed at 16.0 psi. The resulting air injection flow rate average 1.65 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9, during Stage 8, Step 1. An injection ROI was inferred to be 48 feet.

Stage 8, Step 2, Air Injection at IP-1D (4 scfm)

Following 28 minutes, the air injection pressure was increased until the air injection flow rate increased by 2 scfm (i.e., 4 scfm). The resulting air injection pressure averaged 18.4 psi and the air injection flow rate averaged 4.51 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9 and MW-14, during Stage 8, Step 2. A injection ROI was inferred to be 48 feet.

Stage 8, Step 3, Air Injection at IP-1D (8 scfm)

Following 27 minutes, the air injection pressure was increased until the air injection flow rate increased by 4 scfm (i.e., 8 scfm). The resulting air injection pressure averaged 19.1 psi and the air injection flow rate averaged 8.78 scfm.

Observed response data was evaluated to infer an injection ROI. Notable changes in groundwater elevation (i.e., greater than 0.10 feet) were observed in observation well MW-9 and MW-14, during Stage 8, Step 3. A injection ROI was inferred to be 48 feet.

Hydraulic response data from Stage 8 are summarized in the following table:

Stage/Step	Observation Well	Distance from Injection Point *(feet)*	Air Injection Flow Rate *(scfm)*	Hydraulic Response In Observation Well *(feet)*
8/1	MW-14	11	2	0.09
	MW-13	14	2	0.00
	MW-22	40	2	0.02
	MW-9	48	2	0.23
8/2	MW-14	11	4	0.30
	MW-13	14	4	0.00
	MW-22	40	4	0.00
	MW-9	48	4	0.32
8/3	MW-14	11	8	0.47
	MW-13	14	8	0.00
	MW-22	40	8	0.00
	MW-9	48	8	0.38

scfm - standard cubic feet per minute

Air flow was observed during each step of Stage 8. Following completion of testing at injection IP-1D the feasibility test was complete.

6.0 INVESTIGATION-DERIVED WASTE

Solid waste including soil cuttings and construction debris (i.e., asphalt) generated during drilling activities were containerized in steel 55-gallon, DOT-approved drums and stored in a secure on-site location. The solid waste was transported by McCutcheon Enterprises, Inc. (MEI) of Apollo, Pennsylvania, as non-hazardous waste to MEI's Biosolids Treatment Facility for disposal. A total of 6.16 tons of solid waste was transported to MEI for disposal on August 26, 2015, from injection point installation. Waste disposal manifests are provided in **Appendix E** (Investigation and Remediation Derived Waste Documentation).

Purge water from groundwater monitoring events was treated using liquid-phase GAC prior to on-site discharge by GES personnel.

August 2015 remedial feasibility testing did not produce any investigation-derived waste (IDW). Disposal of IDW from April 2014 remedial feasibility testing was discussed in the March 2015 SCR.

7.0 REMEDIAL OPTIONS EVALUATION

Following replacement of the fitting connecting a metallic hose to the steel product piping associated with the regular-grade unleaded gasoline UST system which failed in February 2013, any continuing source of unleaded gasoline impacts to site soil and groundwater should have been removed. Remedial technologies considered as potentially viable in addressing remaining petroleum hydrocarbon impacts are discussed in the following sections.

7.1 Soil

Site characterization activities identified APH impacts in on-site facility soils including benzene, toluene, ethylbenzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene at concentrations exceeding U/NR MSCs at soil sample locations MW-4, MW-6, MW-12 and SB-10 at depths ranging from 5 to 11 feet bgs. Additionally, site characterization activities identified adsorbed phase 1,3,5-trimethylbenzene in off-site soil at monitoring well MW-10 at a depth ranging from 2 to 3 feet bgs. The following alternatives were considered for remediation of soil impacts identified during these site characterization activities:

- *No Action:* Fifty-four soil samples were analyzed for unleaded gasoline constituents during various characterization activities conducted on- and off-site from June 2013 to February 2014. Exceedances of current soil MSCs were identified on-site at MW-4, MW-6, MW-12 and SB-10 at depths ranging from 5 to 11 feet bgs. Exceedances of current soil MSCs were identified off-site at MW-10 at depths ranging from 2 to 3 feet bgs. Based on the average depth to water off-site of 18.29 feet, there is no potential for APH impacts to act as a source for DPH in groundwater. However, because soil concentrations are above current U/NR MSCs, active remediation appears necessary for off-site soil. In the perched groundwater zone the average depth to water is 6.19 feet bgs and APH could act as a source of DPH; therefore, active remediation appears necessary for on-site soil.

- *Soil Excavation (Ex Situ Treatment)*: This option requires the excavation and removal of impacted soil for off-site treatment/disposal. Excavation can be effective to complete APH source removal in a relatively short time frame. The shallow off-site impacts (2 to 3 feet bgs) could be easily excavated based on their location; however, the on-site impacts (5 to 11 feet bgs) would be more difficult to excavate due to the proximity to the UST field, product piping, and utility locations. Shallow excavation is considered a viable remedial option for off-site soil impacts, but in-situ remediation options will be considered for on-site soil impacts.

- *Soil Vapor Extraction (SVE):* SVE is an in-situ remedial technology that is effective in removing volatile constituents from the vadose or unsaturated zone. SVE utilizes a blower (regenerative, positive displacement, or liquid ring pump) to extract soil vapors from the pore space of the soil matrix. The effectiveness of an SVE system is determined by two major factors: permeability of the soil and volatility of the constituent to be extracted. Permeability of the soil determines the rate at which soil vapors can be removed. Soils that tend to be fine-grained (i.e., clays and silts) are less likely to allow sufficient vapor flow than coarse-grained soils (i.e., sands and gravels). The composition of the impacted soil is unconsolidated fill material underlain by clay.

The volatility of the constituent to be removed determines the rate or degree at which the constituent will vaporize from the adsorbed phase to the vapor phase. Vapor pressure is a key factor to determining the volatility of a constituent. In general, vapor pressures greater than 0.5 millimeters of mercury (mm Hg)

are generally considered amenable for soil vapor extraction. The vapor pressure for gasoline range organic compounds varies from 75 mm Hg for benzene to 7.1 mm Hg for ethylbenzene. Because the impacts are gasoline-range organic compounds, SVE could be effective at achieving VPH and APH mass reduction in on-site unsaturated soil; however, SVE alone would not address saturated APH impacts or DPH impacts.

Based on the results of the feasibility study, SVE alone would not be an effective remedial technology. The on-site impacted soils were identified both above and below the average static groundwater level in the perched groundwater zone. An SVE system may be effective if used in conjunction with a groundwater pumping system. The SVE portion of the system could target APH impacts in on-site soil above the water table. Dewatering the impacted soil and lowering the water table would expose the saturated soil impacts to the airflow induced by an SVE system.

- *Natural Attenuation:* Natural attenuation relies upon natural subsurface processes to reduce constituent concentrations to below current Act 2 MSCs. This option typically requires long-term sampling and data evaluation to establish constituent reduction and degradation by-product trends. Natural attenuation is eliminated from current consideration due to the elevated APH impacts and potential on-site and downgradient receptors.

7.2 Groundwater

Current DPH impacts in on-site perched groundwater include benzene and 1,2,4-trimethylbenzene at concentrations above current U/R MSCs at monitoring wells MW-1R, MW-4, MW-6, MW-7 and MW-14. DPH impacts in the on-site perched groundwater zone appear to be limited to the area downgradient and sidegradient of the current UST field in the western portion of the facility.

Current DPH impacts in the on- and off-site overburden aquifer included MTBE at concentrations above current U/R MSCs at monitoring wells MW-8 through MW-11, MW-13, MW-19, MW-21 and MW-23. DPH impacts in the on- and off-site overburden aquifer appear to extend from the current UST field downgradient to monitoring well MW-19 (York Street) and sidegradient of the UST field in the western portion of the facility. The following alternatives were considered for remediation of DPH impacts in the perched groundwater zone and overburden aquifer:

- *Groundwater Extraction*: Groundwater extraction is a practical remedial technology to gain hydraulic control and to retard downgradient migration of DPH. However, groundwater pump-and-treat remediation technology may lead to many years of system operation and maintenance before MSCs are attained. Groundwater extraction may be enhanced through the application of a vacuum to the wellheads.

- *Dual Phase Extraction:* Dual phase extraction or VEGE combines both SVE and pump-and-treat remedial technologies. The application of a vacuum to an extraction well creates pressure gradients that enhance total fluid flow towards the extraction well. Conventional dual-phase/VEGE extraction systems use a submersible pump to extract liquids from the well and a surface blower to extract vapors. A dual-phase/VEGE remedial system removes vapor and groundwater independently using one of several methodologies.

The first option involves the use of low vacuums (<50 in w.c.) and submersible pumps (pneumatic or electric). Low vacuum dual-phase/VEGE systems are most effective in high yielding, high transmissivity formations. The second dual-phase/VEGE option involves the use of mid-range vacuums (50–100 in

w.c.) and submersible pumps. Mid-range vacuum dual-phase/VEGE systems are most effective in medium yielding, medium transmissivity formations. The third type of dual-phase/VEGE system involves the use of a high vacuum (>100 in w.c.) positive displacement (PD) blower and submersible pumps. PD blowers are capable of vacuum levels approaching 18 in. Hg. High vacuum dual-phase/VEGE systems are most effective in low yielding, low transmissivity formations, such as that beneath this site.

A high vacuum dual phase/VEGE system could be an effective means of addressing on-site DPH impacts in the perched groundwater zone. Based on data from dual phase/VEGE portion of the April 2014 feasibility study, the on-site perched zone groundwater recovery rate was 1.05 gpm and the soil vapor recovery rate was 44.07 scfm at an applied vacuum of 9 in. Hg (i.e., 95.04 in w.c.). The resulting hydraulic and pneumatic ROI were estimated to be 18 feet and 25 feet, respectively. However, dual phase/VEGE feasibility testing data from off-site monitoring well MW-9 did not indicate that the technology would be viable in remediating DPH impacts in the on- and off-site overburden aquifer.

Based on results of the April 2014 feasibility test, VEGE is the recommended remedial technology to address DPH and APH impacts in the on-site perched groundwater zone; however, a dual phase/VEGE system is not recommended to mitigate on- and off-site DPH impacts in the overburden aquifer.

- *Total Phase Extraction (TPE):* TPE typically utilizes a single blower to extract groundwater and soil vapor simultaneously through the same extraction pipe. Liquid ring pumps (LRPs) and PD blowers are capable of high vacuum levels (approaching 30 in. Hg for LRPs, and 18 in. Hg for PD blowers) and are most effective in low yield (<1.0 gpm/well) formations. A TPE system utilizes a drop tube inside the well to extract total fluids. A pitless adapter attached to the extraction well connects the drop tube to a piping network. During conveyance of the extracted fluids through the piping network, turbulence causes dissolved phase VOCs to partition to the vapor-phase. The total fluids enter the equipment compound and are separated inside a vapor/liquid separator.

A typical TPE system is designed to handle groundwater recovery rates less than one gpm per extraction well and vapor flow rates less than 20 scfm per extraction well. Dual phase/VEGE systems which utilize submersible pumps and surface blowers are more appropriately designed to handle groundwater recovery rates greater than one gpm per well.

Based on data from a April 2014 vacuum extraction pilot test, TPE may be an effective means to remediate DPH impacts in the on-site perched groundwater zone; however, soil vapor recovery rates from the on-site perched groundwater zone average 29.66 scfm, which is above the typical range of TPE systems. Therefore, TPE is removed from consideration at this time as a viable remediation technology.

- *Air Sparge/Soil Vapor Extraction (AS/SVE):* Air sparging involves the delivery of air into the saturated zone to volatilize DPH and APH constituents. Typically, the volatilized constituents are removed from the vadose zone by an SVE system. The effectiveness of air sparging primarily depends on two key factors, vapor/dissolved phase partitioning and permeability of the soil.

August 2015 feasibility testing indicated that on-site and off-site subsurface conditions are favorable for the injection of air at relatively low pressure and flow rates. Given the varying lithology of both the perched groundwater zone and the overburden aquifer that could lead to the creation of preferential air flow pathways limiting the effectiveness of AS, a modified passive oxygen injection system appears to be a viable option to remediate on- and off-site DPH impacts in the overburden aquifer and supplement remediation of the perched groundwater zone.

- *Modified Injection System (Passive Oxygen Injection):* A modified injection system (i.e., passive oxygen injection) involves the injection of purified oxygen into the aquifer at low pressure and flow rates to stimulate biodegradation and attenuation of VOCs. Where traditional AS/SVE operation utilizes direct contact of air (i.e., bubbles) with impacted groundwater to volatize the VOCs and transport the VOC to the vadose zone where the induced SVE vacuum extracts them, passive oxygen injection relies on natural process to remediate VOCs (i.e., in-situ biodegredation).

The modified injection system includes passive oxygen injection to stimulate biodegradation and attenuation of remaining residual on- and off-site DPH impacts throughout the overburden aquifer.

During the air injection test, injection ROI ranged from less than 7 feet up to 48 feet. The varying ROI was likely due to the varying lithology beneath the site and adjacent property (Carlough). For injection well spacing a conservative ROI of 25 feet would be appropriate.

- *Oxidation:* Oxidants, such as ozone, peroxides and oxygen may be added to the groundwater to promote both biological activity and chemical oxidation. The oxidation process breaks the chemical bonds of organic compounds and renders innocuous by-products, depending on the strength of the oxidant. Introduction of oxidants into facility groundwater may be a viable option to remediate DPH in the overburden aquifer; however, oxidation is not selected as a remedial strategy at this time. Oxidation may be re-evaluated following passive oxygen injection in the overburden aquifer, as a polishing technology. Due to the proximity to subsurface features (i.e., UST field, product piping, etc.) in the perched groundwater zone, oxidation is eliminated as a potential polishing technology.

- *In-Situ Bioremediation:* Bioremediation involves the introduction of nutrients, such as nitrogen and phosphorus, and oxygen to the groundwater to enhance microbial growth. Subsurface conditions appear to be favorable for injection based on results of the August 2015 remedial feasibility testing, however, bioremediation is not being considered at this time. Bioremediation may be re-evaluated following active remediation via the VEGE system and passive oxygen injection, as a polishing technology.

- *Monitored Natural Attenuation (MNA):* Natural attenuation relies upon natural subsurface microbiological and chemical processes to reduce constituent concentrations to below MSCs. This option typically requires long-term sampling and data evaluation to establish constituent reduction and degradation by-product trends. Benzene is currently one of the primary COCs in site groundwater and is widely considered to be susceptible to natural bio-chemical degradation in subsurface environments. Based on the susceptibility of benzene to natural attenuation processes MNA appears to be a potentially viable remedial alternative for site groundwater following reduction of DPH concentrations on-site by a more aggressive/active remedial approach and will be re-evaluated following active VEGE and passive oxygen injection remediation.

8.0 REMEDIAL APPROACH

Based on the results of soil boring, groundwater sampling, and the feasibility study, the most applicable remedial approach is a dual phase/VEGE remediation system to mitigate on-site perched groundwater zone DPH and APH impacts and a passive oxygen injection system to mitigate on- and off-site overburden aquifer DPH impacts and supplement on-site perched groundwater remediation. Limited soil excavation will be conducted during system installation activities to remediate shallow localized APH impacts in the vicinity of monitoring well MW-10. Additional details regarding remedial system components, permitting, installation, OM&M, system monitoring and reporting are provided in the following sections.

8.1 Planned Activities

Following approval of the RAP, a VEGE remedial system will be installed to address groundwater and soil impacts. A subsurface piping network will be utilized to connect five VEGE wells (MW-4, MW- 6, MW-7, RW-1 and RW-2) and one SVE well to a remedial equipment compound. A proposed system trench layout is provided on **Figure 19** (Proposed Remedial System Trench Layout Map). The extraction wells will capture APH, DPH, and VPH and maintain on-site hydraulic control of the DPH plume in the perched groundwater zone. The VEGE well spacing interval is based on a 18-foot hydraulic ROI as shown on **Figure 20** (Proposed Hydraulic Radius of Influence Map) and 25-foot pneumatic ROI as shown on **Figure 21** (Proposed Pneumatic Radius of Influence Map). The system will be comprised of a SVE blower, a vapor/liquid separator (VLS), an equalization tank, an air compressor, two transfer pumps, two sediment filters, liquid phase granular activated carbon (LGAC) units, a Falco 300 catalytic oxidizer, and one VGAC unit.

A passive oxygen system will also be installed to address groundwater impacts in the on- and off-site overburden aquifer. A subsurface network will be utilized to connect ten injection points (IP-1S/D, IP-2, IP-3S/D, IP-4S/D, IP-5, IP-6S/D through IP-10S/D) to a remedial equipment compound. Where possible, VEGE system piping and passive oxygen injection piping will be placed in the same trench. A proposed system trench layout is provided on **Figure 19**. Injection well spacing is based on a conservative 25-foot ROI as shown on **Figure 22** (Proposed Injection Radius of Influence Map).

A limited soil excavation will be completed in the vicinity of off-site monitoring well MW-10 to address APH impacts. Proposed limits of soil excavation are illustrated on **Figure 19**. However, the final limits may vary based on field observations during excavation activities.

8.2 Construction Details

8.2.1 Proposed Recovery Well Installation

In preparation for the installation of the VEGE system, three new proposed recovery wells (RW-1, RW-2 and SVE-1) will be installed at the locations indicated on **Figure 19**. Each new proposed recovery well will be constructed of 4-inch diameter schedule 40 PVC casing and 0.02-inch continuous wrap screen at the approximate intervals and depths specified in the following table.

Proposed Well	**Diameter** *(inches)*	**Well Depth** *(ft bgs)*	**Screen Interval** *(feet)*
RW-1	4	16	5-16
RW-2	4	16	5-16
SVE-1	4	8	5-8

ft - feet
bgs - below ground surface

8.2.2 Proposed Injection Point Installation

In preparation of the oxygen injection system, five new nested injection points (IP-6S/D through IP-10S/D) will be installed at the locations illustrated on **Figure 19**. Each nested injection point will be constructed with shallow and deep screen intervals set in the same borehole (i.e., two injection points per borehole). The screen intervals will be five-foot lengths of one-inch diameter stainless steel continuous wrapped screen set across higher permeability (i.e., sand) lenses. One-inch diameter schedule 80 PVC riser will be added to the screened interval to bring the injection point to ground surface. The screen annulus will be backfilled with sand from the base of the borehole to one foot above the screen. The remaining annulus will be filled to approximately 1.5 to 2 feet bgs with hydrated bentonite chips. The nested injection points will be separated by a one-foot thick bentonite seal.

Screen intervals will be set based on evaluation of lithologic observations during installation; therefore, exact depths and intervals cannot be provided at this time. Final injection point construction details will be provided following installation.

8.3 Subsurface Piping Network

A remedial system trenching network will be excavated to connect the five VEGE wells and one SVE well and ten injection points to the remediation systems. The subsurface piping network will be installed at a depth below the frost line (approximately 36 inches) and backfilled with modified 2A gravel to approximately 4 inches below grade.

Individual 2-inch diameter schedule 40 PVC groundwater recovery lines will be plumbed from each of the five VEGE wells to the equipment compound. A check valve will be installed in each groundwater recovery line at the well head connection. The valve will be implemented as a safety precaution to prevent DPH from reentering the recovery wells in the event of pneumatic pump malfunction or system shutdown.

Individual 2-inch diameter schedule 40 PVC vapor recovery lines will be plumbed from each recovery well to the equipment compound for the recovery of VPH and APH.

Compressed air will be supplied to the pneumatic pumps through a 1-inch diameter schedule 80 PVC header pipe.

Individual 1-inch diameter schedule 80 PVC compressed air lines will be plumbed from each injection point to the equipment compound for the passive injection of oxygen.

Each piping lateral will be pressure tested at 4 psi for 30 minutes after backfilling. Trenching and excavation activities will comply with OSHA 29 CFR Part 1926 Regulations. Surfaces will be returned to prior conditions (i.e., paved, grass, etc.). Proposed piping and system trench cross-sections are illustrated on **Figure 23** (Proposed Trench Cross Sections).

Five traffic-rated 2' x 2' x 2' well vaults will be installed to provide access to each VEGE recovery well and one 18-inch diameter manhole for each SVE well for system maintenance and groundwater sampling. The flow rates from each well will be regulated using ball valves located in the well vaults and manholes. Ball valves will also be installed on the manifold adjacent to the equipment compound. Injection points located on the off-site (Carlough) property will be buried during installation restoration activities. Locations of the off-site injection points will be marked with locating sensors in the event maintenance is required at the well head and for future site restoration activities, as necessary. Four 18-inch diameter manholes will be installed to provide access to the on-site injection points. Well piping and connection details are presented as **Figure 24** (VEGE Well Construction Details), **Figure 25** (SVE Well Construction Details) and **Figure 26** (Injection Point Construction Details).

8.4 Remedial Soil Excavation

A limited shallow soil excavation will be completed during system trenching activities in the vicinity of groundwater monitoring well MW-10 on the Carlough property to address shallow APH impacts. Work will be performed in accordance with standard and accepted engineering and construction practices. Prior to any intrusive work at the property, the Pennsylvania One Call will be contacted for public utility mark-out service. The Pennsylvania One Call service will locate public utilities (e.g., electric, natural gas, water, and telephone) along the frontage of the facility and off-site property. Existing as-built drawings, if available, will be used to further identify subsurface utilities.

The approximate area designated on **Figure 19** will be excavated for the removal of APH. The excavation will be extended until field screenings (PID, visual/olfactory), indicates impacted material is removed. Impacts are currently expected to be encountered between 2 and 3 feet bgs. Soils determined to be impacted based on PID readings greater than 50 ppm will be direct loaded into either roll-off boxes or live-loaded in trucks. Soil samples will be collected for waste profiling and analyzed for FC-1 parameters. Following receipt of analytical results, the soil will be transported for off-site disposal at an appropriate landfill.

The excavation areas will then be backfilled to grade with clean aggregate and finished to pre-excavation conditions.

Confirmatory soil samples will be collected for laboratory analysis. The number and locations of soil samples will be chosen at random as explained in Pennsylvania Code Title 25, Chapter 250.703. Soil samples will be analyzed for the revised (March 2008) shortlist of unleaded gasoline constituents.

8.5 Treatment Systems

8.5.1 VEGE System

The proposed VEGE remedial system will utilize an SVE blower and a pneumatic pumping system for the recovery of soil vapors and groundwater. The system will treat soil vapors and groundwater at design extraction rates of 300 scfm and 10 gpm under a system vacuum of 110 in w.c. (at the inlet of the VLS). The VLS will be equipped with a transfer pump to evacuate recovered groundwater to the equalization

tank. Upon entering the equipment compound, extracted soil vapors will be processed through the VLS to prevent moisture from entering the SVE blower. Influent groundwater will be pumped into an equalization tank. A transfer pump will evacuate the equalization tank and pump groundwater through two sediment filters (parallel arrangement). Following the sediment filters, the extracted groundwater will be treated with liquid phase GAC units in series arrangement. The carbon units will be rated for 150 psi at 10 gpm and contain 200 pounds of liquid-phase carbon each.

The influent vapor stream will proceed from the top of the VLS and be treated by a Falco 300 catalytic oxidizer. The Falco 300 is rated for 300 scfm. Engineering calculations for the treatment system design are provided in **Appendix D**.

The Piping and Instrumentation Diagram (P&ID) Legend, P&ID Groundwater Components and P&ID SVE Components are provided as **Figures 27**, **28**, and **29**, respectively.

8.5.2 VEGE System Equipment Specifications

SVE Blower

The SVE blower will be capable of operating at a rate of 300 scfm under a system vacuum of 110.0 in w.c. (at the inlet of the VLS).

Vapor Liquid Separator

The VLS will be a 120-gallon (minimum) vessel that will create a reduction in air/fluid velocity and allow sufficient residence time for the separation of moisture and vapor. Extracted vapors will be discharged through the top of the separator and condensate through the bottom. Conductivity probes will be installed in the tank to activate a transfer pump when water accumulates to 50 percent of the capacity of the VLS. A conductivity probe will also be installed to deactivate the blower in the event of a high water level in the separator tank.

Equalization Tank

A 150-gallon tank will be provided for the settling of sediments in the influent water stream. Level control switches will be installed for the operation of a transfer pump and for emergency high water shut-off.

Air Compressor

An air compressor capable of 12 scfm at 175 psi will be used to supply air to the pneumatic recovery pumps.

Pneumatic Pumps

Five 4-inch diameter, short body top-loading pneumatic pumps will be used for groundwater extraction from the VEGE wells. The pumps are constructed of fiberglass and stainless steel and are operated via an internal float mechanism. Each pump is rated for 10 gpm.

Transfer Pumps

Transfer pumps will be used to evacuate groundwater from the equalization tank and VLS. The pumps will be used to convey extracted groundwater through the treatment components. Each pump will be rated for 20 gpm at 31 psi.

Sediment Filters

Two bag filter housings will be included as part of the system for the removal of sediment particles prior to LGAC treatment. The filters will be installed in parallel arrangement. The housings will be supplied with either 25 or 50 micron bag filters.

Catalytic Oxidizer

A Falmouth Products catalytic oxidizer (Falco 300) will be used to treat extracted soil vapors. The catalytic oxidizer, rated for a maximum flow rate of 300 scfm, will convert hydrocarbon constituents in the vapor stream to carbon dioxide and water vapor. The vapor extraction blower will be controlled with a ball valve to maintain a flow rate of 300 scfm or less during catalytic operation. When the carbon consumption rate is less than one pound per day, the catalytic oxidizer will be taken offline and vapors will be treated through two VGAC units prior to discharge to the atmosphere.

Liquid Phase GAC

Two 200-pound high pressure LGAC units will be used to remove DPH in extracted groundwater. The liquid phase GAC units are rated for 150 psi and 10 gpm. Carbon sizing and loading calculations are provided in **Appendix D**.

8.5.3 Passive Oxygen Injection System

The oxygen injection system will consist of a pressure-swing adsorbing oxygen generator, rotary screw compressor and automated oxygen delivery system. Oxygen gas produced by the system at approximately 90% purity will be pulse injected using timer-automated controls into the ten injection wells. Due to the high solubility of the produced oxygen gas, groundwater dissolved oxygen (DO) concentrations typically increase within the migration path of the DPH plume by dispersion and groundwater flow. The intermittent injection of oxygen at low rates should result in high oxygen transfer efficiency and prevent volatilization of VOCs. Naturally occurring bacteria typically use the available oxygen to metabolize petroleum hydrocarbons. An Oxygen Injection System diagram is provided as **Figure 30.**

8.5.4 Oxygen Injection System Equipment Specifications

Inlet Filters

A filter removes any foreign particles from the air that enters the compressor enclosure.

Sparge Compressor

Two sparge compressors (0.5 hp motors) compress the air entering the enclosure.

Adsorber

The adsorber will contain a molecular sieve that adsorbs nitrogen from compressed air and allows purified oxygen to pass through as product gas to be injected via the injection points.

8.6 Remedial Equipment Compound

Both the VEGE system and oxygen injection system will be housed in heated, insulated and ventilated trailers located to the west station building (**Figure 19**). A fenced area adjacent to the VEGE trailer will house the vapor phase treatment components and the control panel. The system control panel will be mounted on an outside wall of the remediation trailer. The control panel will provide emergency pump

shut-off controls including high water level protection. An integrated fault control system will be installed to protect the remedial system from overfills and failures. The various fault control probes will protect the operation of the remedial system components and prevent the release of untreated liquids or vapors.

The oxygen injection system control panel will also be within the fenced area and will be equipped with fault control devices to prevent damage to the equipment.

8.7 Remedial System Controls, Recording Devices and Power Requirements

The remediation system control panel will act as a fail-safe device used to monitor and control the remediation system floats and safety switches (critical safety devices). Systems controlled will include the following:

- SVE blower operations;
- Transfer pump operations;
- Water level and pressure alarms; and,
- Emergency floor sump alarm.

An alarm condition for any of the critical safety devices will disable the system. The control panel is configured so that the remedial system does not automatically restart in the event of an alarm condition. The operational requirements for this system are 208/230 volt, three-phase, 200 amp, totally enclosed fan cooled (TEFC) motors. All control wiring will be intrinsically safe.

8.8 Remedial System Permitting

Mechanical work conforms to applicable state and local codes. The equipment compound is classified for electrical as a Class I, Division II.

8.8.1 Air Discharge Permit

Groundwater and soil vapor remediation activities have been listed as exempt from permitting by the Air Quality Division of PADEP under 25 PA CODE 127.14 (a)(8), paragraph 43 (PADEP, 1994). Exemption status does require treatment of discharged vapor to the atmosphere of less than one ton per year of total C_4-C_{12} hydrocarbons.

8.8.2 Water Discharge Permit

A treated water discharge permit will be applied for through the City of Bradford Publicly Owned Treatment Works (POTW) for discharge to the sanitary sewer system. If the POTW permit is not feasible or is cost prohibitive, a Nation Pollutant Discharge Elimination System (NPDES) permit will be pursued.

8.8.3 Building Permit

A building permit will be acquired as needed from the City of Bradford.

8.9 Remedial System Installation

GES will provide the labor, materials, equipment, and subcontractors necessary to install the remedial system. Work will be performed in accordance with standard and accepted engineering and construction practices. Prior to any intrusive work at the facility, Pennsylvania One Call will be contacted to locate public utilities (e.g., electric, natural gas, water, sanitary sewer and telephone) along the frontage of the facility. Existing as-built drawings, if available, will also be used to identify subsurface utilities.

The following summarizes site-specific plans relating to 25 PA Code §245.311(a)(2) requirements.

8.9.1 Health and Safety Plan

A site specific Health and Safety Plan (HASP) has been prepared and will be maintained on-site at all times during the system installation activities. A copy of this plan is on file and is available for review upon request.

GES communicates safety requirements to staff through formal field training, monthly health and safety meetings, site-specific HASPs, and incident bulletins detailing root causes and corrective actions. In addition, GES provides in-house Loss Prevention System (LPS), Occupational Safety and Health Administration (OSHA) refresher, supervisor training and mandatory yearly and random drug and alcohol testing. All GES subcontractors are pre-approved to meet GES health and safety training, OSHA Hazardous training, and mandatory drug and alcohol testing requirements.

8.9.2 Waste Management Plan

Impacted soils generated during trenching and remedial excavation activities will be screened/segregated and impacted soil will be placed directly into roll-off boxes or live-loaded for appropriate off-site disposal. If excavated soil is not impacted and intended for on- or off-site reuse, PADEP fill management policy will be followed.

8.9.3 Quality Assurance/Quality Control Plan (QA/QC)

A qualified GES technician will remain on-site to direct construction activities throughout the duration of the project. The technician will be in continual contact with the GES project manager and engineer to provide construction progress reports. GES personnel and subcontractors are certified under OSHA 29 CFR 1910.120(e)(8) (OSHA, 2013) requirements. A QA/QC plan is available on file for review at the request of the PADEP.

8.10 Remedial System Start Up and Troubleshooting

Following installation, the remedial system will be activated. At this time, equipment fail-safes will be checked for proper operation. In addition, the general operating components will be checked to verify that the system is performing within the proper operating range and under normal vacuum and flow for which it was designed.

8.11 Operation, Maintenance and Monitoring

GES will conduct system OM&M checks weekly for the first month and on a bi-weekly basis thereafter. Appropriate adjustments will be made as necessary during these inspections in order to optimize system effectiveness and run-time. Extracted vapor stream concentrations, airflow rates, groundwater flow rates,

pressures, and vacuum will also be monitored. A summary of the proposed system OM&M schedule is provided in the following table.

Unit	Time	Maintenance
VEGE system		
SVE Blower	Bi-Monthly	Check particulate filter and moisture separator, check temperature
Vapor/Liquid Separator	Bi-Monthly	Check for leakage, blockage and clean probes, as needed
Pneumatic GW Pumps	Monthly	Check for leakage, blockage, inspect viton seals, and clean, as needed
Air Compressor	Bi-Monthly	Check pressure, particulate and coalescing filters, check oil level; refill as needed
Transfer Pumps	Bi-Monthly	Verify proper operation and pressure
	Quarterly	Clean impeller casing, inspect viton seals
Bag Filters	Bi-Monthly	Check and clean or replace filters, check pressure
		Change cartridge as needed
LGAC	Bi-Monthly	Replace carbon as needed based on system sampling results, back flush as needed
VGAC	Bi-Monthly	Replace carbon as needed based on system sampling results
Falco 300	Bi-Monthly	Check operating temperatures, inspect moisture trap
Oxygen injection system		
Inlet Filters	Bi-Monthly	Check and clean or replace filters
Sparge Compressor	Bi-Monthly	Check pressure, particulate and coalescing filters, check oil level; refill as needed

Monthly influent and midfluent groundwater samples will be collected from the system to monitor the effectiveness of recovery and treatment activities and determine carbon consumption. Once per month, or as stipulated in the groundwater discharge permit, effluent groundwater samples will be collected. Influent and midfluent groundwater samples will be collected for laboratory analysis of the revised (March 2008) shortlist of PADEP unleaded gasoline constituents.

In addition, monthly influent and quarterly midfluent and effluent vapor samples will be collected to determine hydrocarbon recovery rates. The influent, midfluent and effluent vapor samples will be laboratory analyzed for benzene, toluene, ethylbenzene, total xylenes, MTBE, 1,2,4-trimethylbenzene, 1,3,5-trimethylbenzene and C_4-C_{10} hydrocarbons. The influent, midfluent, and effluent vapor streams will be monitored during each OM&M event using a calibrated PID. Vapor flow rates and PID observations will be recorded on site specific OM&M forms.

8.12 Remedial Progress Monitoring

Quarterly sampling of the groundwater monitoring well network will continue during OM&M of the remedial systems. Groundwater samples will be collected and analyzed for the revised (March 2008) PADEP short list of unleaded gasoline constituents via SW846 Method 8260. During the remediation phase of the project, GES will conduct quarterly groundwater sampling via no-purge methods (e.g.,

HydraSleeve® or similar) in order to minimize IDW (i.e., purge water). A split sample will be collected at one location using dedicated bailers and traditional three volume well purge methodology during each quarterly remedial action groundwater monitoring event. No purge and three-volume well purge analytical results for the split-sample location will be evaluated each quarter to ensure data quality objectives are continually being met for remedial progress monitoring purposes.

8.13 Report Preparation

Quarterly *Remedial Action Progress Reports* (RAPRs) will be prepared describing facility activities and remedial progress. The reports will include data on the operation of the remedial systems and other pertinent information such as a narrative description of site conditions and findings, data tables summarizing hydrocarbon extraction concentrations, hydrocarbon mass removal, and analytical results from HIT remediation event sampling. Specific data trends will be noted and discussed, and appropriate figures and/or charts will be prepared to illustrate site conditions.

9.0 REMEDIAL GOALS

The targeted goal for groundwater and soil remediation at this site is attainment of SHS, as specified in Act 2, The Land Recycling and Environmental Remediation Standards Act. However, if concentrations of residual hydrocarbons do not continually decrease after completion of active remediation for a sufficient period or the COC concentrations in groundwater reach asymptotic levels above SHS, the remedial approach will be re-evaluated and modified as necessary.

10.0 REMEDIAL ACTION COMPLETION

10.1 Groundwater Attainment Demonstration

When the selected standard has been achieved, the remediation system(s) will be deactivated and quarterly post-operational groundwater monitoring will commence to demonstrate attainment of the U/R MSCs for SHS in groundwater. Groundwater attainment samples will be collected and analyzed for the revised (March 2008) PADEP shortlist of unleaded gasoline constituents (benzene, toluene, ethylbenzene, total xylenes, MTBE, isopropyl benzene, naphthalene, 1,2,4-trimethylbenzene and 1,3,5-trimethylbenzene) via SW846 Method 8260. During each quarterly attainment sampling event a trip blank and blind field duplicate sample will be submitted for laboratory analysis for QA/QC purposes. Groundwater attainment monitoring analytical data will be compared to U/R MSCs. If the data indicates an exceedence of the MSC, then the monitoring well may be re-sampled within 30 days of the original sampling event that resulted in the exceedence. If additional analyses confirm that an exceedence has occurred, then additional site characterization and/or remedial actions will be recommended. Otherwise, groundwater attainment sampling results will be continually evaluated relative to the attainment demonstration methodology and criteria described in 25 PA Code Chapter 250 - Subchapter G (PADEP, 2011) until attainment has been demonstrated.

Results of the quarterly groundwater attainment monitoring events will be provided to the PADEP in quarterly RAPRs, which will include monitoring well locations, analytical results, data interpretations and conclusions.

10.2 Soil Attainment Demonstration

Soil samples will be collected following discontinuation of remedial action(s) to document that on-site soils meet current U/R-NR MSCs. Samples will be collected using a systematic random sampling grid from the defined area and analyzed for the revised (March 2008) PADEP shortlist of unleaded gasoline constituents. If a systematic grid is not feasible due to isolated impacts or structural limitations, a modified soil attainment sampling plan will be submitted to PADEP for review and approval. Soil attainment analytical data will be statistically evaluated using one of the methods contained in 25 PA Code Chapter 250-Subchapter G (PADEP, 2011) to demonstrate that site soils meet applicable MSCs. If the soil data fails the statistical evaluation, then additional site characterization and/or remedial action will be considered, as necessary.

During limited excavation of off-site soil, systematic random soil samples will be collected from the bottom and sidewalls of the excavation to demonstrate attainment of U/R MSCs, consistent with 25 PA Code Chapter 250-Subchapter G requirements.

10.3 Remedial Action Completion Report

Results of groundwater and soil attainment demonstrations will be provided to PADEP in a *Remedial Action Completion Report* (RACR). The RACR will contain information as required by 25 PA Code Chapter 250.312 (PADEP, 2011).

10.4 Site Decommissioning Requirements

Following PADEP approval of the RACR and receipt of liability relief for the site, the remedial system(s) will be decommissioned, the groundwater monitoring wells will be abandoned in accordance with acceptable procedures, and the facility will be restored as nearly as possible to pre-existing conditions (i.e., pre site characterization). A letter documenting the well abandonment procedures and forms, remedial system decommissioning and site restoration status will be provided to PADEP and UPA.

11.0 SCHEDULE

The following schedule is proposed for implementing the RAP:

Activity/Milestones	Est. Duration *(weeks)*	Est. Elapsed Time *(days)*	Est. Start Date of Proposed Activity
Submit RAP to PADEP	0	0	October 27, 2015
PADEP review and approval of RAP	12	60	December 26, 2015
Scheduling/System Build/Permitting	16	188	January 2, 2016
Recovery/Injection Well Installation	2	202	May 2, 2016
Trenching/Remedial Soil Excavation/Resurfacing	4	230	May 16, 2016
System Installation/Start Up Period	4	258	June 13, 2016
System Operational	1	265	July 11, 2016

This RAP will be submitted to PADEP for review and approval. The above schedule is based on previous project experience and a deemed approved date of December 26, 2015. Rationale and considerations for the proposed schedule are provided below:

- The schedule allows for 60 days for PADEP review of the SCRA/RAP.
- Upon PADEP approval of the SCRA/RAP, the following activities will be completed in preparation for RAP implementation:
    - Coordination of schedules with subcontractors to complete proposed recovery well and injection point installation, trenching and electrical connections.
    - Submittal of building and groundwater discharge permit applications, as necessary.
    - Construction of the VEGE remedial system with existing UPA owned equipment.
    - Procurement of supplemental system components, as necessary.
    - Coordination to install electrical power supply for the systems.
    - Waste profiling for proposed soil excavation.
    - Coordination with off-site property owner (Carlough) for proposed injection point and remedial system trenching.
- Based on past project experience and typical weather conditions in Bradford, PA, recovery well and injection point installation activities are proposed to begin on May 2, 2016, and are anticipated to be completed within a two-week period.
- Proposed remedial system trenching, remedial soil excavation and resurfacing activities are proposed to begin on May 16, 2016, and are anticipated to be completed in approximately four weeks.
- Remedial system installation and start up activities are proposed to begin on June 13, 2016, and require approximately four weeks of operation to ensure remedial system operation is within equipment specifications.
- The VEGE and passive oxygen injection remedial systems are proposed to be fully operational on or before July 11, 2016.

The above rationale and considerations are based on the following assumptions:

- PADEP will unconditionally approve the SCRA/RAP within the 60 day review period.

- Third party (off-site property owner) review of the SCRA/RAP will not require significant alterations to the proposed remedial strategy.
- Inclement weather resulting in significant snow pack and/or frozen ground will not significantly delay proposed field activities starting in May 2016.
- Building and discharge permits will be issued without significant review periods.
- The required electrical power is available at the site and will not require significant infrastructure (i.e., more than one service pole, transformers, etc.) for service.
- Access to off-site property will be granted prior to the proposed installation activity start dates.
- Significant delays (i.e., greater than one day) due to subcontractor equipment malfunction will not occur.
- Excavated soil will be accepted for disposal at an appropriate waste disposal facility.
- Construction materials (e.g., piping, backfill aggregate, top soil, asphalt/concrete, etc.) will be readily available during remedial system trenching and remedial soil excavation activities.
- United owned remedial system components will be readily available to construct the system within the proposed timeframe.
- Remedial system equipment will be fully functional and operate as intended following start-up.
- Additional impacts or sources (e.g., unidentified USTs) are not encountered during remedial system installation activities.

If unforeseen delays and/or the above assumptions are observed, a revised schedule will be discussed with PADEP.

12.0 REFERENCES

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Pennsylvania Department of Environmental Protection, January 2011. Pennsylvania Code, Title 25, Chapter 250: Administration of Land Recycling Program.

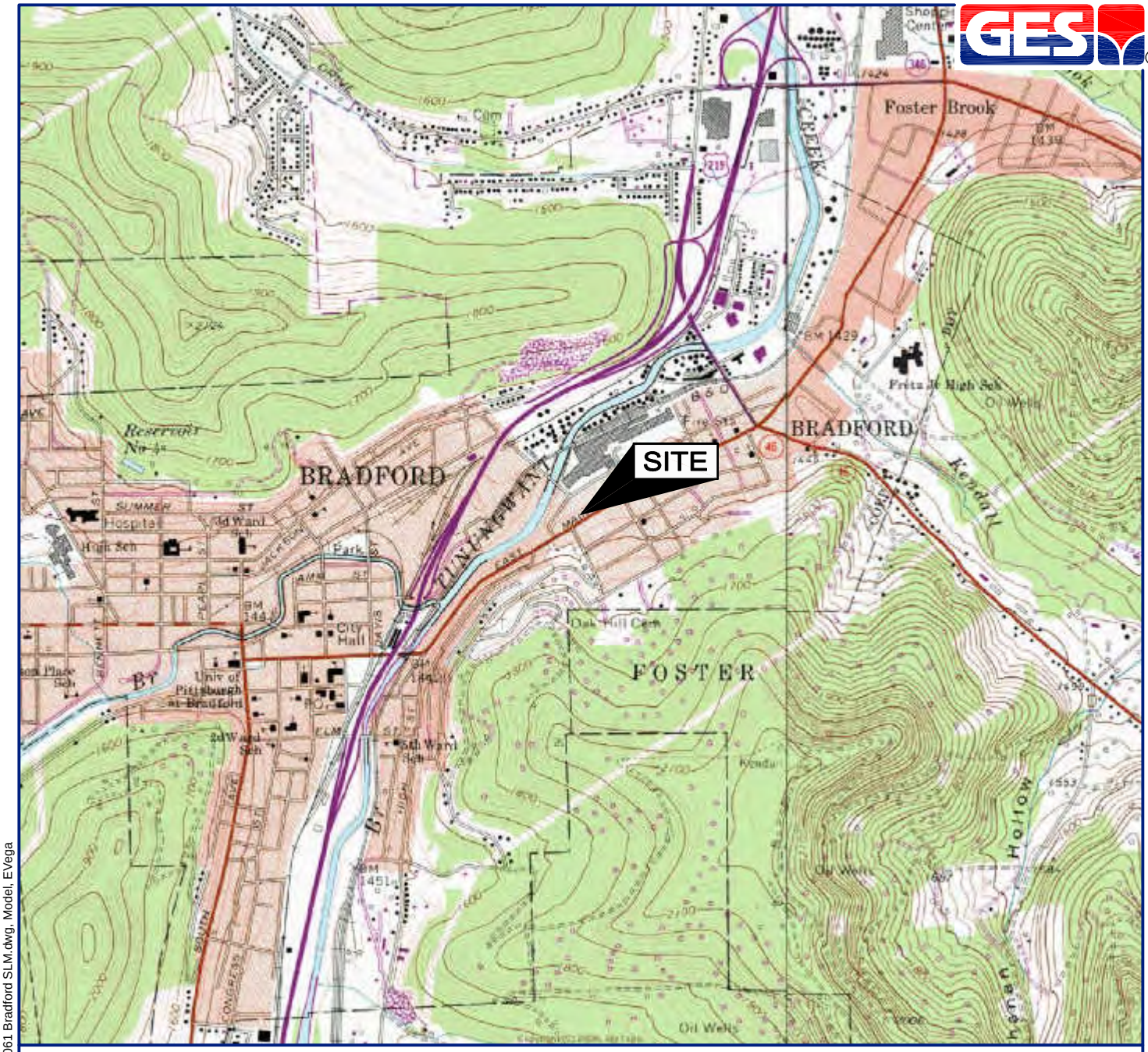
Pennsylvania Department of Conservation and Natural Resources (PADCNR) Website: < http://www.dcnr.state.pa.us/topogeo/>. Accessed September 2015.

Pennsylvania Department of Environmental Protection Storage Tank Cleanup Locations Website: <http://www.depweb.state.pa.us/landrecwaste/cwp/view.asp?a=1241&Q=461926&landrecwasteNav=|30816|>. Accessed September 2015.

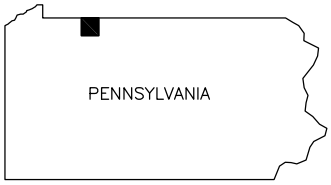
Pennsylvania Groundwater Well Inventory System (PaGWIS) Website: <http://www.dcnr.state.pa.us/topogeo/groundwater/pagwis/records/index.htm >. Accessed September 2015.

Shultz, Charles H., editor. 1999. *The Geology of Pennsylvania*. Pennsylvania Geological Survey.

United Refining Company of Pennsylvania. February 2013. *Notification of Reportable Release*.



SOURCE: USGS 7.5 MINUTE SERIES
TOPOGRAPHIC QUADRANGLE 1983
BRADFORD, PENNSYLVANIA–NEW YORK
CONTOUR INTERVAL = 20'



QUADRANGLE LOCATION

DRAFTED BY: E.V. (N.J.)	SITE LOCATION MAP
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 – 2000 / DATE: 3-25-13 / FIGURE: 1

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LEGEND

PROPERTY BOUNDARY

DRAFTED BY: E.V. (N.J.)	LOCAL AREA MAP		
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA		
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066		
NORTH	SCALE IN FEET (APPROXIMATE) 0 250	DATE 3-25-13	FIGURE 2

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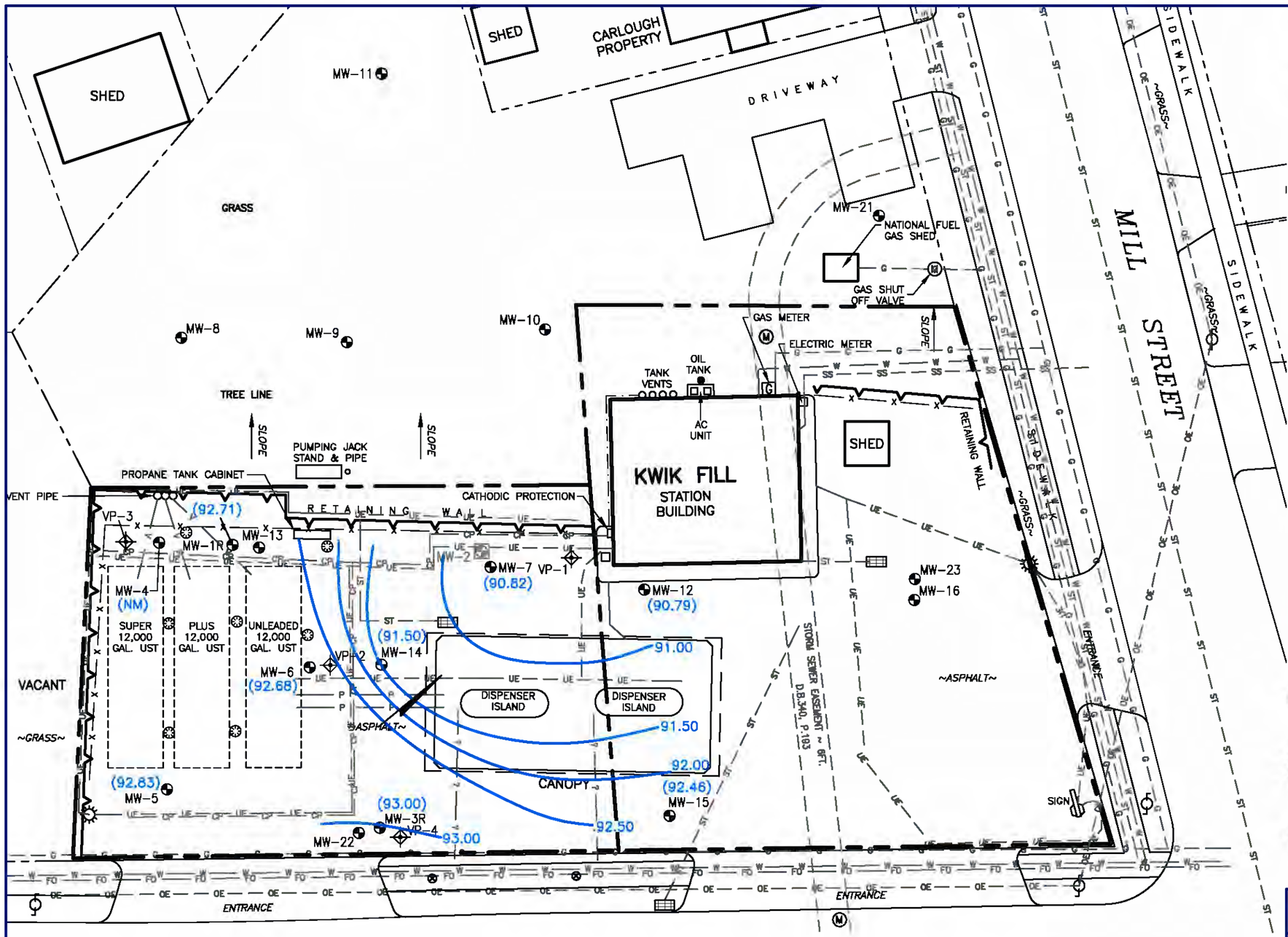


LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PL — PRODUCT LINE
- V — VENT LINE
- OE — OVERHEAD ELECTRIC LINE
- UE — UNDERGROUND ELECTRIC LINE
- CP — UNDERGROUND CATHODIC PROTECTION LINE
- SS — UNDERGROUND SANITARY SEWER LINE
- ST — UNDERGROUND STORM SEWER LINE
- FO — UNDERGROUND FIBER OPTIC LINE
- W — UNDERGROUND WATER LINE
- G — UNDERGROUND NATURAL GAS LINE
- ? — UNKNOWN UTILITY LINE
- INJECTION POINT

DRAFTED BY: TP (EXTON)	SITE MAP
CHECKED BY:	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY:	
NORTH	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
SCALE IN FEET: 0 30	DATE: 10-26-15
	FIGURE: 3

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LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (90.82) GROUNDWATER ELEVATION (feet)
- 91.00 GROUNDWATER CONTOUR (feet)
- (NM) NOT MEASURED
- APPARENT GROUNDWATER FLOW DIRECTION
- CONTOUR INTERVAL 0.50 (feet)

NOTES:

1) MONITORING WELLS MW-8 THROUGH MW-11, MW-13, AND MW-21 THROUGH MW-23 MONITOR THE OVERBURDEN AQUIFER AND WERE NOT USED TO GENERATE GROUNDWATER CONTOURS.

2) THE STORM SEWER CREATES AN APPARENT GROUNDWATER BARRIER CREATING A SIGNIFICANT DIFFERENCE IN GROUNDWATER ELEVATIONS ON THE NORTH SIDE OF THE SITE. THEREFORE, ELEVATION DATA FROM MONITORING WELL MW-16 WAS NOT USED TO CREATE GROUNDWATER CONTOURS.

DRAFTED BY: TP (EXTON)	**GROUNDWATER CONTOUR MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015**
CHECKED BY: JH	**KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA**
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 03-19-15 / FIGURE: 4

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LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (67.83) GROUNDWATER ELEVATION (feet)
- 77.00 GROUNDWATER CONTOUR (feet)
- CONTOURS DASHED WHERE INFERRED
- APPARENT GROUNDWATER FLOW DIRECTION
- CONTOUR INTERVAL 4.0 (feet)

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL GEOLOGIST
ERIN MARIE LEDGER
No. PG005044

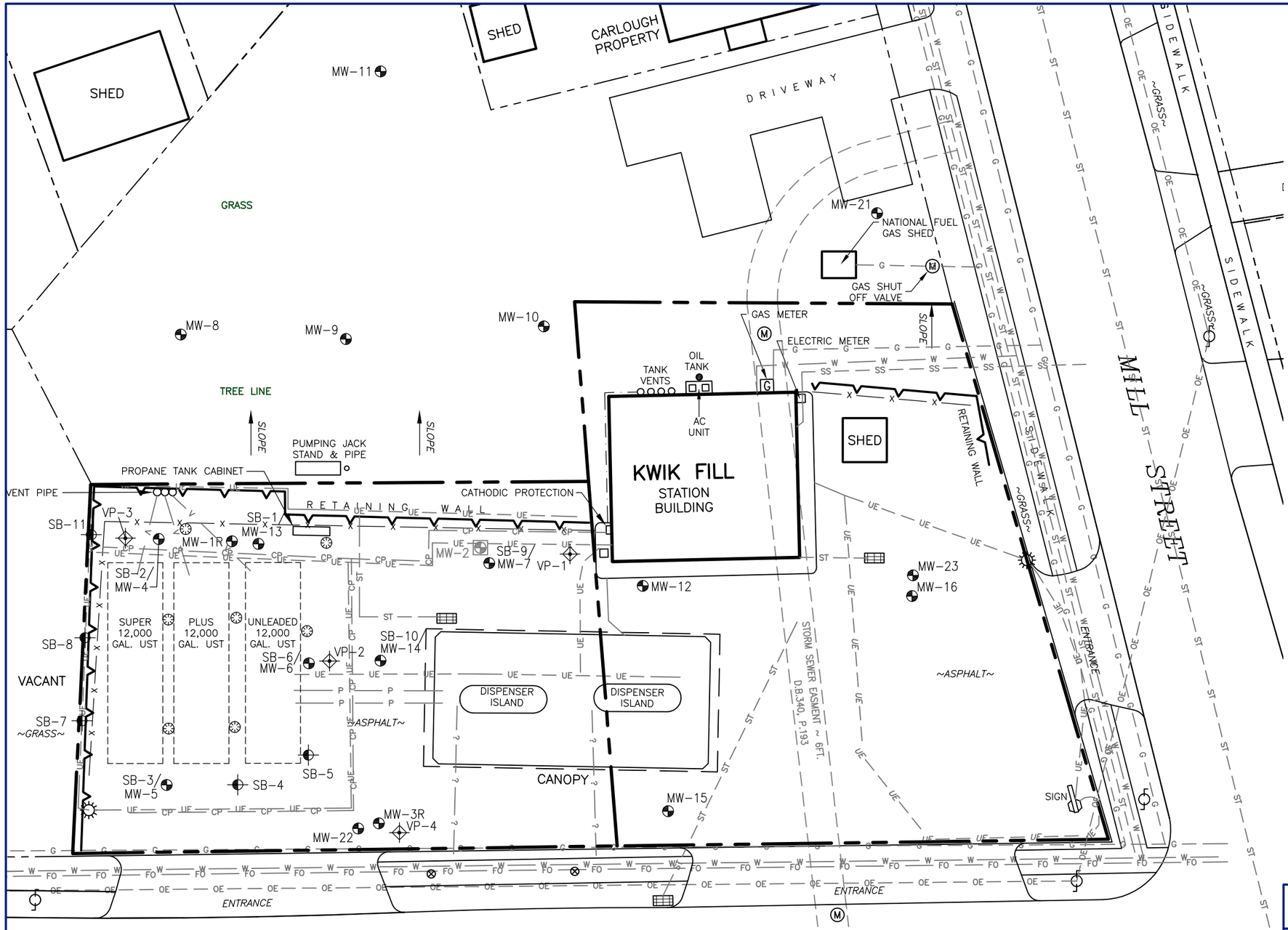
GRAPHIC SCALE (feet)

30 0 15 30 60 120

(Scale configured for D-Size 24" x 36" Plot)
1 inch = 30 ft.
(APPROXIMATE)

DRAFTED BY: TP (EXTON)	GROUNDWATER CONTOUR MAP (OVERBURDEN AQUIFER) FEBRUARY 3-4, 2015
CHECKED BY: J.H.	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: E.L.	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	DATE: 03-19-15 / FIGURE: 5

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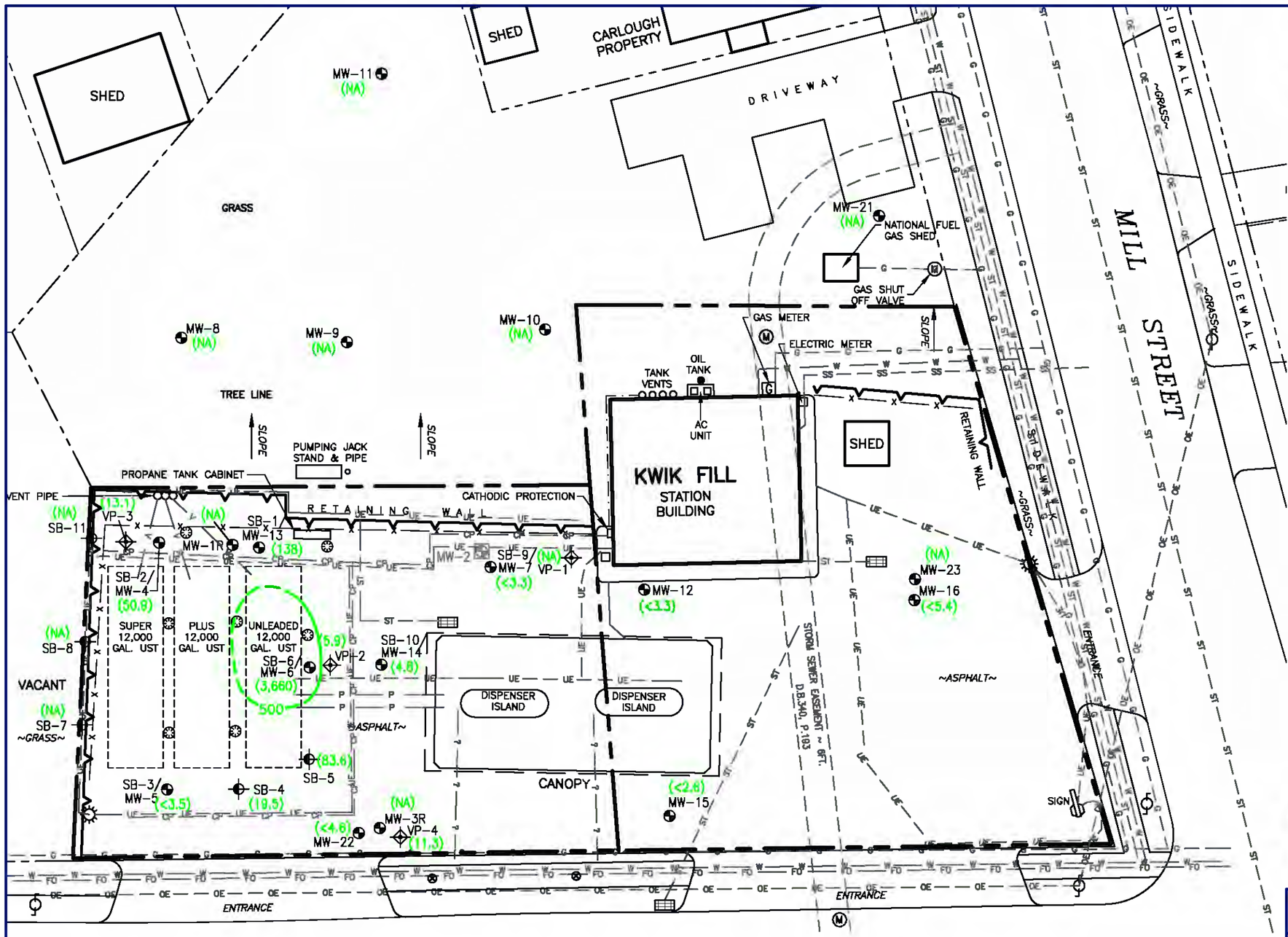


LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE

DRAFTED BY: TP (EXTON)	SOIL BORING LOCATION MAP
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02-24-15 / FIGURE: 6

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LEGEND

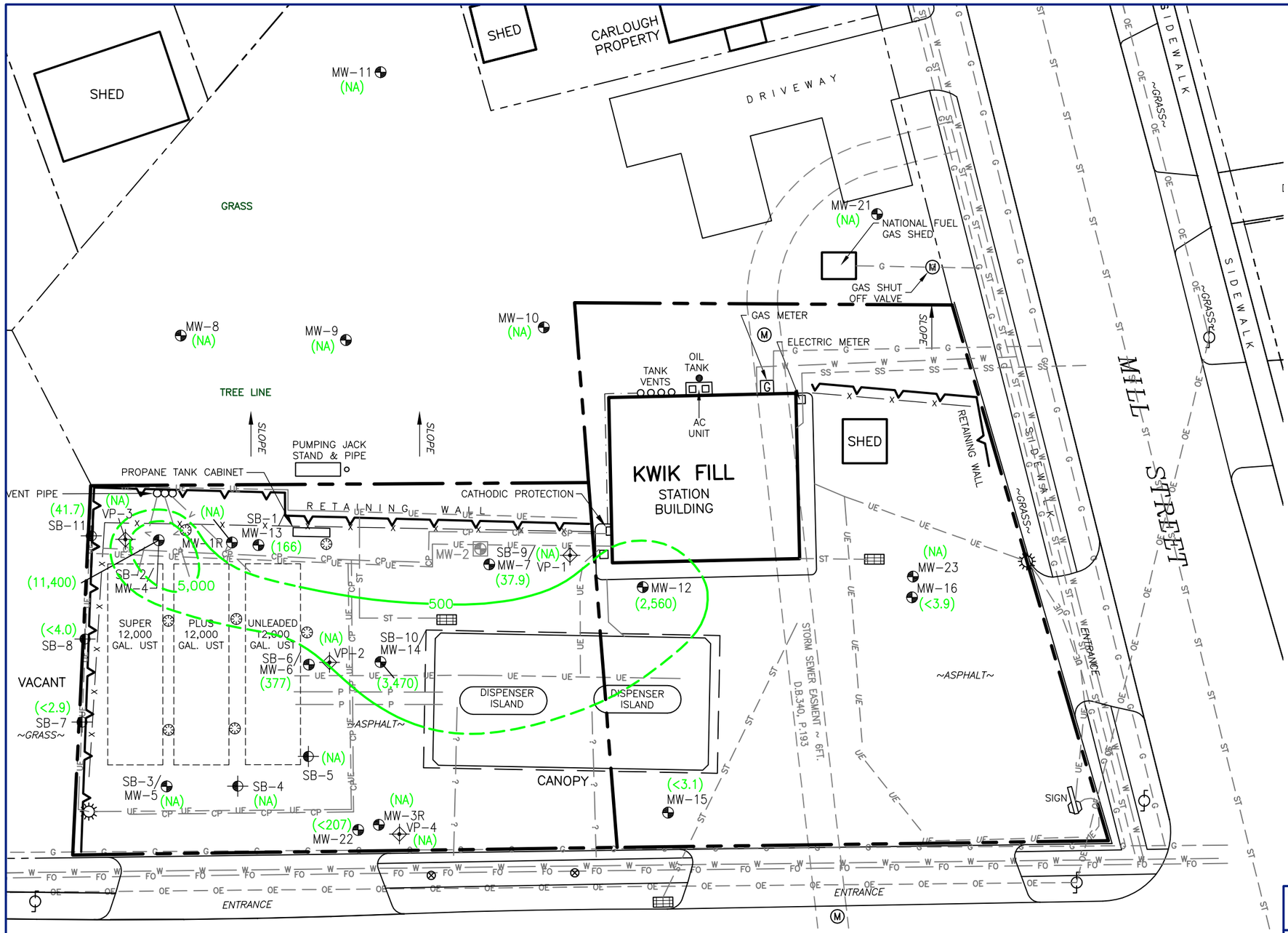
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (3,660) BENZENE CONCENTRATION (µg/kg)
- 500 BENZENE ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN UNSATURATED/PERIODICALLY SATURATED SOIL IS 500 µg/kg.

DRAFTED BY: TP (EXTON)	**BENZENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (2-7 FEET bgs)**
CHECKED BY: JH	**KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA**
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 03-19-15 / FIGURE: 7

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LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (2,560) BENZENE CONCENTRATION (µg/kg)
- 500 BENZENE ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR BENZENE IN SATURATED SOIL IS 500 µg/kg.

DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: EL

BENZENE SOIL ISOCONCENTRATION MAP
JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)

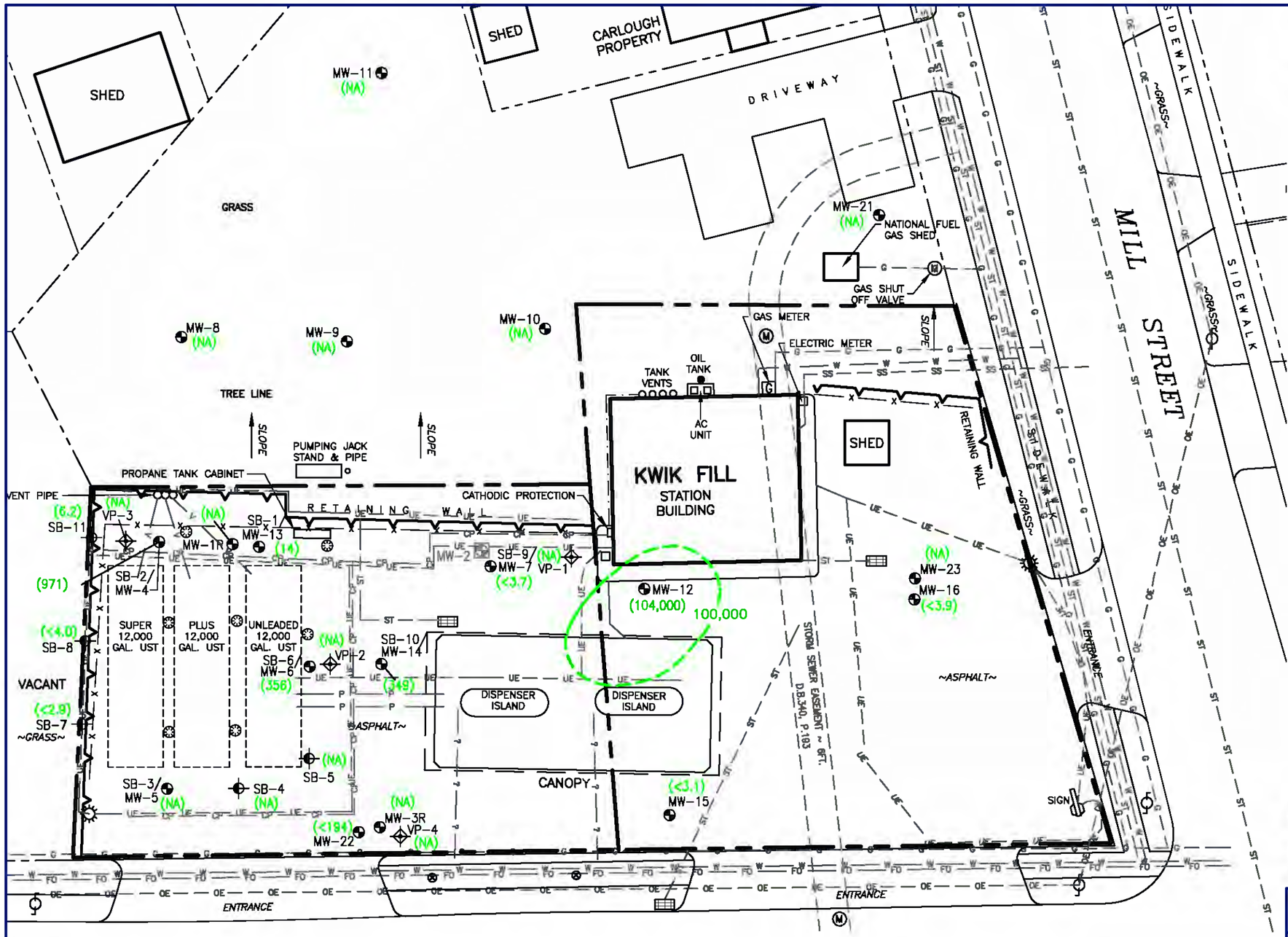
KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

NORTH

SCALE IN FEET: 0 APPROXIMATE 20
DATE: 02-25-15
FIGURE: 8

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LEGEND

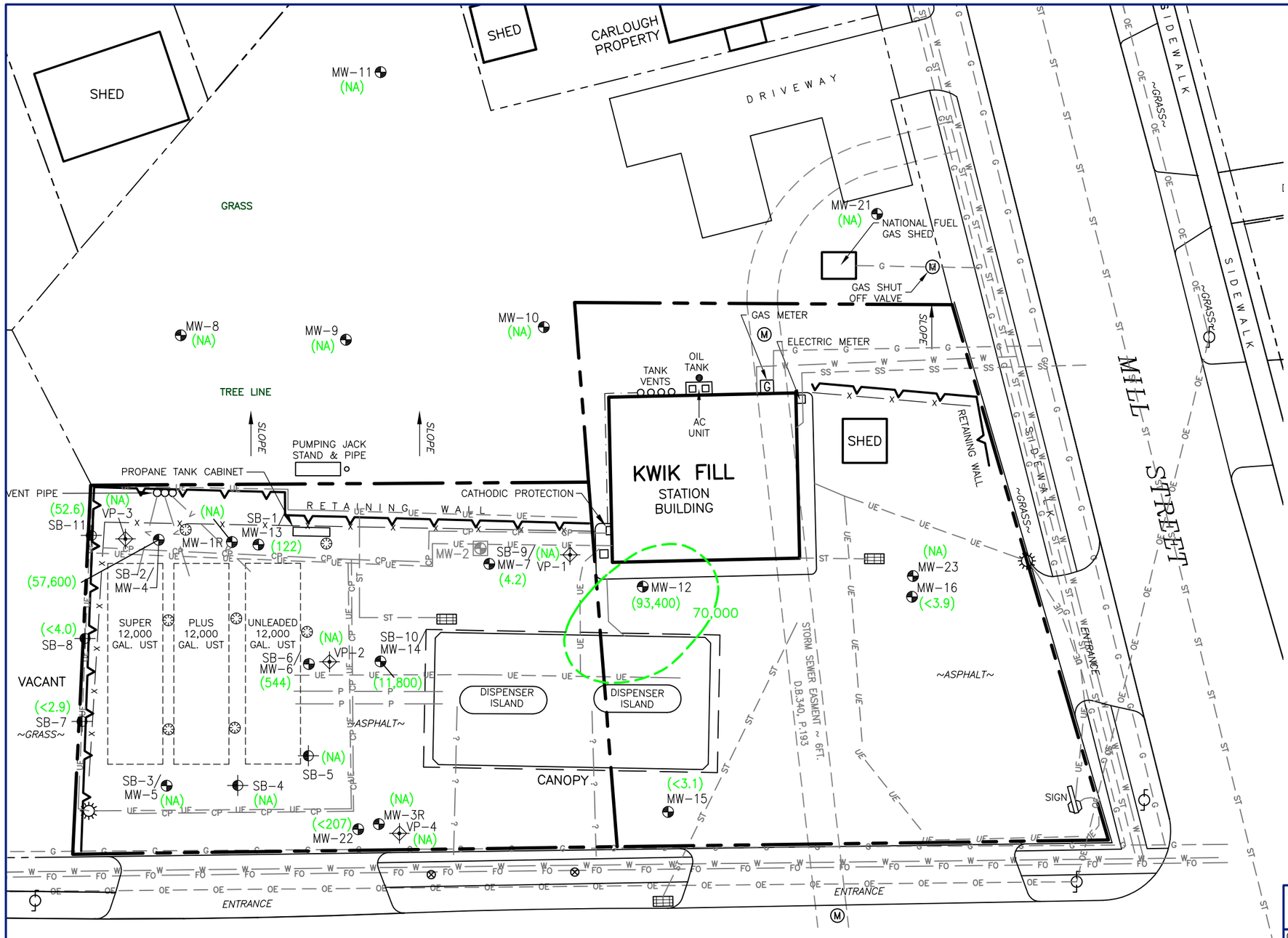
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (104,000) TOLUENE CONCENTRATION (µg/kg)
- 100,000 TOLUENE ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR TOLUENE IN SATURATED SOIL IS 100,000 µg/kg.

DRAFTED BY: WAW (EXTON)	TOLUENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 03-19-15 / FIGURE: 9

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LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (93,400) ETHYLBENZENE CONCENTRATION (µg/kg)
- 70,000 ETHYLBENZENE ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR ETHYLBENZENE IN SATURATED SOIL IS 70,000 µg/kg.

DRAFTED BY: TP (EXTON)

CHECKED BY: JH

REVIEWED BY: EL

NORTH

ETHYLBENZENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)

KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

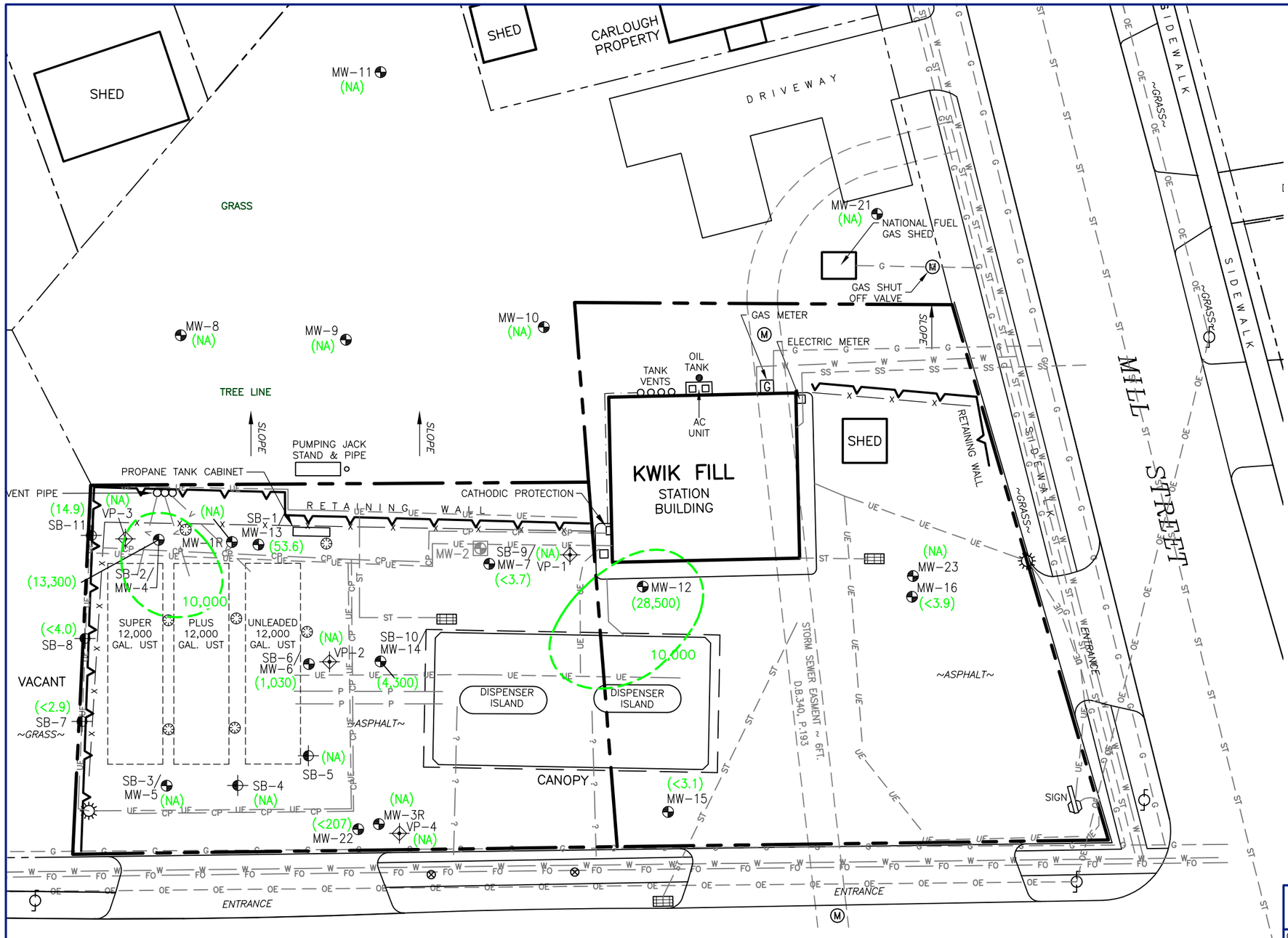
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

SCALE IN FEET: 0 APPROXIMATE 20

DATE: 02-25-15

FIGURE: 10

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\M-061 Bradford SM.dwg, B-20 MW



LEGEND

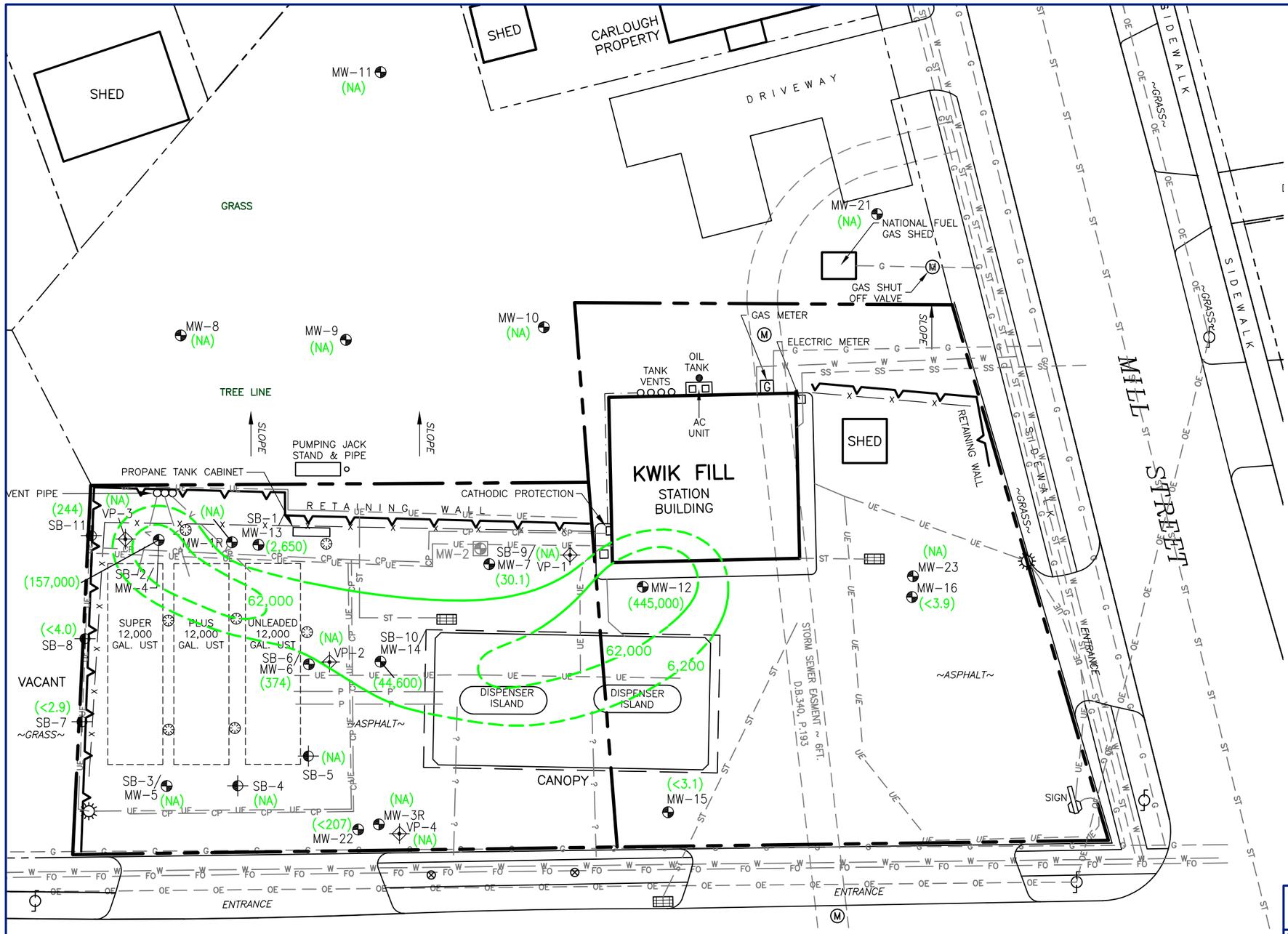
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (28,500) NAPHTHALENE CONCENTRATION (µg/kg)
- 10,000 NAPHTHALENE ISOCONCENTRATION CONTOUR (µg/kg)
- CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR NAPHTHALENE IN SATURATED SOIL IS 10,000 µg/kg.

DRAFTED BY: TP (EXTON)	**NAPHTHALENE SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)**
CHECKED BY: JH	**KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA**
REVIEWED BY: EL	**Groundwater & Environmental Services, Inc.** 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02-25-15 / FIGURE: 11

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\M-061 Bradford SM.dwg, B-20 MW



LEGEND

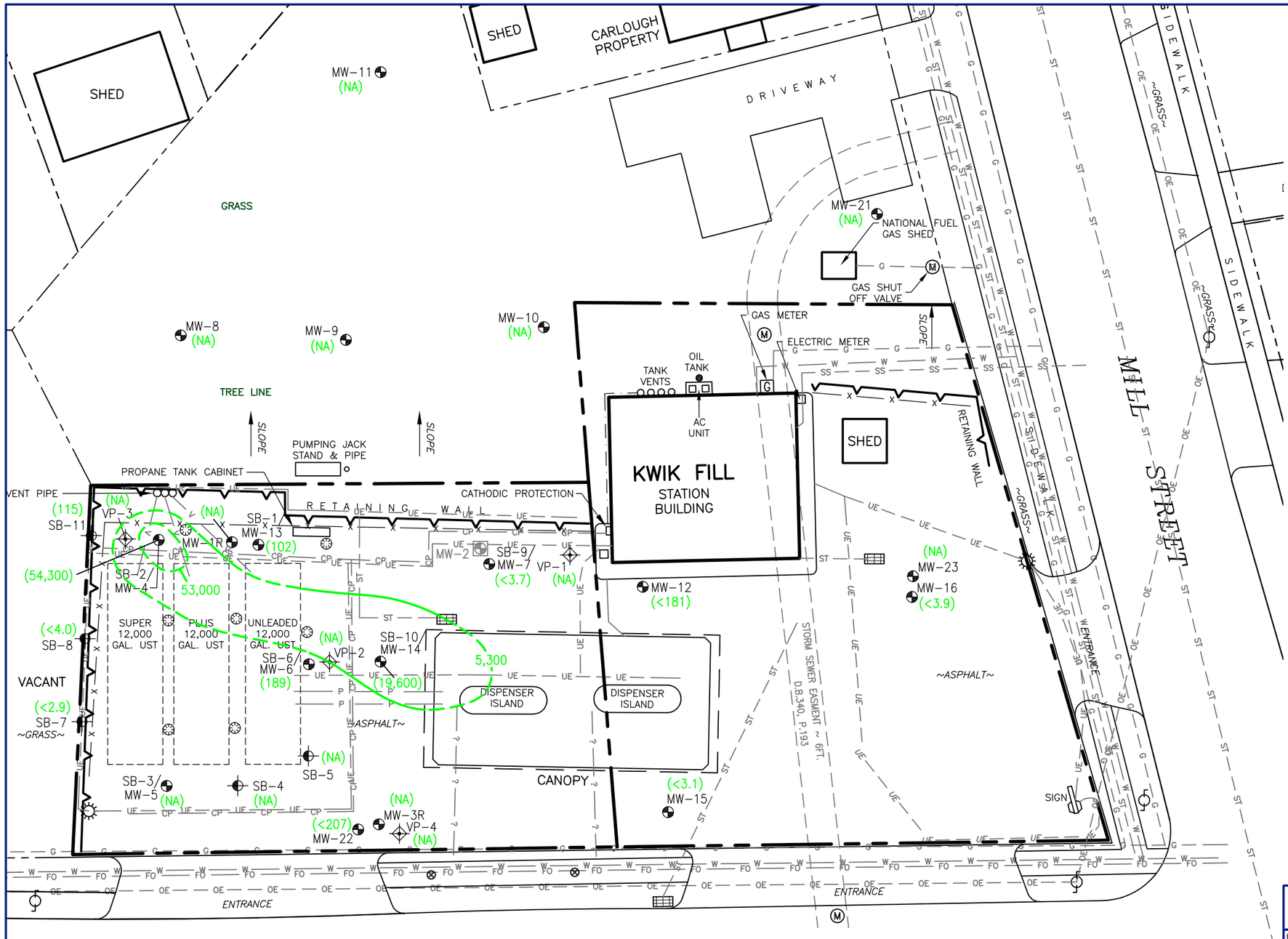
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (157,000) 1,2,4-TMB CONCENTRATION (µg/kg)
- 6,200 1,2,4-TMB ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON-RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,2,4-TMB IN SATURATED SOIL IS 6,200 µg/kg.

DRAFTED BY: TP (EXTON)	1,2,4-TMB SOIL ISOCONCENTRATION MAP JUNE 2013-DECEMBER 2014 (7-12 FEET bgs)
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02-25-15 / FIGURE: 12

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\M-061 Bradford SM.dwg, B-20 MW



LEGEND

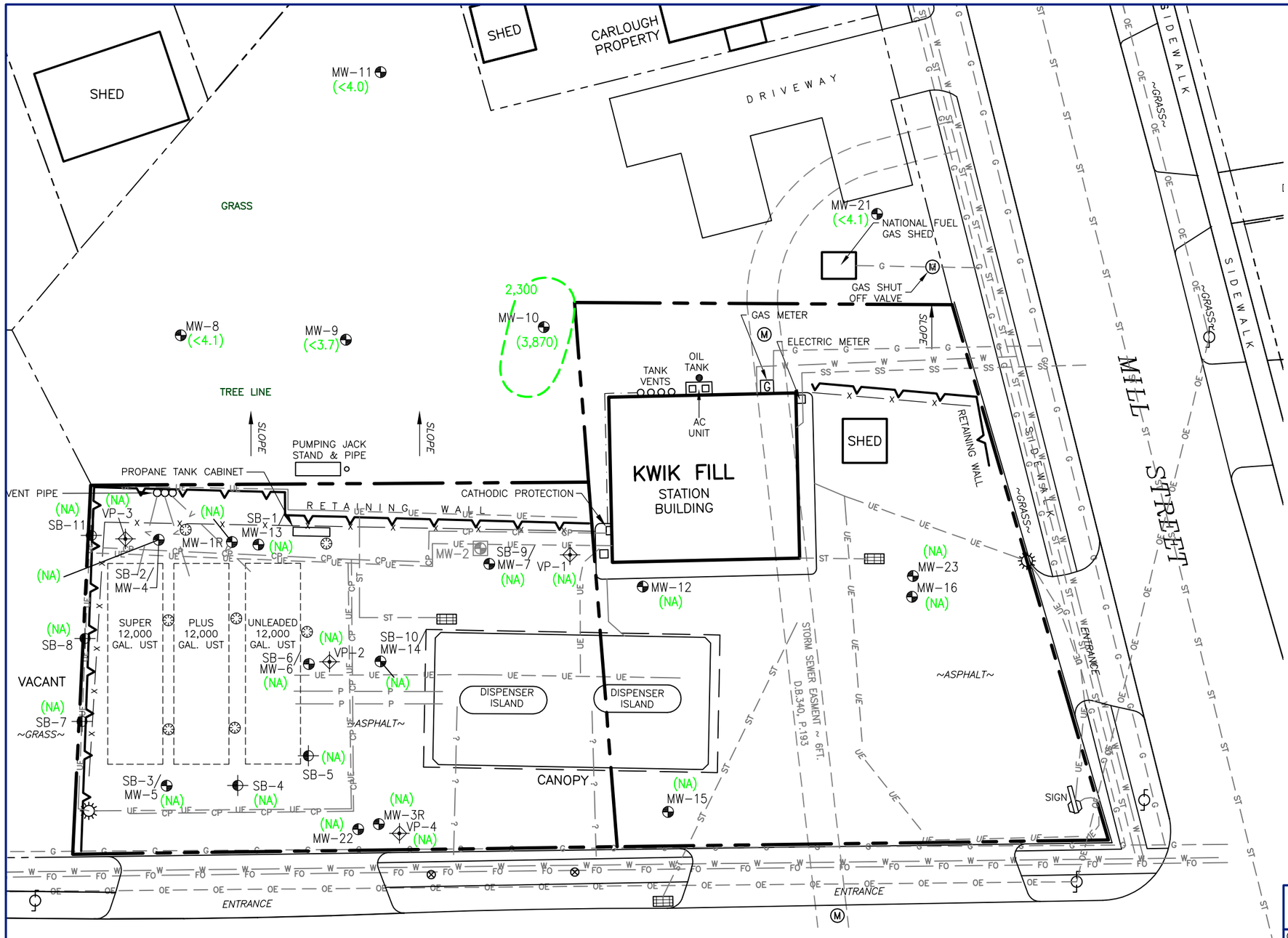
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (54,300) 1,3,5–TMB CONCENTRATION (µg/kg)
- 5,300 1,3,5–TMB ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER NON–RESIDENTIAL MEDIUM–SPECIFIC CONCENTRATION FOR 1,3,5–TMB IN SATURATED SOIL IS 5,300 µg/kg.

DRAFTED BY: TP (EXTON)	1,3,5–TMB SOIL ISOCONCENTRATION MAP JUNE 2013–DECEMBER 2014 (7–12 FEET bgs)
CHECKED BY: JH	KWIK FILL STATION #M–061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02–25–15 / FIGURE: 13

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\M-061 Bradford SM.dwg, B-20 MW



LEGEND

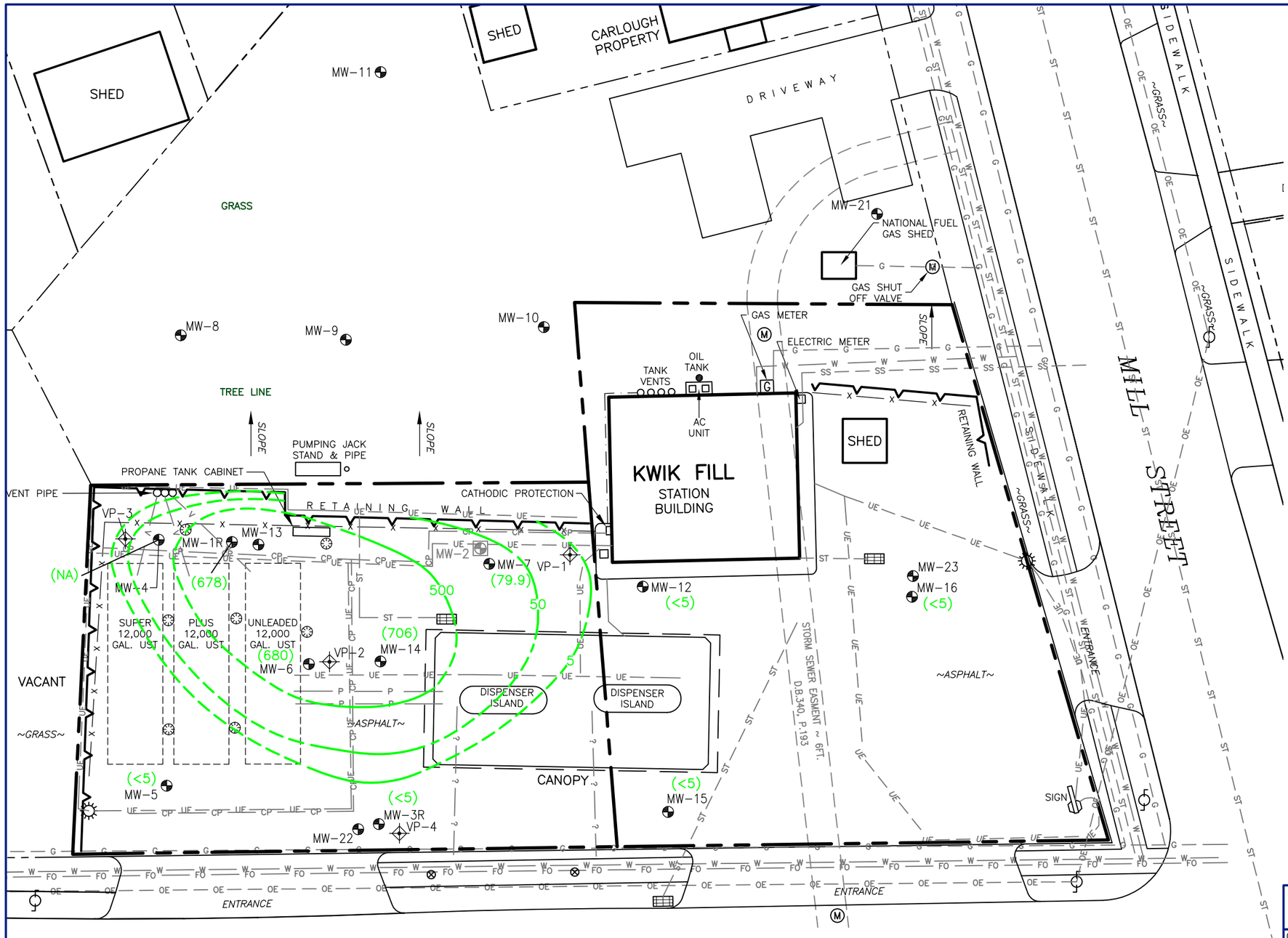
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- SOIL BORING LOCATION
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (3,870) 1,3,5-TMB CONCENTRATION (µg/kg)
- 2,300 1,3,5-TMB ISOCONCENTRATION CONTOUR (µg/kg) CONTOURS DASHED WHERE INFERRED
- µg/kg MICROGRAMS PER KILOGRAM
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- NA NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,3,5-TMB IN UNSATURATED SOIL IS 2,300 µg/kg.

DRAFTED BY: TP (EXTON)	1,3,5-TMB SOIL ISOCONCENTRATION MAP OCTOBER 2013-NOVEMBER 2014 (2-4 FEET bgs)
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 02-25-15 / FIGURE: 14

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LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT

- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (79.9) BENZENE CONCENTRATION (µg/L)
- 5 BENZENE ISOCONCENTRATION CONTOUR (µg/L)
- (µg/L) MICROGRAMS PER LITER
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- (NA) NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM–SPECIFIC CONCENTRATION FOR BENZENE IN GROUNDWATER IS 5 µg/L.

DRAFTED BY: TP (EXTON)

CHECKED BY: JH

REVIEWED BY: EL

NORTH

BENZENE GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015

KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

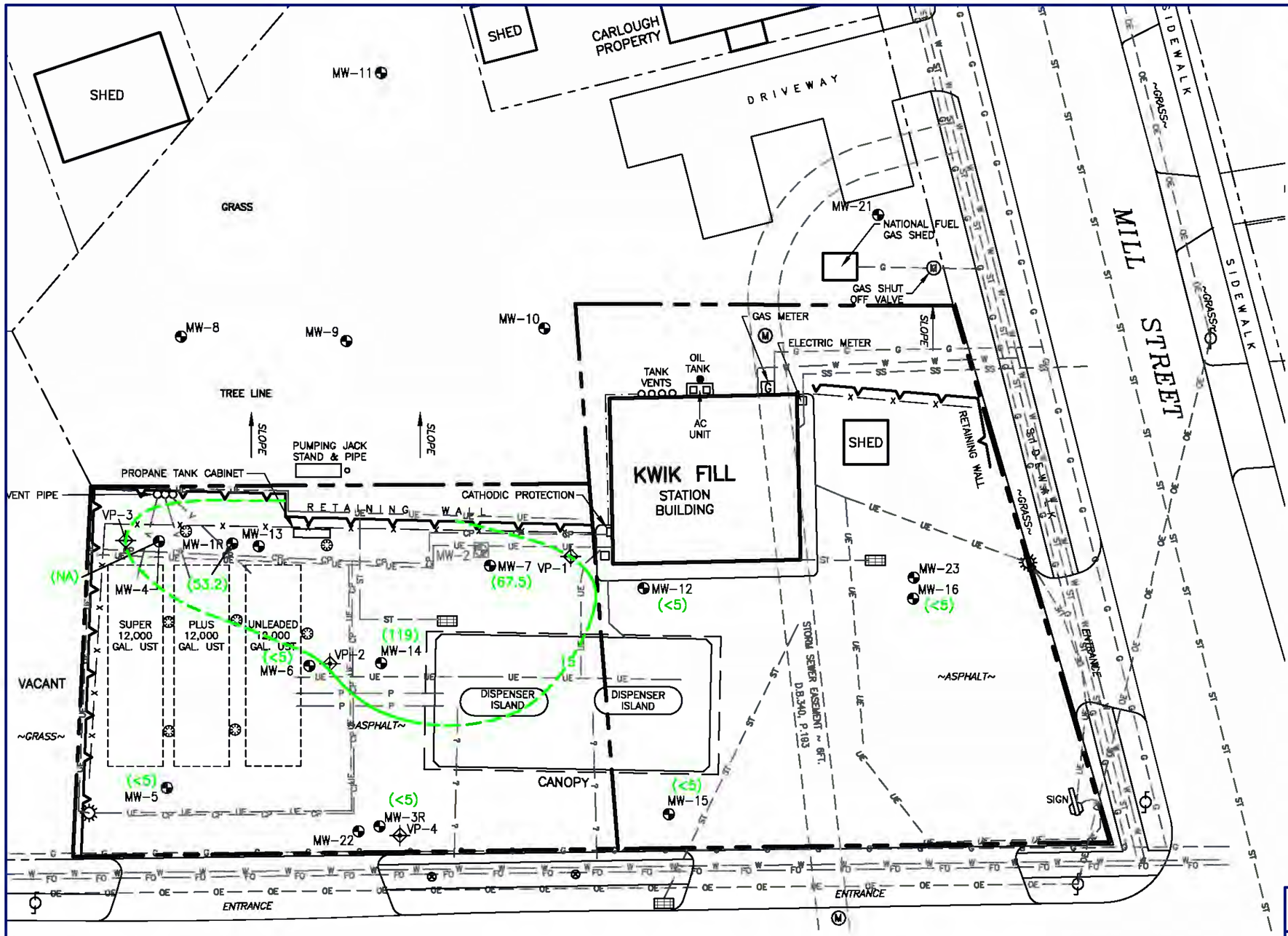
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

SCALE IN FEET: 0 APPROXIMATE 20

DATE: 02-25-15

FIGURE: 15

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LEGEND

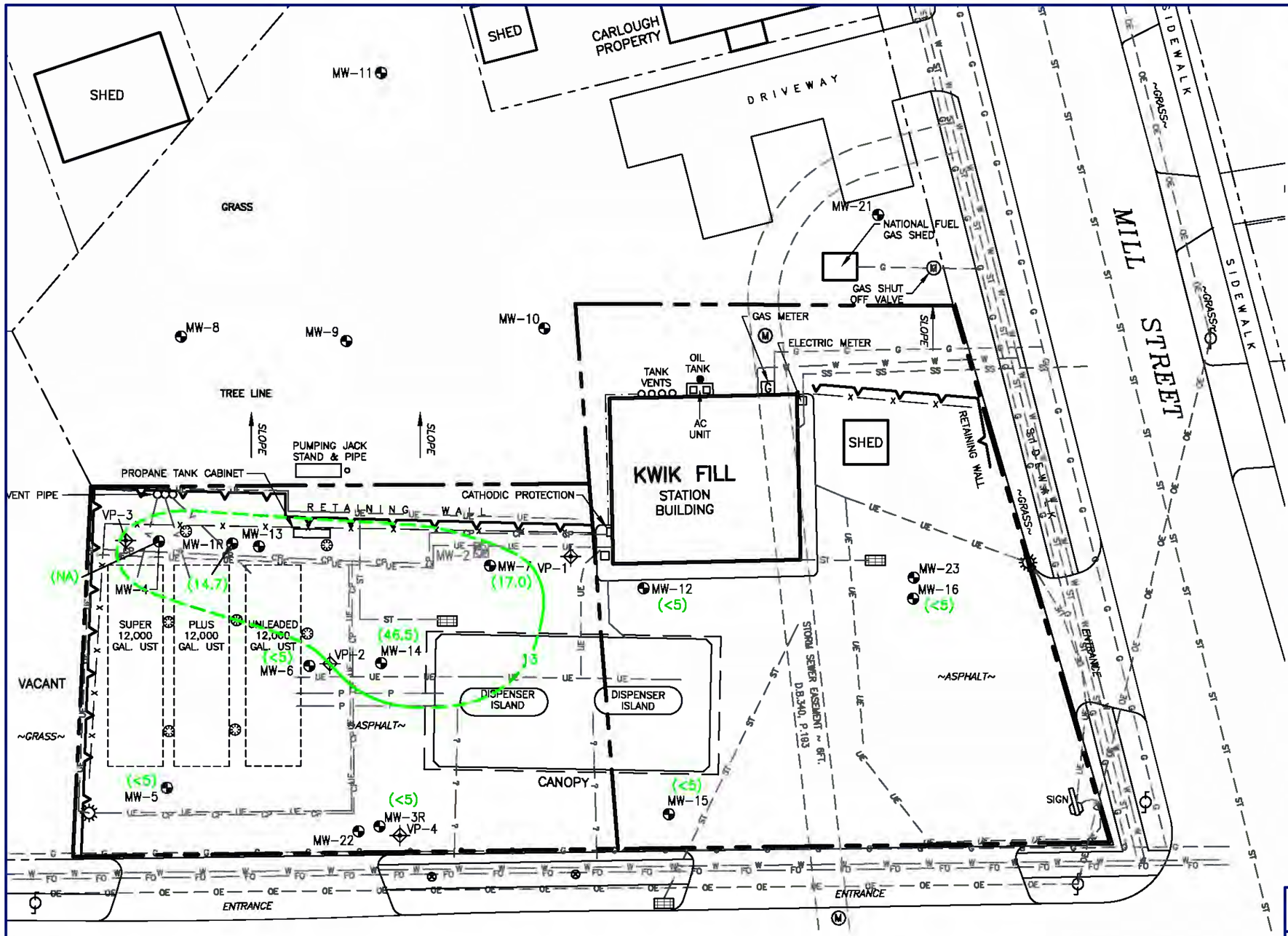
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (119) 1,2,4-TMB CONCENTRATION (µg/L)
- 15 1,2,4-TMB ISOCONCENTRATION CONTOUR (µg/L) CONTOURS DASHED WHERE INFERRED
- (µg/L) MICROGRAMS PER LITER
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- (NA) NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,2,4-TMB IN GROUNDWATER IS 15 µg/L.

DRAFTED BY: TP (EXTON)	1,2,4-TMB GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 03-19-15 / FIGURE: 16

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LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (46.5) 1,3,5-TMB CONCENTRATION (µg/L)
- 13 1,3,5-TMB ISOCONCENTRATION CONTOUR (µg/L) CONTOURS DASHED WHERE INFERRED
- (µg/L) MICROGRAMS PER LITER
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- TMB TRIMETHYLBENZENE
- (NA) NOT ANALYZED

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR 1,3,5-TMB IN GROUNDWATER IS 13 µg/L.

DRAFTED BY: TP (EXTON)	1,3,5-TMB GROUNDWATER ISOCONCENTRATION MAP (PERCHED GROUNDWATER ZONE) FEBRUARY 3-4, 2015
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: EL	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 APPROXIMATE 20 / DATE: 03-19-15 / FIGURE: 17

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TUNUNGWANT CREEK

~GRASS~

GE DRESSER BUILDING

CONFINED SPACE AREA

GAS METER

MW-20 (<5)

MW-21 (<5)

HOMESTEAD AVENUE

YORK STREET

EAST MAIN STREET

LINCOLN AVENUE

MILL STREET

RESIDENCE

VACANT

COMMERCIAL

SHED

CARLOUGH PROPERTY

DRIVEWAY

SIDEWALK

STEPS WALKWAY

STORM DRAIN IN DRIVEWAY

MW-17 (<5)

MW-18 (<5)

MW-19 (377)

MW-11 (854)

MW-8 (155)

MW-9 (1,230)

MW-10 (287)

MW-13 (1,410)

MW-1R

MW-4

MW-2R (<5)

MW-23 (46.7)

MW-16

MW-12

MW-7

MW-14

MW-6

MW-5

MW-3R

MW-15

MW-22 (12.9)

MW-21 (20.5)

VP-1

VP-2

VP-3

VP-4

KWIK FILL STATION BUILDING

AIR MACHINE

PUMPING JACK STAND AT PIPE

PROPANE TANK CABINET

VENT PIPE

RETAIL PATRON PROTECTION AREA

SUPER 12,000 GAL. UST

PLUS 12,000 GAL. UST

ULSD 12,000 GAL. UST

DISPENSER ISLANDS

CANOPY

ASPHALT

~GRASS~

NATIONAL FUEL GAS SHED

GAS SHUT OFF VALVE

ELECTRIC METER

OIL TANK VENTS

AC UNIT

RETAINING WALL

SIGN

ENTRANCE

20

200

LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT

- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- (287) MTBE CONCENTRATION (µg/L)
- 20 MTBE ISOCONCENTRATION CONTOUR (µg/L)
- CONTOURS DASHED WHERE INFERRED
- (µg/L) MICROGRAMS PER LITER
- <# WHEN AN ANALYTE IS NOT DETECTED THE LABORATORY REPORTING LIMIT IS GIVEN
- MTBE METHYL *tert*-BUTYL ETHER

NOTES:

THE ACT 2 USED AQUIFER RESIDENTIAL MEDIUM-SPECIFIC CONCENTRATION FOR MTBE IN GROUNDWATER IS 20 µg/L.

COMMONWEALTH OF PENNSYLVANIA
REGISTERED PROFESSIONAL GEOLOGIST
ERIN MARIE LEDRICK
No. PG005604

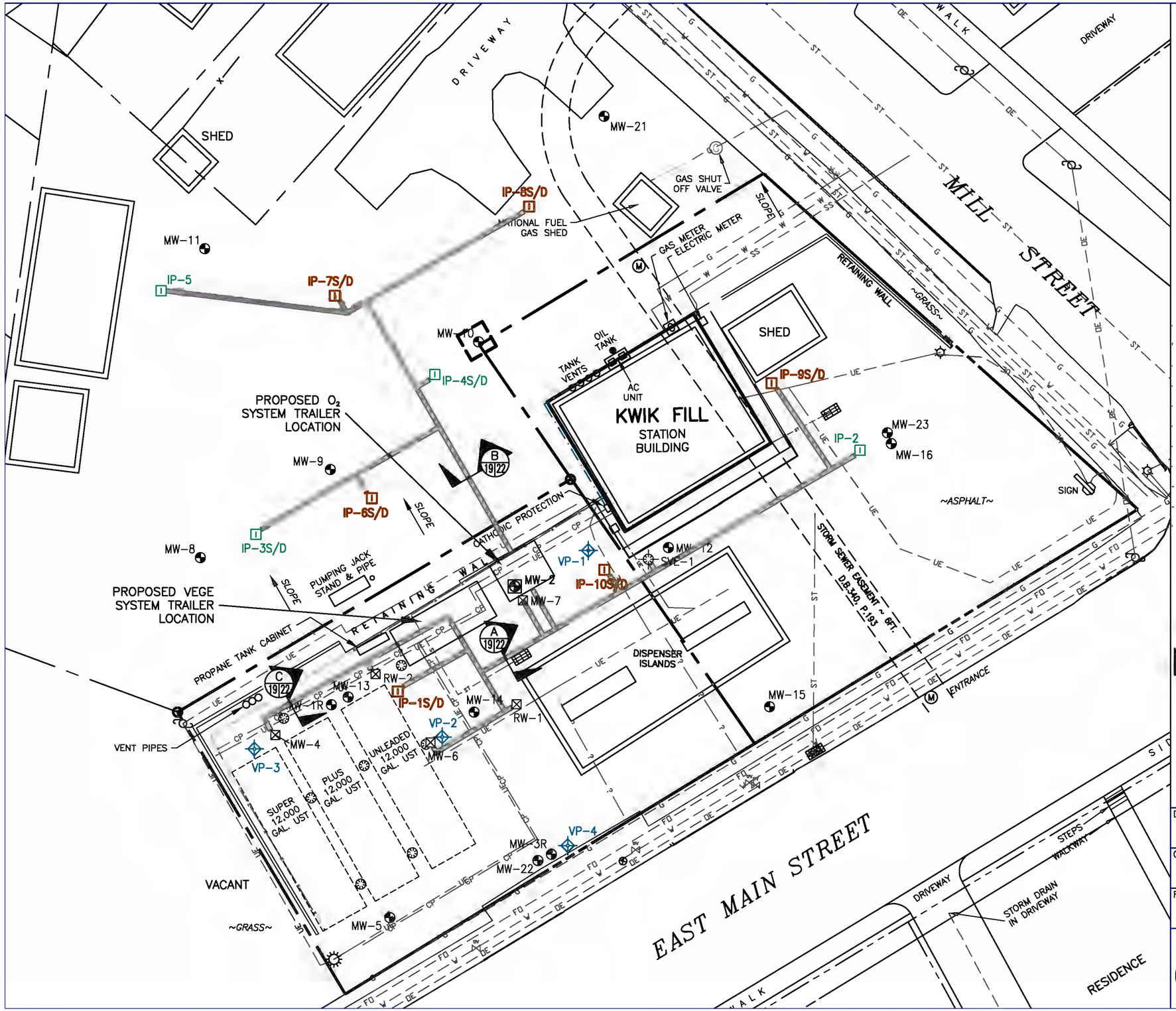
GRAPHIC SCALE (feet)

30 0 15 30 60 120

(Scale configured for D-Size 24" x 36" Plot)
1 inch = 30 ft.
(APPROXIMATE)

DRAFTED BY: TP (EXTON)	MTBE GROUNDWATER ISOCONCENTRATION MAP (OVERBURDEN AQUIFER) FEBRUARY 3-4, 2015
CHECKED BY: J.H.	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: E.L.	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	DATE 03-19-15 / FIGURE 18

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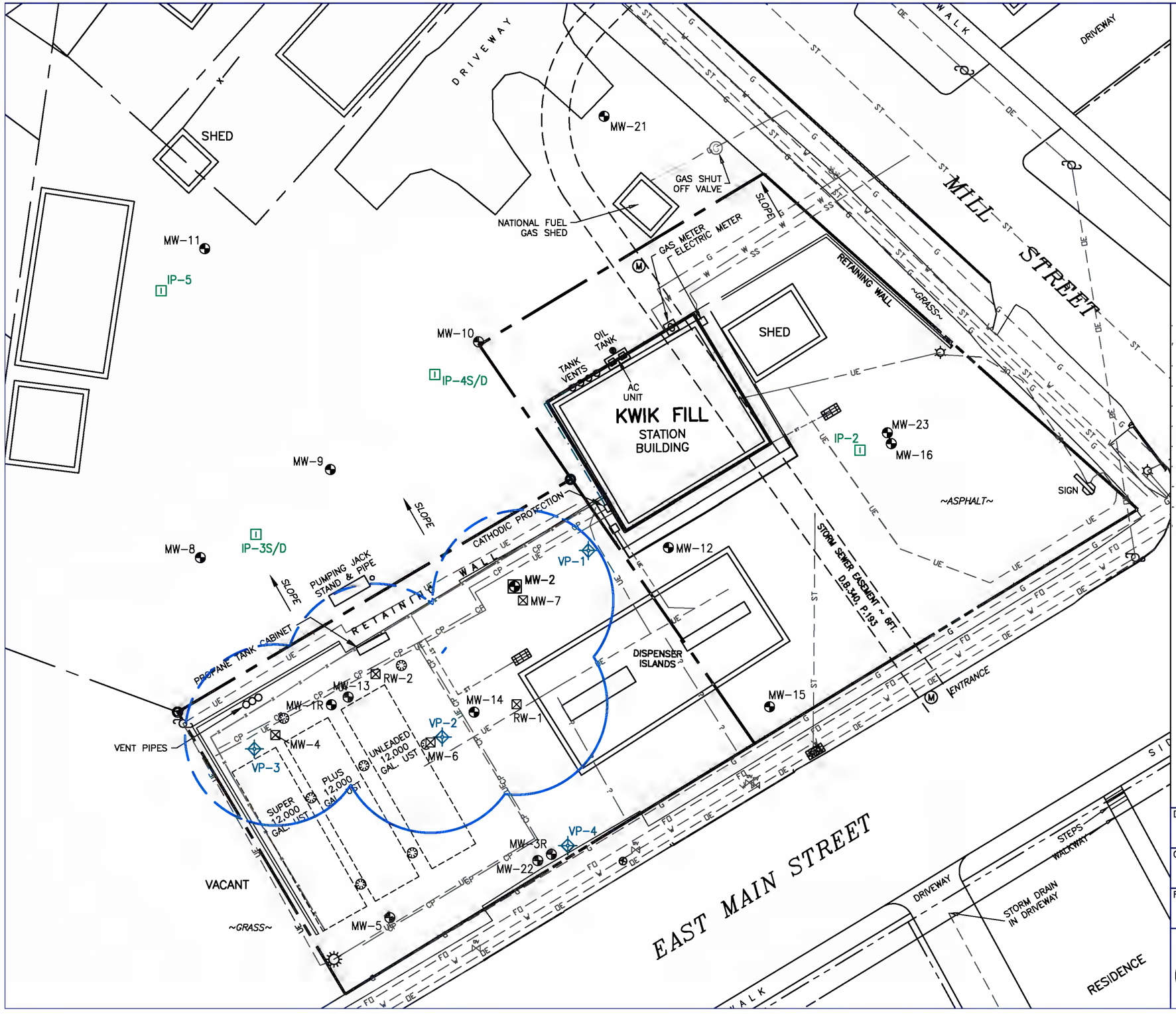


LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
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- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- INJECTION POINT
- PROPOSED VEGE WELL
- PROPOSED SVE WELL
- PROPOSED INJECTION POINT
- PROPSED REMEDIAL SYSTEM TRENCH
- SECTION ID
- SHEET NO. WHERE SHOWN
- SHEET NO. WHERE CALLED OUT
- PROPOSED LIMITS OF EXCAVATION

DRAFTED BY: TP (EXTON)	**PROPOSED TRENCHING LAYOUT AND CROSS-SECTION MAP**
CHECKED BY: JH	**KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA**
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 – 20 / DATE: 10-26-15 / FIGURE: 19

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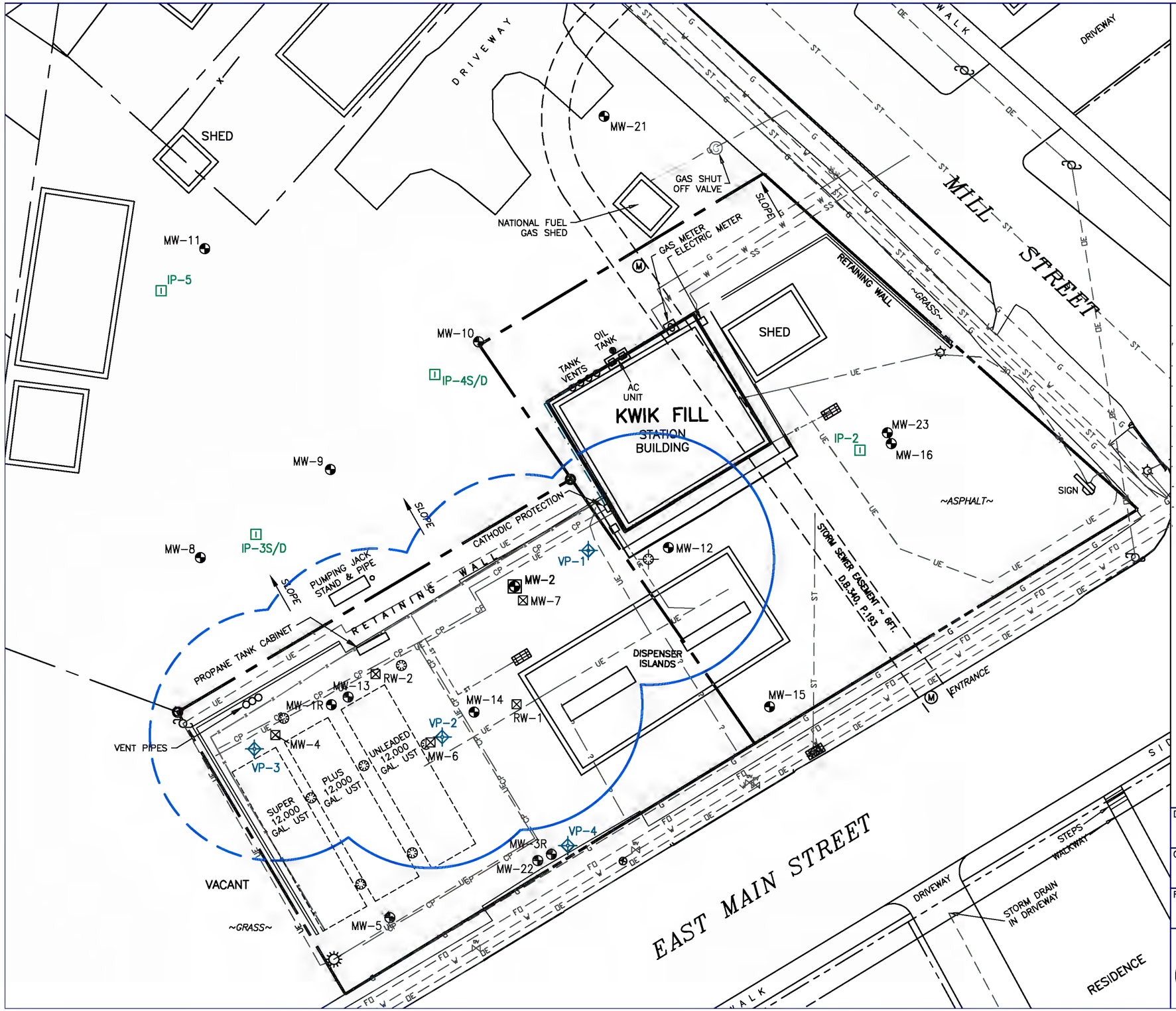


LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
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- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- INJECTION POINT
- PROPOSED VEGE WELL
- PROPOSED 18' HYDRAULIC RADIUS OF INFLUENCE MAP (DASHED WHERE ROI EXTENDS BEYOND RETAINING WALL)

DRAFTED BY: TP (EXTON)	**PROPOSED HYDRAULIC RADIUS OF INFLUENCE MAP**
CHECKED BY: JH	**KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA**
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 – 20 / DATE: 10-24-15 / FIGURE: 20

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\M-061 Bradford SM(New).dwg, B(20)

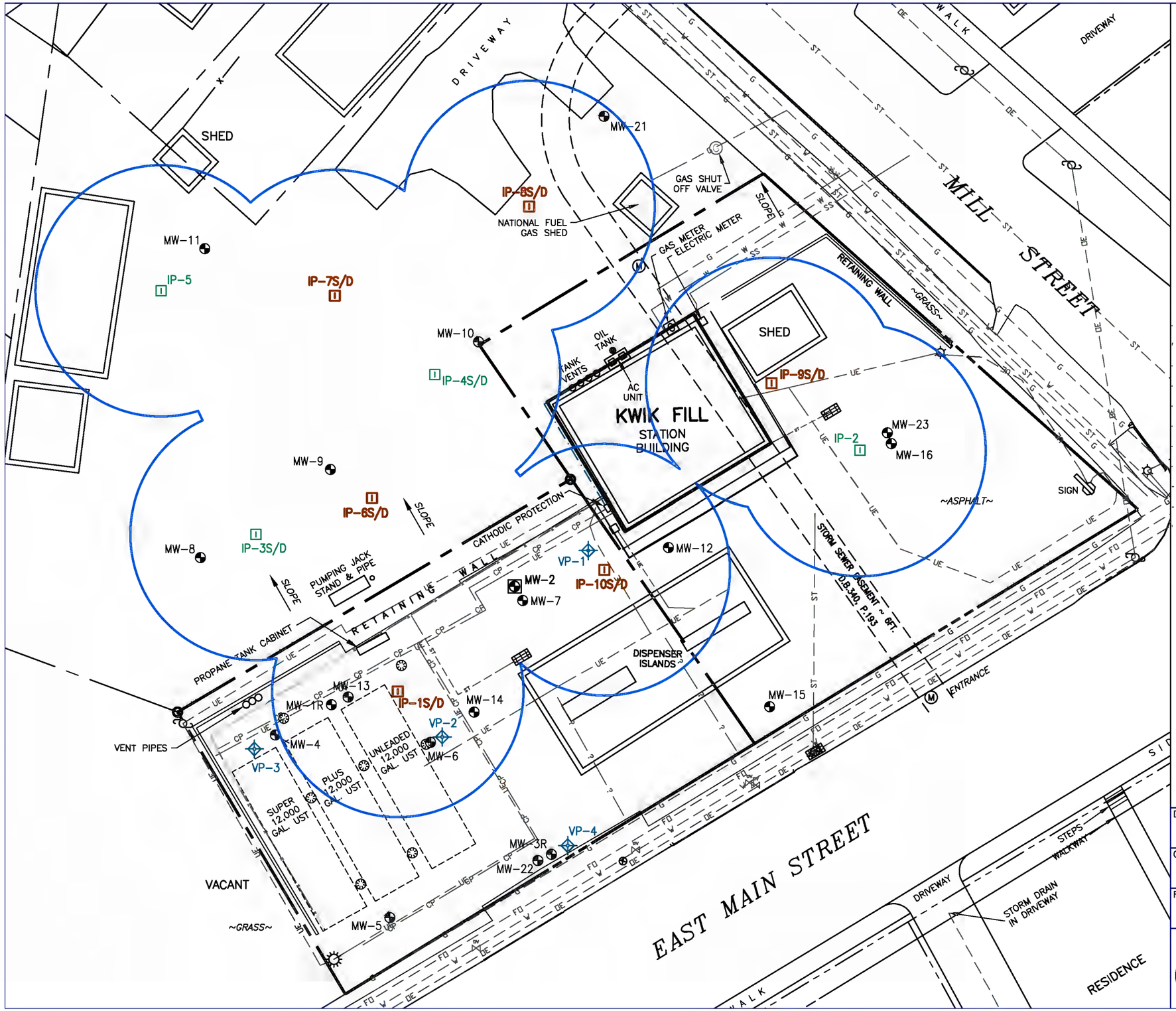


LEGEND

- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- INJECTION POINT
- PROPOSED VEGE WELL
- PROPOSED SVE WELL
- PROPOSED 25' PNEUMATIC RADIUS OF INFLUENCE MAP (DASHED WHERE ROI EXTENDS BEYOND RETAINING WALL)

DRAFTED BY: TP (EXTON)	**PROPOSED PNEUMATIC RADIUS OF INFLUENCE MAP**
CHECKED BY: JH	**KWIK FILL STATION #M-061** **227 EAST MAIN STREET** **BRADFORD, PENNSYLVANIA**
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 – 20 / DATE: 10-24-15 / FIGURE: 21

M:\Graphics\0700-Pittsburgh\URCK\Kwik Fill\M-061 Bradford\M-061 Bradford SM(New).dwg, B(20)

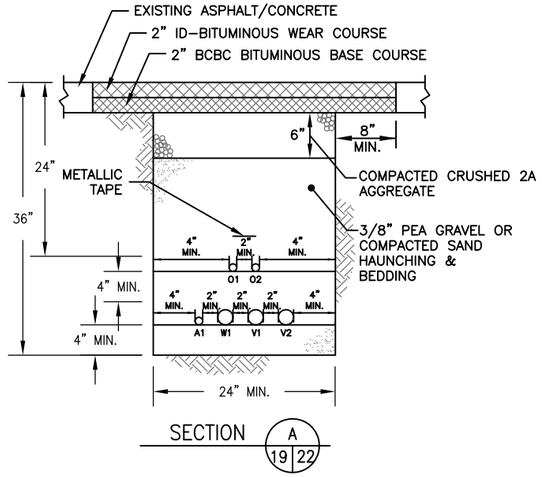


LEGEND

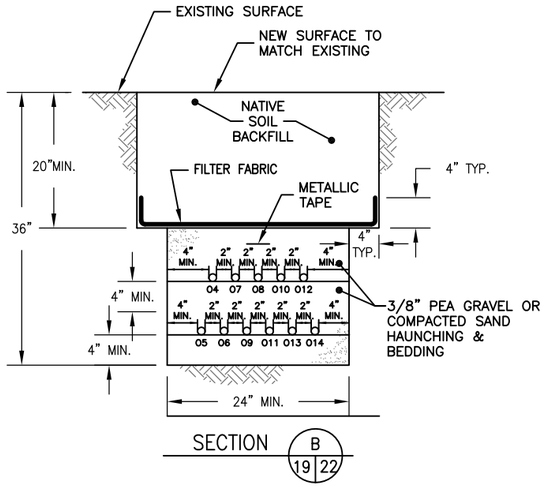
- PROPERTY BOUNDARY (APPROXIMATE)
- FENCE
- CATCH BASIN
- UTILITY MANHOLE
- UTILITY POLE
- LIGHT POLE
- WATER VALVE
- DISPENSER ISLAND
- GROUNDWATER MONITORING WELL
- ABANDONED GROUNDWATER MONITORING WELL
- HISTORICAL SOIL VAPOR EXTRACTION WELL
- SOIL GAS MONITORING POINT
- PRODUCT LINE
- VENT LINE
- OVERHEAD ELECTRIC LINE
- UNDERGROUND ELECTRIC LINE
- UNDERGROUND CATHODIC PROTECTION LINE
- UNDERGROUND SANITARY SEWER LINE
- UNDERGROUND STORM SEWER LINE
- UNDERGROUND FIBER OPTIC LINE
- UNDERGROUND WATER LINE
- UNDERGROUND NATURAL GAS LINE
- UNKNOWN UTILITY LINE
- INJECTION POINT
- PROPOSED INJECTION POINT
- PROPOSED 25' INJECTION RADIUS OF INFLUENCE

DRAFTED BY: TP (EXTON)	**PROPOSED INJECTION RADIUS OF INFLUENCE MAP**
CHECKED BY: JH	**KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA**
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
NORTH	SCALE IN FEET: 0 – 20 / DATE: 10-24-15 / FIGURE: 22

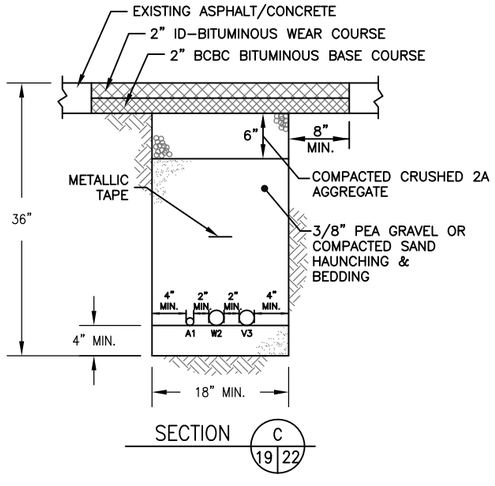
M:\Graphics\0700-Pittsburgh\KRCK\Kwik Fill\M-061 Bradford\M-061 Bradford SM(New).dwg, B(20)



SECTION A
19 | 22



SECTION B
19 | 22



SECTION C
19 | 22

Pipe ID	Description
A1	1" DIAMETER SCHEDULE 80 PVC AIR SUPPLY HEADER TO MW-4, MW-6, MW7, RW-1 AND RW-2
W1	2" DIAMETER SCHEDULE 40 PVC GROUNDWATER RECOVERY LINE TO THE PNEUMATIC PUMP IN MW-7
W2	2" DIAMETER SCHEDULE 40 PVC GROUNDWATER RECOVERY LINE TO THE PNEUMATIC PUMP IN MW-4
V1	2" DIAMETER SCHEDULE 40 PVC VAPOR RECOVERY LINE FROM MW-7
V2	2" DIAMETER SCHEDULE 40 PVC VAPOR RECOVERY LINE FROM SVE-1
V3	2" DIAMETER SCHEDULE 40 PVC VAPOR RECOVERY LINE FROM MW-4
O1	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-1S
O2	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-1D
O3	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-6S
O4	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-6D
O5	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-3S
O6	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-3D
O7	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-5
O8	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-7S
O9	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-7D
O10	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-8S
O11	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-8D
O12	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-4S
O13	1" DIAMETER SCHEDULE 80 PVC PASSIVE OXYGEN LINE TO IP-4D

DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: SM

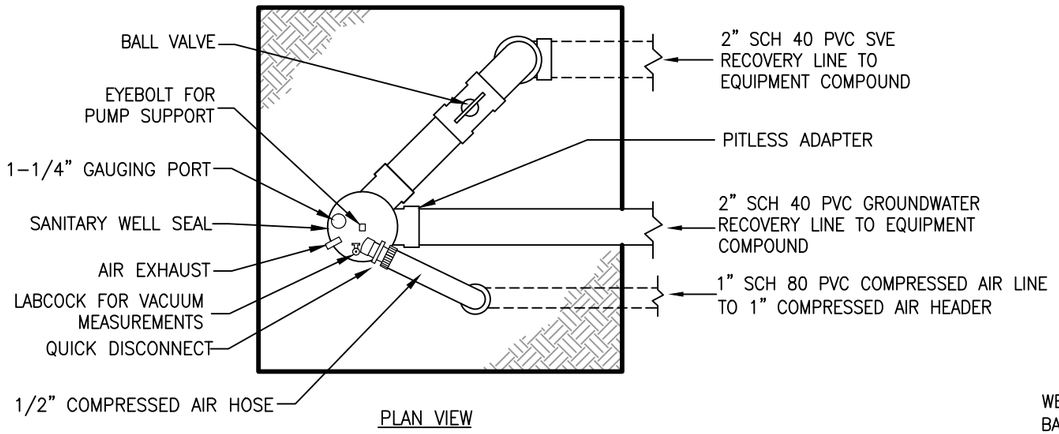
TRENCH CROSS SECTIONS

KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

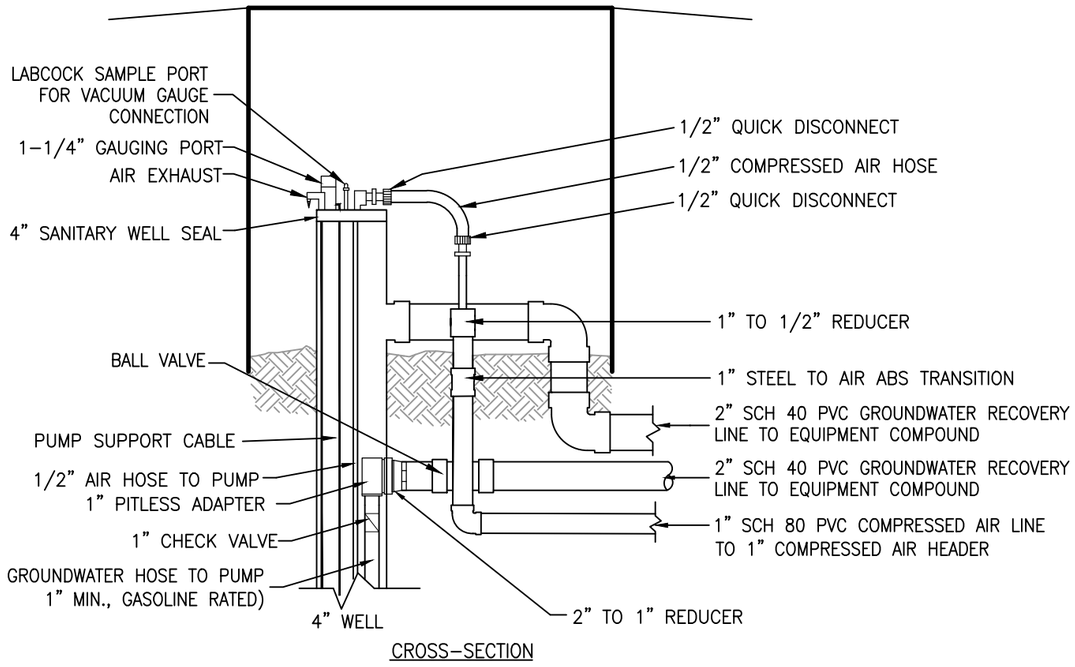
Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

NOT TO SCALE | DATE 10–24–15 | FIGURE 23

M:\Graphics\0700-Pittsburgh\URCKwik Fill\M-061 Bradford\Engineering\M-061 Bradford Trench XS.dwg, B(Trench X-Sections 20)



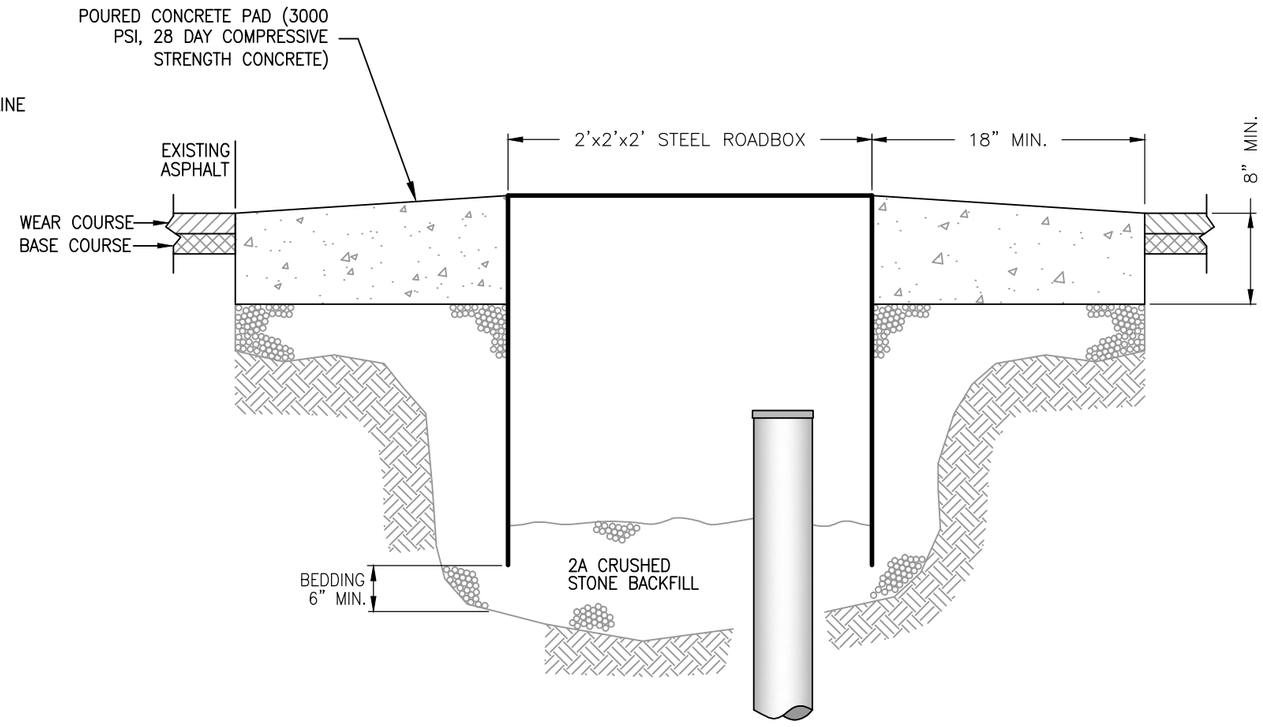
PLAN VIEW



CROSS–SECTION

TYPICAL GROUNDWATER RECOVERY & VAPOR EXTRACTION WELL (VEGE)
CONSTRUCTION DETAIL

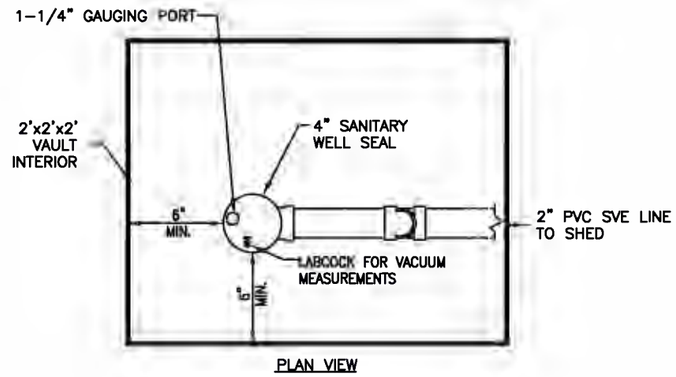
(TYPICAL FOR ALL VEGE WELLS)



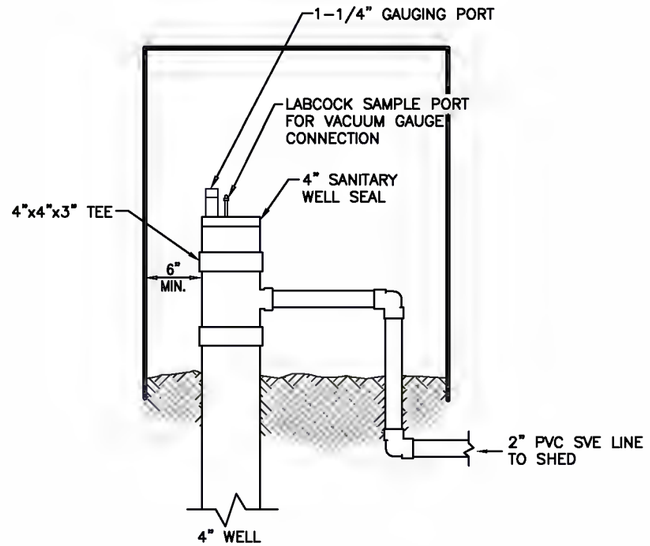
TYPICAL VAULT CONSTRUCTION DETAIL
CAST–IN–PLACE IN ASPHALT

DRAFTED BY: TP (EXTON)	**VEGE WELL CONSTRUCTION DETAILS**
CHECKED BY: JH	**KWIK FILL STATION #M–061** **227 EAST MAIN STREET** **BRADFORD, PENNSYLVANIA**
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
	NOT TO SCALE / DATE 10–20–15 / FIGURE 24

M:\Graphics\0700-Pittsburgh\URCKwik Fill\M-061 Bradford\Engineering\M-061 Bradford VEGE Well.dwg, B-NTS



PLAN VIEW

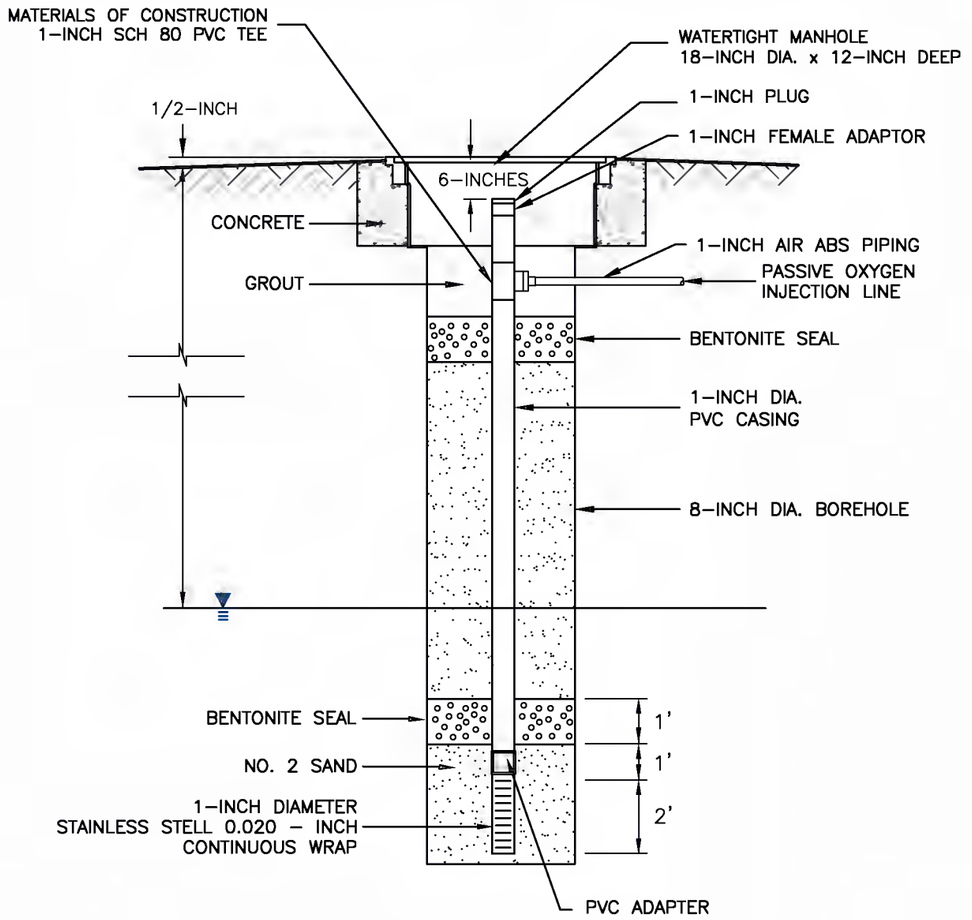


CROSS-SECTION

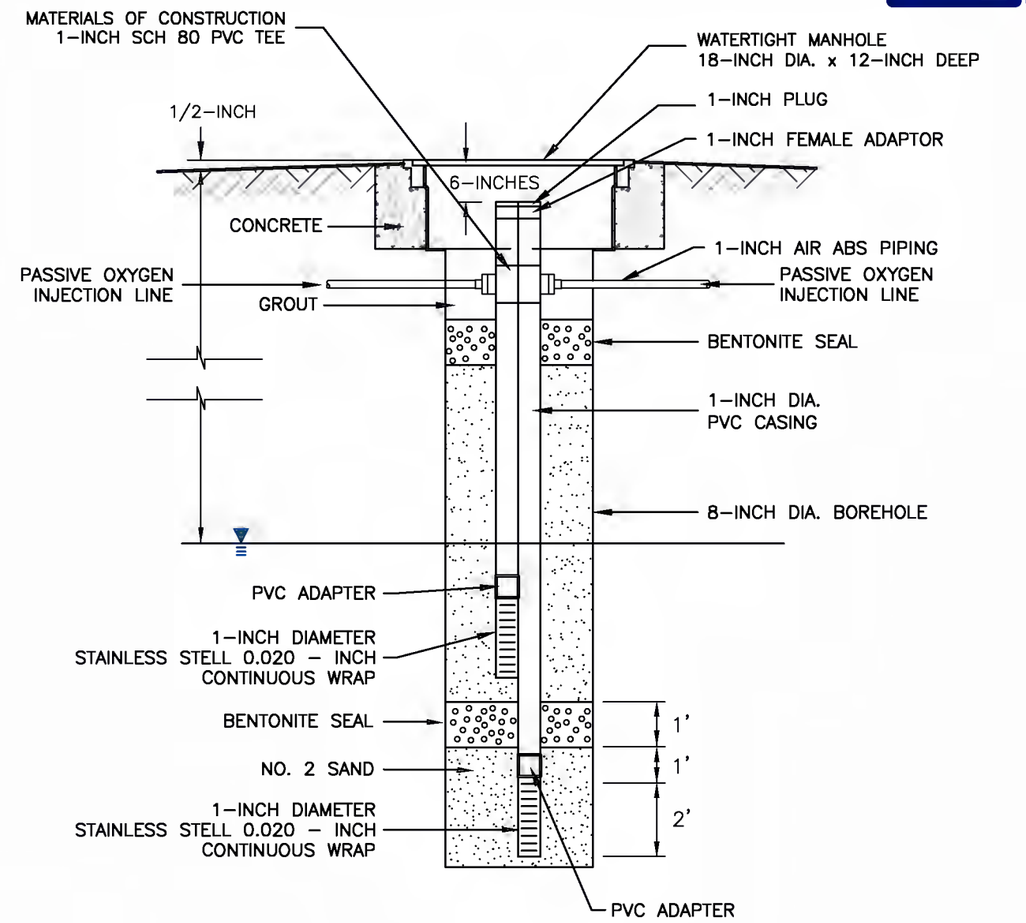
TYPICAL SOIL VAPOR EXTRACTION WELL CONSTRUCTION DETAIL
(SVE-1)

DRAFTED BY: TP (EXTON)	SVE WELL CONSTRUCTION DETAILS
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
	NOT TO SCALE / DATE 10-20-15 / FIGURE 25

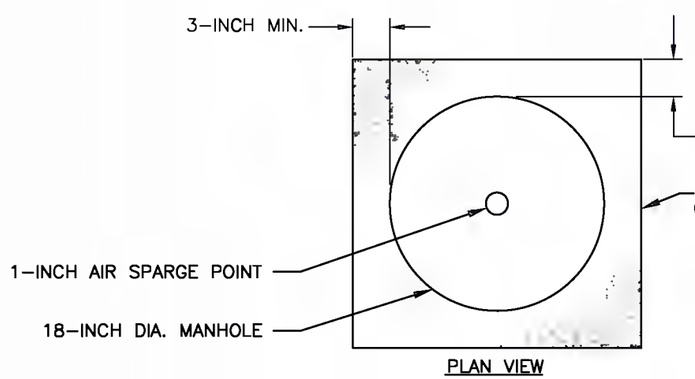
M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\Engineering\M-061 Bradford WELL DETAIL.dwg, Model



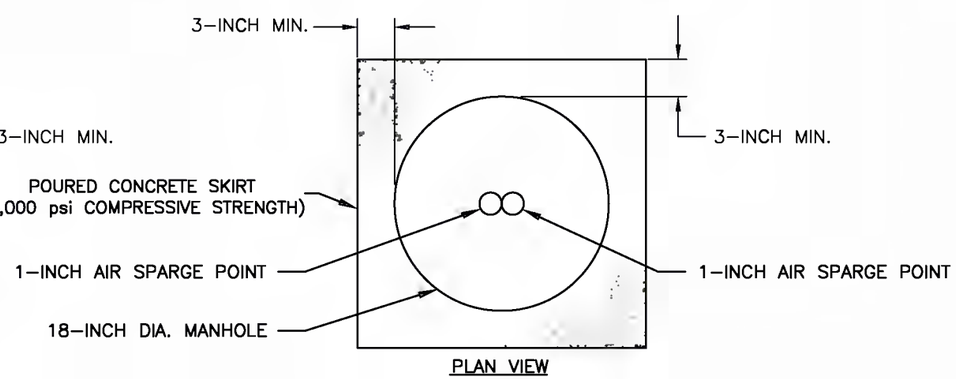
TYPICAL SINGLE WELL INJECTION POINT (IP)
WELL CONSTRUCTION DETAIL
(NOT TO SCALE)



TYPICAL NESTED WELL INJECTION POINT (IP)
WELL CONSTRUCTION DETAIL
(NOT TO SCALE)



PLAN VIEW



PLAN VIEW

DRAFTED BY: TP (EXTON)	INJECTION POINT CONSTRUCTION DETAILS	
CHECKED BY: JH	KWIK FILL STATION #M–061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA	
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066	
	NOT TO SCALE	DATE 10–20–15 / FIGURE 26

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\Engineering\M-061 Bradford Injection Point details.dwg, Model

EQUIPMENT

SUBMERSIBLE PNEUMATIC PUMP

SUBMERSIBLE ELECTRIC PUMP

LIQUID RING PUMP

TRANSFER PUMP

BLOWER

AIR COMPRESSOR

AIR-COOLED HEAT EXCHANGER

CONDENSER

HEATER

SILENCER

VAPOR-PHASE CARBON UNIT

LIQUID-PHASE CARBON UNIT

HIGH-PRESSURE LIQUID-PHASE CARBON UNIT

VAPOR/LIQUID SEPARATOR

OIL/WATER SEPARATOR

BIOFILTER

HIGH PRESSURE RECEIVING TANK

LOW PROFILE AIR STRIPPER

PARTICULATE FILTER - AIR

PARTICULATE FILTER - WATER

INLET FILTER - AIR

AIR STRIPPER TOWER

HOLDING TANK

PRODUCT RECOVERY TANK W/SECONDARY CONTAINMENT

CATALYST BED

NC

CATALYTIC OXIDIZER

VALVES

- BALL VALVE
- GATE VALVE
- GLOBE VALVE
- BUTTERFLY VALVE
- SWING CHECK VALVE
- BALL CHECK VALVE
- FOOT VALVE
- DIAPHRAGM VALVE
- NEEDLE VALVE
- 3 WAY VALVE
- 4 WAY VALVE
- SAMPLE VALVE

VALVE ABBREVIATIONS

N.C. - NORMALLY CLOSED
N.O. - NORMALLY OPENED
MAN - MANUAL

ACTUATORS / REGULATORS

- HAND ACTUATOR
- DIAPHRAGM ACTUATOR
- HYDRAULIC ACTUATOR
- SOLENOID ACTUATOR (S)
- MOTOR ACTUATOR (M)
- DIGITAL ACTUATOR (D)
- WATER ACTUATOR (W)
- PRESSURE RELIEF
- PRESSURE RELIEF VALVE
- VACUUM RELIEF VALVE
- REGULATOR
- RUPTURE DISK
- SLIP UPDRAFT VENT CAP

FITTINGS & PIPING

- FLANGED CONNECTION
- SCREWED CONNECTION
- UNION
- COUPLING
- STRAINER
- CROSSOVER
- REDUCER
- FLOW RESTRICTOR
- CLEAR PIPE/SIGHT TUBE
- EXPANSION JOINT/SLEEVE
- VICTAULIC CONNECTOR
- PLUG
- PIPE CAP
- HOSE CONNECTION
- QUICK CONNECT w/ FLEX HOSE
- QUICK CONNECT COUPLING

FLOW ELEMENTS

- SINGLE PORT PITOT TUBE
- AVERAGING PITOT TUBE
- POSITIVE DISPLACEMENT FLOW INDICATOR
- PROPELLER OR TURBINE TYPE FLOW ELEMENT
- VORTEX SENSOR
- SONIC FLOWMETER
- TARGET TYPE SENSOR
- WEIR
- VENTURI TUBE
- FLOW NOZZLE

PIPE DESIGNATION

2" DIAMETER - GW PROCESS MEDIA - SCH 80 PVC MATERIAL

VAP - VAPOR
GW - GROUNDWATER
AIR - COMPRESSED AIR
PROD - PRODUCT

——— PROCESS PIPE
— — — ELECTRICAL CONTROL

PIPING MATERIAL ABBREVIATIONS

CPVC	CHLORINATED POLYVINYL CHLORIDE
CS	CARBON STEEL PIPE
COP	COPPER
CM	CORRUGATED METAL PIPE
CI	CAST IRON PIPE
DI	DUCTILE IRON PIPE
GAL	GALVANIZED STEEL PIPE
POLY	POLYETHYLENE PIPE
PP	POLYPROPYLENE PIPE
PVC	POLYVINYL CHLORIDE PIPE
RC	REINFORCED CONCRETE PIPE
HOSE	RUBBER OR PLASTIC HOSE
SS	STAINLESS STEEL PIPE
VC	VITRIFIED CLAY PIPE

INSTRUMENTATION ABBREVIATIONS

CI	CAPACITIVE SENSOR	PC	PRESSURE CONTROL
FI	FLOW INDICATOR	PDS	PRESSURE DIFFERENTIAL SWITCH
FQ	FLOW TOTALIZER	PI	PRESSURE INDICATOR
FQI	FLOW INDICATING TOTALIZER	PSH	PRESSURE SWITCH HIGH
FSH	FLOW SWITCH HIGH	PSL	PRESSURE SWITCH LOW
FSL	FLOW SWITCH LOW	SL	STATUS LAMP
HS	HAND START	SP	SAMPLE POINT
KC	CYCLE COUNTER	TI	TEMPERATURE INDICATOR
KP	CYCLE TIMER	TS	TEMPERATURE SENSOR
LEL	EXPLOSIVITY METER	TDSH	TEMPERATURE DIFFERENTIAL SENSOR HIGH
LOL	LOW OIL LEVEL	TSH	TEMPERATURE SWITCH HIGH
LSLL	LEVEL SWITCH LOW LOW	TSL	TEMPERATURE SWITCH LOW
LSL	LEVEL SWITCH LOW	TT	TEMPERATURE TRANSDUCER
LSH	LEVEL SWITCH HIGH	VI	VACUUM INDICATOR
LSHH	LEVEL SWITCH HIGH HIGH	TAH	TEMPERATURE ALARM HIGH

INSTRUMENTATION LABELING

INSTRUMENT TYPE → PI
INSTRUMENT DESIGNATION → 100

INSTRUMENT DESIGNATIONS:
100 - AIR
200 - WATER
300 - PRODUCT
400 - COMBINED

GENERAL INSTRUMENTATION OR FUNCTION SYMBOLS

	PANEL MOUNTED	LOCALLY MOUNTED
DISCRETE INSTRUMENTS	⊖	○

I/1 CONTROL INTERLOCK LOGIC / ALARM

INSTRUMENTS SHARING COMMON HOUSING

ALARM INDICATOR LIGHT

DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: SM

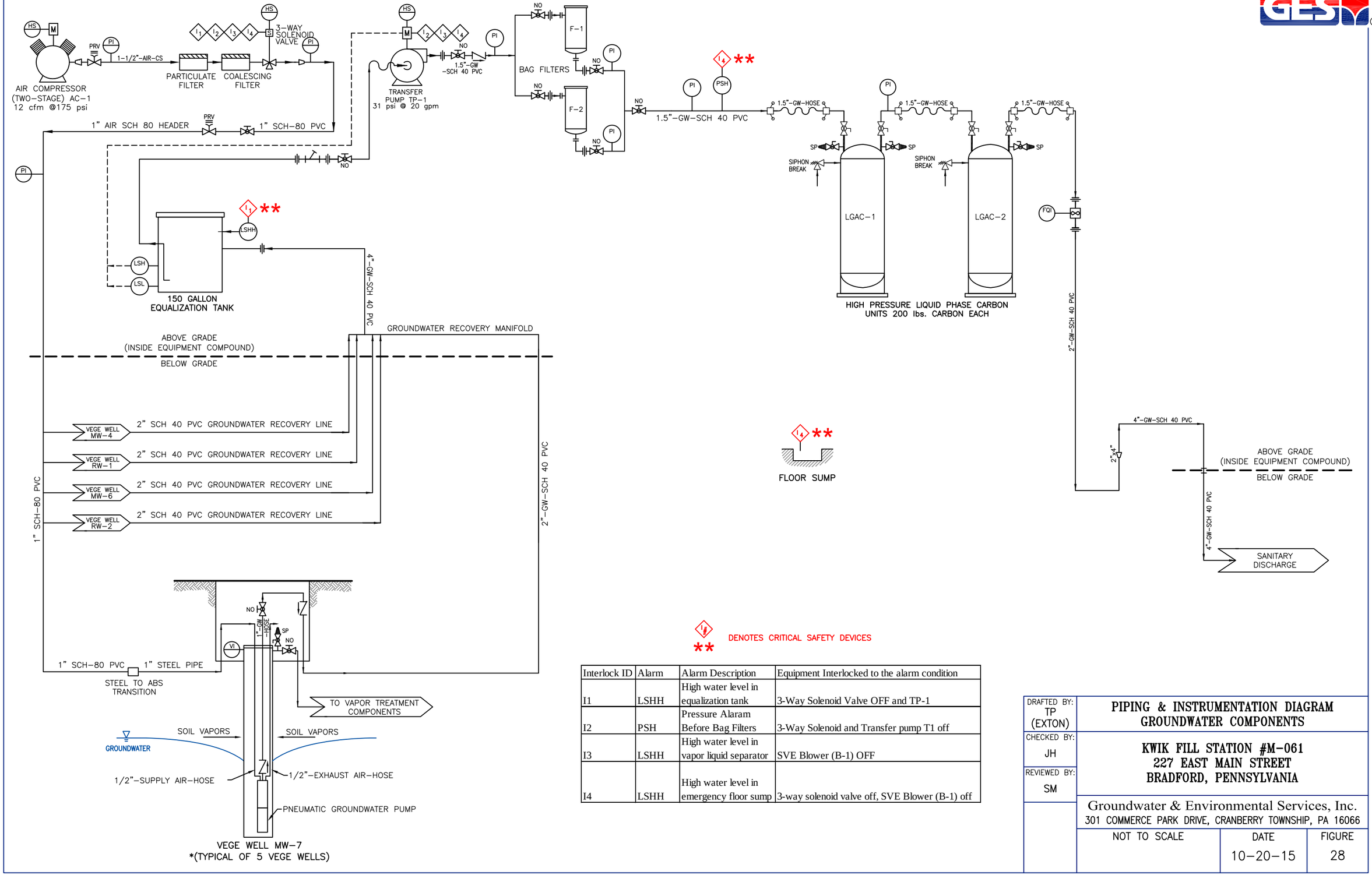
PIPING & INSTRUMENTATION DIAGRAM LEGEND

KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

NOT TO SCALE	DATE	FIGURE
	10-20-15	27

M:\Graphics\0700-Pittsburgh\URCK\Kwik Fill\M-061 Bradford\Engineering\M-061 Bradford PID LEGEND.dwg, Model



** DENOTES CRITICAL SAFETY DEVICES

Interlock ID	Alarm	Alarm Description	Equipment Interlocked to the alarm condition
I1	LSHH	High water level in equalization tank	3-Way Solenoid Valve OFF and TP-1
I2	PSH	Pressure Alaram Before Bag Filters	3-Way Solenoid and Transfer pump T1 off
I3	LSHH	High water level in vapor liquid separator	SVE Blower (B-1) OFF
I4	LSHH	High water level in emergency floor sump	3-way solenoid valve off, SVE Blower (B-1) off

DRAFTED BY: TP (EXTON)
CHECKED BY: JH
REVIEWED BY: SM

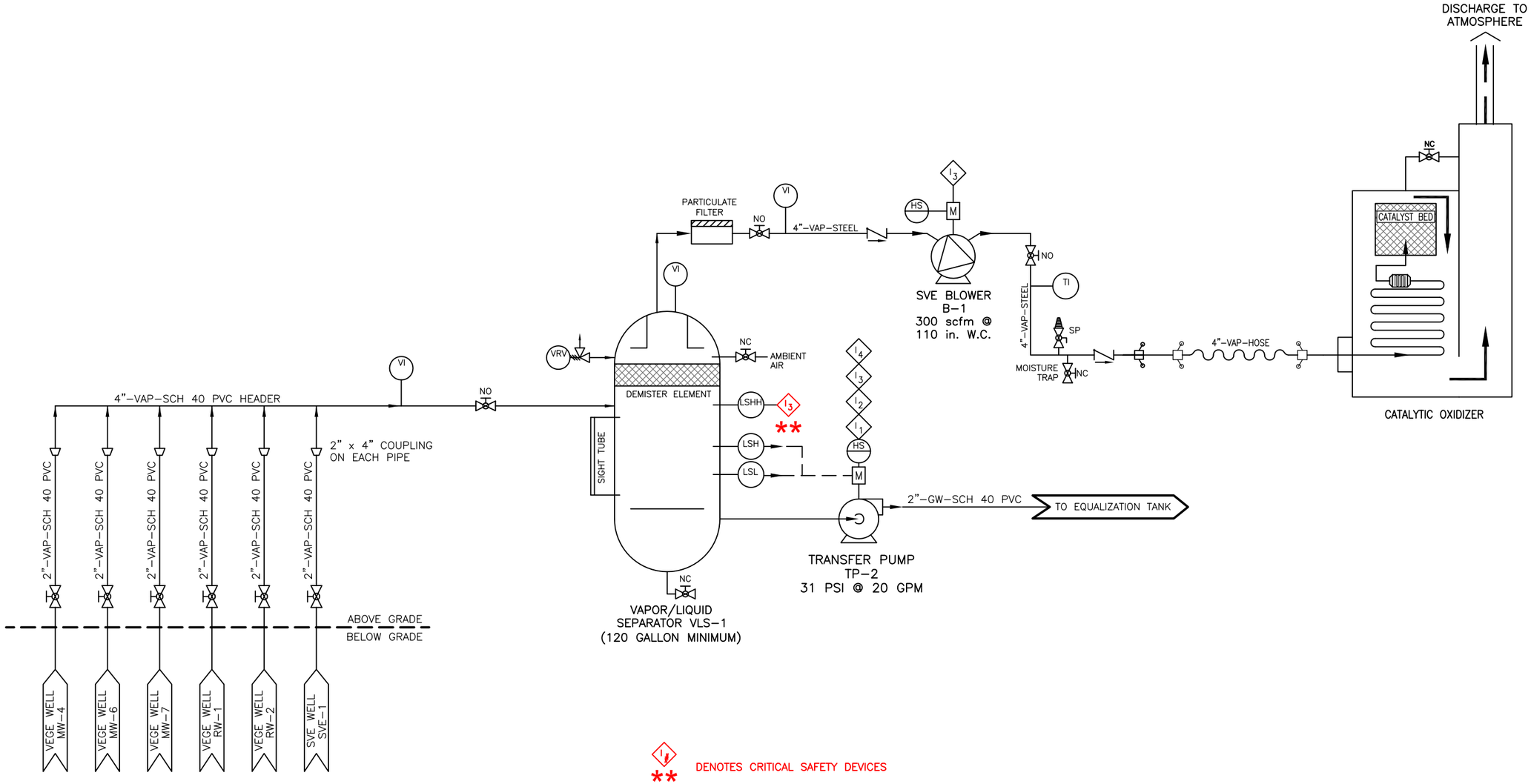
PIPING & INSTRUMENTATION DIAGRAM GROUNDWATER COMPONENTS

KWIK FILL STATION #M-061
227 EAST MAIN STREET
BRADFORD, PENNSYLVANIA

Groundwater & Environmental Services, Inc.
301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066

NOT TO SCALE | DATE 10-20-15 | FIGURE 28

M:\Graphics\0700-Pittsburgh\URCIK\kwik Fill\M-061 Bradford\Engineering\M-061 Bradford PID-GW.dwg, Model

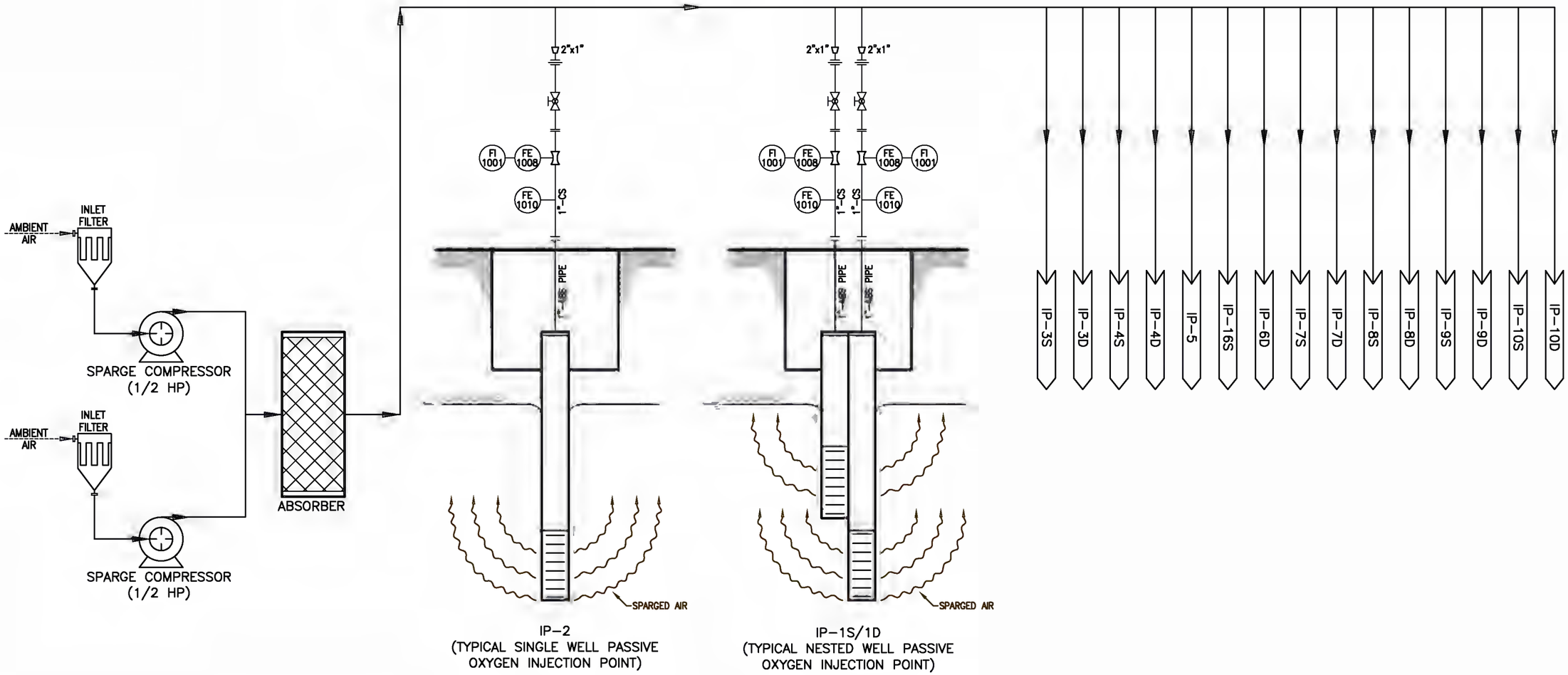


** DENOTES CRITICAL SAFETY DEVICES

Interlock ID	Alarm	Alarm Description	Equipment Interlocked to the alarm condition
I1	LSHH	High water level in equalization tank	3-Way Solenoid Valve OFF and TP-1
I2	PSH	Pressure Alaram Before Bag Filters	3-Way Solenoid and Transfer pump T1 off
I3	LSHH	High water level in vapor liquid separator	SVE Blower (B-1) OFF
I4	LSHH	High water level in emergency floor sump	3-way solenoid valve off, SVE Blower (B-1) off

DRAFTED BY: TP (EXTON)	PIPING & INSTRUMENTATION DIAGRAM SVE COMPONENTS
CHECKED BY: JH	KWIK FILL STATION #M-061 227 EAST MAIN STREET BRADFORD, PENNSYLVANIA
REVIEWED BY: SM	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
	NOT TO SCALE / DATE 10-20-15 / FIGURE 29

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\Engineering\M-061 Bradford PID-SVE.dwg, Model



IP–2
(TYPICAL SINGLE WELL PASSIVE OXYGEN INJECTION POINT)

IP–1S/1D
(TYPICAL NESTED WELL PASSIVE OXYGEN INJECTION POINT)

DRAFTED BY: TP (EXTON)	**PIPING & INSTRUMENTATION DIAGRAM PASSIVE OXYGEN INJECTION SYSTEM (LOW FLOW)**
CHECKED BY: JH	**KWIK FILL STATION #M-061**
REVIEWED BY: SM	**227 EAST MAIN STREET**
	BRADFORD, PENNSYLVANIA
	Groundwater & Environmental Services, Inc. 301 COMMERCE PARK DRIVE, CRANBERRY TOWNSHIP, PA 16066
	NOT TO SCALE / DATE 10–24–15 / FIGURE 30

M:\Graphics\0700-Pittsburgh\URC\Kwik Fill\M-061 Bradford\Engineering\M-061 Bradford PID-Oxygen Inj.dwg, Model

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
			PA Act 2 U/R MSCs		5	1,000	700	10,000	20	840	100	15	13
MW-1R	06/12/13	100.00	6.29	93.71	**118**	14.7	13.8	186	5.5	< 5.0	10	**94.3**	**35.8**
	11/01/13	100.00	5.16	94.84	**820**	7.7	21.2	81.8	5.4	12.2	6.7	**40.1**	**17.9**
	01/09/14	100.00	6.46	93.54	**398**	5.3	13.2	36.3	7.3	10.3	13.4	**43.5**	**14.9**
	06/17/14	100.00	6.48	93.52	**261**	14.8	19.9	37.6	< 5.0	18.4	17.9	**130**	**24.8**
	01/06/15	100.00	6.29	93.71	**603**	8.6	13.5	33.8	< 5.0	15.9	5.4	**50.0**	**15.3**
	02/04/15	100.00	7.29	92.71	**678**	7.7	20.3	25.6	7.5	21.9	7.4	**53.2**	**14.7**
MW-3R	11/01/13	99.21	4.25	94.96	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.21	5.06	94.15	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.21	4.34	94.87	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	7.3	< 5.0	< 5.0
	01/06/15	99.21	4.95	94.26	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.21	6.21	93.00	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-4	06/12/13	99.70	6.97	92.73	**190**	14.5	162	459	10.5	28.4	43.0	**203**	**128**
	11/01/13	99.70	5.84	93.86	**774**	12.6	28.1	82.1	< 5.0	13.8	11.0	**64.7**	**18.2**
	01/09/14	99.70	6.22	93.48	**422**	7.9	57.1	128	< 5.0	17.5	17.4	**179**	**34.6**
	06/17/14	99.70	6.17	93.53	**212**	9.2	25.8	24.5	< 5.0	15.6	7.9	**173**	**17.0**
	01/06/15	99.70	5.99	93.71	**542**	14.5	21.3	32.2	< 5.0	14.7	< 5.0	**127**	**18.7**
	02/03/15	99.70	NM	NA	-	-	-	-	-	-	-	-	-
MW-5	06/12/13	99.42	4.15	95.27	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	11/01/13	99.42	4.79	94.63	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.42	5.71	93.71	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.42	5.53	93.89	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.42	5.34	94.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.42	6.59	92.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-6	06/12/13	99.67	5.99	93.68	**135**	76.0	22.6	104	12.4	7.0	38.2	**88.4**	**43.8**
	11/01/13	99.67	5.87	93.80	**561**	9.8	22.8	28.3	9.1	15.0	33.9	**25.6**	< 5.0
	01/09/14	99.67	6.18	93.49	**446**	6.5	17.5	15.7	6.8	16.7	11.8	**15.5**	< 5.0
	06/17/14	99.67	6.19	93.48	**201**	8.7	24.5	15.8	7.8	15.0	11.7	**22.8**	< 5.0
	01/06/15	99.67	5.98	93.69	**647**	6.3	11.0	19.8	5.9	15.0	9.1	8.5	< 5.0
	02/03/15	99.67	6.99	92.68	**680**	8.1	11.2	18.0	5.7	15.8	< 5.0	< 5.0	< 5.0
MW-7	11/01/13	99.77	6.75	93.02	**135**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	99.77	6.92	92.85	**44.6**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.77	6.91	92.86	**49.4**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.77	7.25	92.52	**12.5**	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.77	8.95	90.82	**79.9**	< 5.0	68.2	254	< 5.0	5.1	9.2	**67.5**	**17.0**

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
			PA Act 2 U/R MSCs		**5**	**1,000**	**700**	**10,000**	**20**	**840**	**100**	**15**	**13**
MW-8	11/01/13	89.76	13.95	75.81	< 5.0	< 5.0	< 5.0	< 5.0	**626**	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	89.76	11.43	78.33	< 5.0	< 5.0	< 5.0	< 5.0	**406**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	89.76	11.17	78.59	< 5.0	< 5.0	< 5.0	< 5.0	**289**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	89.76	11.88	77.88	< 5.0	< 5.0	< 5.0	< 5.0	**173**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	89.76	11.71	78.05	< 5.0	< 5.0	< 5.0	< 5.0	**155**	< 5.0	< 5.0	< 5.0	< 5.0
MW-9	11/01/13	89.99	22.95	67.04	< 5.0	< 5.0	< 5.0	< 5.0	**2,310**	< 5.0	< 5.0	< 5.0	< 5.0
	01/09/14	89.99	21.27	68.72	< 5.0	< 5.0	< 5.0	< 5.0	**3,330**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	89.99	15.77	74.22	< 5.0	< 5.0	< 5.0	< 5.0	**2,870**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	89.99	13.38	76.61	< 5.0	< 5.0	< 5.0	< 5.0	**2,330**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	89.99	10.72	79.27	< 5.0	< 5.0	< 5.0	< 5.0	**1,230**	< 5.0	< 5.0	< 5.0	< 5.0
MW-10	01/09/14	88.76	22.91	65.85	< 5.0	< 5.0	< 5.0	< 5.0	**27.0**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	88.76	21.41	67.35	< 5.0	< 5.0	< 5.0	< 5.0	**392**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	88.76	21.83	66.93	< 5.0	< 5.0	< 5.0	< 5.0	**396**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	88.76	22.16	66.60	< 5.0	< 5.0	< 5.0	< 5.0	**287**	< 5.0	< 5.0	< 5.0	< 5.0
MW-11	01/09/14	87.28	19.27	68.01	< 5.0	< 5.0	< 5.0	< 5.0	**914**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	87.28	18.19	69.09	**8.6**	< 5.0	5.3	< 5.0	**1,360**	< 5.0	< 5.0	< 5.0	5.0
	01/06/15	87.28	16.88	70.40	**8.1**	< 5.0	< 5.0	< 5.0	**1,030**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	87.28	17.57	69.71	< 5.0	< 5.0	< 5.0	< 5.0	**854**	< 5.0	< 5.0	< 5.0	< 5.0
MW-12	01/09/14	99.30	5.46	93.84	< 5.0	48.8	18.3	126	< 5.0	< 5.0	< 5.0	**36.6**	< 5.0
	06/17/14	99.30	5.41	93.89	< 5.0	< 5.0	< 5.0	5.1	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.30	5.74	93.56	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.30	8.51	90.79	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-13	01/09/14	99.83	33.00	66.83	< 5.0	< 5.0	< 5.0	< 5.0	**115**	< 5.0	< 5.0	< 5.0	< 5.0
	06/17/14	99.83	21.87	77.96	< 5.0	< 5.0	< 5.0	< 5.0	**1,350**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.83	21.25	78.58	< 5.0	< 5.0	< 5.0	< 5.0	**1,610**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	99.83	22.01	77.82	< 5.0	< 5.0	< 5.0	< 5.0	**1,410**	< 5.0	< 5.0	< 5.0	< 5.0
MW-14	01/09/14	100.12	7.01	93.11	**511**	15.7	77.2	712	11.7	23.1	33.3	**233**	**94.5**
	06/17/14	100.12	6.65	93.47	**274**	13.0	33.8	66.1	6.0	7.4	10.1	**41.5**	**20.6**
	01/06/15	100.12	6.63	93.49	**543**	8.5	29.9	72.9	5.2	12.8	6.3	**32.4**	**15.5**
	02/03/15	100.12	8.62	91.50	**706**	10.5	112	387	19.0	13.6	25.5	**119**	**46.5**
MW-15	06/17/14	99.57	7.15	92.42	**12.5**	6.8	< 5.0	7.4	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	99.57	6.85	92.72	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.57	7.11	92.46	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-16	06/17/14	98.60	DRY	NM	-	-	-	-	-	-	-	-	-
	01/06/15	98.60	14.75	83.85	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	98.60	13.50	85.10	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

Table 1

GROUNDWATER DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
			PA Act 2 U/R MSCs		**5**	**1,000**	**700**	**10,000**	**20**	**840**	**100**	**15**	**13**
MW-17	06/17/14	77.95	8.87	69.08	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	77.95	9.37	68.58	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0M1	< 5.0	< 5.0
	02/03/15	77.95	10.12	67.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-18	06/17/14	76.65	21.82	54.83	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	76.65	21.70	54.95	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	76.65	22.51	54.14	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-19	06/17/14	75.36	20.49	54.87	< 5.0	< 5.0	< 5.0	< 5.0	**525**	< 5.0	< 5.0	< 5.0	< 5.0
	01/06/15	75.36	20.42	54.94	< 5.0	< 5.0	< 5.0	< 5.0	**377**	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	75.36	21.19	54.17	< 5.0	< 5.0	< 5.0	< 5.0	**377**	< 5.0	< 5.0	< 5.0	< 5.0
MW-20	01/06/15	66.78	12.42	54.36	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	66.78	12.99	53.79	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
MW-21	01/06/15	86.70	10.97	75.73	< 5.0	< 5.0	< 5.0	< 5.0	**27.0**	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	86.70	11.61	75.09	< 5.0	< 5.0	< 5.0	< 5.0	**20.5**	< 5.0	< 5.0	< 5.0	< 5.0
MW-22	01/06/15	99.22	33.21	66.01	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	99.22	19.41	79.81	< 5.0	< 5.0	< 5.0	< 5.0	12.9	< 5.0	< 5.0	< 5.0	< 5.0
MW-23	01/06/15	98.70	30.02	68.68	< 5.0	< 5.0	< 5.0	< 5.0	**49.2**	< 5.0	< 5.0	< 5.0	< 5.0
	02/03/15	98.70	30.95	67.75	< 5.0	< 5.0	< 5.0	< 5.0	**46.7**	< 5.0	< 5.0	< 5.0	< 5.0
MW-24	01/06/15	71.62	16.89	54.73	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
	02/04/15	71.62	12.19	59.43	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0

NOTES

All laboratory data and U/R MSCs are reported in micrograms per liter.
Elevation and depth to water measurements are recorded in feet.
U/R MSC = Used Aquifer/Residential Medium-Specific Concentration
BOLD = Indicates exceedance of applicable Act 2 MSC
<# = Less than laboratory reporting limit of #
DRY = Insufficient water for sampling
MTBE = Methyl tert-butyl ether
TMB = Trimethylbenzene
NA = Not available
NM = Not measured
- = Sample not collected
M1 = Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery).

Table 2

WELL CONSTRUCTION SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date Installed	Current Top of Casing Elevation [(1)] (feet)	Well Diameter (inches)	Total Depth (feet)	Total PVC Screen Length (feet)	Total PVC Riser Length (feet)
Perched						
MW-1R	06/06/13	100.00	4	16	13	3
MW-3R	10/09/13	99.21	4	8	6	2
MW-4	06/05/13	99.70	4	15	12	3
MW-5	06/05/13	99.42	4	12	10	2
MW-6	06/05/13	99.67	4	11.75	9	2.75
MW-7	10/09/13	99.77	4	16	13	3
MW-12	12/12/13	99.30	4	16	13	3
MW-14	12/12/13	100.12	4	16	13	3
MW-15	06/05/14	99.57	4	9.50	6	3.50
MW-16	06/05/14	98.60	4	16	12	4
Overburden						
MW-8	10/11/13	89.76	2	19.75	14.75	5
MW-9	10/10/13	89.99	2	30	20	10
MW-10	12/17/13	88.76	2	30	20	10
MW-11	12/12/13	87.28	2	30	20	10
MW-13	12/18/13	99.83	4	35	12	23
MW-17	06/04/14	77.95	4	22	15	7
MW-18	06/03/14	76.65	4	30	20	10
MW-19	06/04/14	75.36	4	30	20	10
MW-20	12/09/14	66.78	4	23	15	8
MW-21	12/11/14	86.70	4	25	18	7
MW-22	12/16/14	99.22	4	34	12	22
MW-23	12/12/14	98.70	4	34.5	12.5	22
MW-24	12/09/14	71.62	4	27	20	7

NOTES:
PVC - poly-vinyl chloride

1) Top of casing elevations relative to an on-site benchmark.

Table 3A

ON-SITE SOIL DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Soil Sample ID	Date	Depth (ft)	PID (ppm)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Isopropyl Benzene (µg/kg)	Naphthalene (µg/kg)	1,2,4-TMB (µg/kg)	1,3,5-TMB (µg/kg)
PA Act 2 U/NR MSC (Unsaturated) 0 - 2 feet				**500**	**100,000**	**70,000**	**1,000,000**	**2,000**	**2,500,000**	**25,000**	**35,000**	**9,300**
PA Act 2 U/NR MSC (Saturated/Unsaturated) 2 - 15 feet				**500**	**100,000**	**70,000**	**1,000,000**	**2,000**	**350,000/ 2,500,000**	**10,000/ 25,000**	**6,200/ 35,000**	**5,300/ 9,300**
SB-1	06/03/13	6-7	35.8	138	<3.6	<3.6	<10.8	27.2	<3.6	<3.6	<3.6	<3.6
SB-1	06/05/13	10-12	402.0	166	14.0	122	467	15.7	39.3	53.6	2,650	102
SB-1	06/05/13	13-15	14.2	<2.7	<2.7	<2.7	<8.1	<2.7	<2.7	<2.7	<2.7	<2.7
SB-1/MW-13	12/17/13	21-23	61.3	5.5	<3.7	15.8	76.0	165	<3.7	<3.7	27.3	10.3
SB-1/MW-13	12/17/13	27-29	66.8	<3.8	<3.8	<3.8	<11.3	45.2	<3.8	<3.8	<3.8	<3.8
SB-1/MW-13	12/18/13	33-35	18.9	<3.5	<3.5	<3.5	<10.4	<3.5	<3.5	<3.5	<3.5	<3.5
SB-2/MW-4	06/03/13	6-6.5	393.3	50.9	14.9	9.5	269	45.2	7.0	5.1	171	78.9
SB-2/MW-4	06/05/13	8-10	3,689	**11,400**	971	57,600	232,000	<268	5,980	**13,300**	**157,000**	**54,300**
SB-2/MW-4	06/05/13	13-15	50.9	3.8	<3.2	<3.2	<9.6	<3.2	<3.2	<3.2	<3.2	<3.2
SB-3/MW-5	06/03/13	2-3	40.6	<3.5	<3.5	<3.5	<10.4	<3.5	<3.5	<3.5	<3.5	<3.5
SB-3/MW-5	06/05/13	13-15	8.1	<2.9	<2.9	<2.9	<8.6	<2.9	<2.9	<2.9	<2.9	<2.9
SB-4	06/04/13	3-4	73.4	19.5	<4.4	<4.4	<13.3	<4.4	<4.4	<4.4	<4.4	<4.4
SB-5	06/04/13	6-7	215.9	83.6	5.1	8.4	18.9	4.3	15.3	5.5	38.5	17.1
SB-5	06/05/13	13-15	9.3	<3.2	<3.2	<3.2	<9.7	7.4	<3.2	<3.2	<3.2	<3.2
SB-6/MW-6	06/04/13	2-3	12.0	7.8	11.7	4.2	15.9	<3.8	<3.8	<3.8	<3.8	<3.8
SB-6/MW-6	06/05/13	5-7	1,166	**3,660**	356	1920	2,050	<197	4,760	8,690	**3,930**	638
SB-6/MW-6	06/05/13	8-10	1,602	377	<183	544	<550	<183	851	1,030	374	189
SB-6/MW-6	06/05/13	11.5-12.5	18.9	<4.1	<4.1	<4.1	<12.3	<4.1	<4.1	<4.1	<4.1	<4.1
SB-7	06/04/13	5-6	6.7	<2.9	<2.9	<2.9	<8.8	<2.9	<2.9	<2.9	<2.9	<2.9
SB-8	06/04/13	3-4	6.4	<4.0	<4.0	<4.0	<12.1	<4.0	<4.0	<4.0	<4.0	<4.0
SB-9/MW-7	10/07/13	3-4	11.5	<3.3	<3.3	<3.3	<9.9	<3.3	<3.3	<3.3	<3.3	<3.3
SB-9/MW-7	10/09/13	10-12	30.7	37.9	<3.7	4.2	<11.0	8.8	8.7	<3.7	30.1	<3.7
SB-9/MW-7	10/09/13	13-15	31.9	<3.1	<3.1	<3.1	<9.2	<3.1	<3.1	<3.1	<3.1	<3.1
SB-10/MW-14	10/07/13	6-7	13.4	4.8	4	<3.3	10.2	<3.3	<3.3	4.2	3.6	<3.3
SB-10/MW-14	10/09/13	8-10	3,723	**3,470**	349	11,800	87,100	<169	2,080	4,300	**44,600**	**19,600**
SB-10/MW-14	10/09/13	10-12	329	141	6.3	78.8	199	6.3	8.3	74.8	93.1	36.4
SB-11	10/09/13	3-4	7.4	41.7	6.2	52.6	173	<4.8	8.3	14.9	244	115
MW-12	12/05/13	4-5	8.3	<3.3	<3.3	<3.3	<9.8	<3.3	<3.3	<3.3	6.7	4.2
MW-12	12/12/13	9-11	2,547	**2,560**	**104,000**	**93,400**	585,000	<181	10,200	**28,500**	**445,000**	<181
MW-12	12/12/13	13-15	163.1	7.0	158	156	827	<4.4	22.0	17.3	343	141
MW-15	06/02/14	4-5	3.0	<2.6	<2.6	<2.6	<7.7	<2.6	<2.6	<2.6	<2.6	<2.6
MW-15	06/05/14	9-9.5	19.8	<3.1	<3.1	<3.1	<9.4	<3.1	<3.1	<3.1	<3.1	<3.1
MW-16	06/02/14	4-5	3.5	<5.4	<5.4	<5.4	<16.1	<5.4	<5.4	<5.4	<5.4	<5.4
MW-16	06/05/14	9-11	2.0	<3.9	<3.9	<3.9	<11.6	<3.9	<3.9	<3.9	<3.9	<3.9
MW-22	11/06/14	4-5	35.7	<4.6	5.9	<4.6	20.9	<4.6	7.0	91.1	19.6	22.4
MW-22	12/15/14	7-9	19.9	<194	<194	<194	<581	<194	<194	<194	222	<194
MW-22	12/15/14	9-11	24.4	<207	<207	<207	<622	<207	<207	<207	<207	<207
VP-1	10/08/13	1-2	17.7	<3.2	<3.2	<3.2	<9.7	<3.2	<3.2	<3.2	<3.2	<3.2
VP-2	10/08/13	2-3	7.7	5.9	6.3	<2.5	<7.5	<2.5	<2.5	<2.5	<2.5	<2.5
VP-3	10/08/13	4-5	14.0	13.1	<3.1	<3.1	<9.4	<3.1	<3.1	<3.1	<3.1	<3.1
VP-4	10/08/13	3-4	53.9	11.3	<4.2	<4.2	<12.5	<4.2	5.1	127	<4.2	<4.2

NOTES

BOLD	Indicates exceedance of Act 2 U/NR MSCs	MTBE	Methyl tert-butyl ether
<#	Less than laboratory reporting limit of #	TMB	Trimethylbenzene
µg/kg	Micrograms per kilogram	PID	Photoionization detector
ft	feet below ground surface	ppm	parts per million

Table 3B

OFF-SITE SOIL DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Soil Sample ID	Date	Depth (ft)	PID (ppm)	Benzene (µg/kg)	Toluene (µg/kg)	Ethyl-benzene (µg/kg)	Total Xylenes (µg/kg)	MTBE (µg/kg)	Isopropyl Benzene (µg/kg)	Naphthalene (µg/kg)	1,2,4-TMB (µg/kg)	1,3,5-TMB (µg/kg)
PA Act 2 U/R MSC (Saturated/Unsaturated)				**500**	**100,000**	**70,000**	**1,000,000**	**2,000**	**84,000/ 600,000**	**10,000/ 25,000**	**1,500/ 8,400**	**1,300/ 2,300**
MW-8	10/10/13	3-4	5.3	<4.1	<4.1	<4.1	<12.4	<4.1	<4.1	5.8	4.2	<4.1
MW-8	10/10/13	10-12	7.5	<3.2	<3.2	<3.2	<9.5	33.7	<3.2	<3.2	<3.2	<3.2
MW-8	10/10/13	17-19	4.9	<3.6	<3.6	<3.6	<10.7	6.1	<3.6	<3.6	<3.6	<3.6
MW-9	10/10/13	3-4	6.7	<3.7	<3.7	<3.7	<11.1	<3.7	<3.7	<3.7	<3.7	<3.7
MW-9	10/10/13	13-15	26.4	<3.5	<3.5	<3.5	<10.5	127	<3.5	<3.5	<3.5	<3.5
MW-9	10/10/13	28-30	10.0	<3.6	<3.6	<3.6	<10.8	<3.6	<3.6	<3.6	<3.6	<3.6
MW-10	12/04/13	2-3	1,092	<142	<142	<142	<425	<142	179	150	4,930	**3,870**
MW-10	12/17/13	7-9	25.2	<2.9	<2.9	<2.9	<8.6	<2.9	<2.9	<2.9	<2.9	<2.9
MW-10	12/17/13	30-32	26.8	<3.4	<3.4	<3.4	<10.3	<3.4	<3.4	<3.4	<3.4	<3.4
MW-11	12/05/13	3-4	9.3	<4.0	<4.0	<4.0	<12.0	<4.0	<4.0	<4.0	<4.0	<4.0
MW-11	12/12/13	30-32	26.2	<4.0	<4.0	<4.0	<12.0	<4.0	<4.0	<4.0	6.4	<4.0
MW-21	11/06/14	2-3	0.4	<4.1	<4.1	<4.1	<12.3	<4.1	<4.1	<4.1	<4.1	<4.1
MW-21	11/06/14	4-5	0.1	<4.3	<4.3	<4.3	<12.8	<4.3	<4.3	<4.3	<4.3	<4.3

NOTES

BOLD	Indicates exceedance of Act 2 U/R MSCs	MTBE	Methyl tert-butyl ether
<#	Less than laboratory reporting limit of #	TMB	Trimethylbenzene
µg/kg	Micrograms per kilogram	PID	Photoionization detector
ft	feet below ground surface	ppm	parts per million

Table 4

SOIL BORING WATER SAMPLE DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Well	Date	Casing Elevation	Depth to Water	Water Elevation	Benzene	Toluene	Ethyl-benzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PA Act 2 U/R MSCs					**5**	**1,000**	**700**	**10,000**	**20**	**840**	**100**	**15**	**13**
SB-8	06/12/13	96.37	3.20	93.17	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	11/01/13	96.37	3.01	93.36	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
	01/09/14	96.37	3.65	92.72	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
SB-11	11/01/13	94.48	DRY	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	01/09/14	94.48	4.00	90.48	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0

NOTES

All laboratory data and U/R MSCs are reported in micrograms per liter.
Elevation and depth to water measurements are recorded in feet.
U/R MSC = Used Aquifer/Residential Medium-Specific Concentration
<# = Less than laboratory reporting limit of #
MTBE = Methyl tert-butyl ether
TMB = Trimethylbenzene
NA = Not available
DRY = Insufficient water for sampling

Soil boring points were constructed of one-inch PVC entirely screened with varying lengths from 3.75 to 5-feet bgs.

Table 5

SOIL GAS DATA SUMMARY

United Refining Company
Kwik Fill Station #M-061
227 East Main Street
Bradford, PA

Location	Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	MTBE	Isopropyl-benzene	Naphthalene	1,2,4-TMB	1,3,5-TMB
PADEP Residential MSC $_{SG}$		**0.27**	**56**	**1.9**	**14**	**8.1**	**54**	**0.42**	**0.83**	**0.83**
PADEP Non-Residential MSC $_{SG}$		**1.1**	**120**	**7.3**	**30**	**31**	**110**	**0.88**	**1.7**	**1.7**
VP-1	11/06/13	<0.0032	0.0264	<0.0044	<0.0132	<0.0037	<0.005	<0.0053	<0.005	<0.005
	01/09/14	<0.0029	<0.0226	<0.0039	<0.0118	<0.0032	<0.0044	<0.0047	<0.0044	<0.0044
VP-2	11/06/13	**23.5**	<1.2	<1.4	<4.1	<1.1	<1.5	***<1.6***	***<1.5***	***<1.5***
VP-3	11/06/13	<0.11 D3	<0.13	<0.15	<0.45	<0.12	<0.17	<0.18	<0.17	<0.17
	11/06/13 Dup	<0.11 D3	<0.13	<0.15	<0.45	<0.12	<0.17	<0.18	<0.17	<0.17
	01/09/14	<0.01	<0.012	<0.014	<0.041	<0.011	<0.015	<0.017	<0.015	<0.015
	01/09/14 Dup	<0.01	<0.012	<0.014	<0.041	<0.011	<0.015	<0.017	<0.015	<0.015
VP-4	11/06/13	<0.059 D3	<0.07	<0.081	<0.241	<0.067	<0.091	<0.097	<0.091	<0.091
	01/09/14	<0.22 D3	<0.26	<0.3	<0.91	<0.25	<0.34	<0.37 1M	<0.34	<0.34

NOTES

MSC_{SG}	Soil Gas Medium-Specific Concentration (Soil vapor transfer [attenuation] factor of 0.01 applied to MSC_{IAQ} screening criteria per PADEP 2004 soil vapor technical guidance to calculate the MSC_{SG}).
MTBE	methyl tert-butyl ether
TMB	trimethylbenzene
PADEP	Pennsylvania Department of Environmental Protection
VP	Soil gas sample location
Dup	Duplicate sample from specified location
D3	Sample diluted due to the presence of high levels of non-target anaytes or other matrix interference.
1M	This analyte did not meed the secondary source verification criteria for the initial calibration, with 52% recovery for naphthalene (accptance criteria is 60-140%).
<0.005	Reporting limit exceedance (reporting limit > PADEP MSC_{SG} screening criteria)
0.010	Detected concentration exceeds PADEP MSC_{SG} screening criteria

All values reported in milligrams per cubic meter (mg/m^3).
Source for screening criteria is Commonwealth of Pennsylvania, Department of Environmental Protection, Land Recycling Program Technical Guidance Manual-Section IV.A.4, Vapor Intrusion into Buildings from Groundwater and Soil under the Act 2 Statewide Health Standard, 2004.

APPENDIX A

Injection Well Construction Diagrams

INJECTION POINT

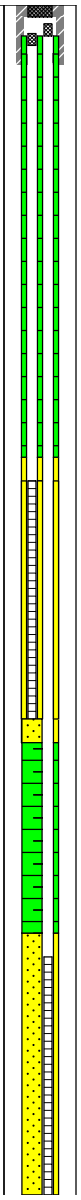
ID NO. **IP-1S/D**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**52-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-22-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	--	AK	AK	Asphalt: ASPHALT with GRAVEL subbase, BLACK.	ASPHALT		Flush-mounted roadbox
	1-2	--	AK	AK		FILL		
	2-3	--	AK	AK	FILL: GRAVEL, some COBBLES (rounded), some SAND (f-m), BROWN, MOIST.			
	3-4	--	AK	AK				
	4-5	--	AK	AK				
-5	5-6	--	AK	AK	FILL: S.A.A., large chunks of CONCRETE.			Grout seal (1 - 9.5-ft. bgs)
	6-7	--	AK	AK				
	7-8	--	AK	AK	FILL: GRAVEL, some COBBLES (rounded), some SAND (f-m), BROWN to light GRAY, MOIST.			1-inch dia. SCH 40 PVC riser (0 - 10-ft. bgs, 0 - 20-ft. bgs)
-10							Auger	
								Sand pack (9.5 - 15.5-ft. bgs)
-15	16-18	64.9	6,6 7,7	24"	CL: CLAY, some SILT, trace GRAVEL (sandstone), BROWN, MOIST.	CL		2-inch dia. stainless steel screen (10 - 15-ft. bgs, 20 - 25-ft. bgs)
	18-20	6.1	1,2 7,9	19"	CL: CLAY, trace SILT, trace SAND, BROWN, MOIST.			Bentonite seal (15.5 - 19.5-ft. bgs)
-20	20-22	4.7	2,6 8,12	13"	CL: CLAY, trace SILT, trace GRAVEL (sandstone), BROWN, MOIST.			
	22-24	--	3,6 9,9	2"				Sand pack (19.5 - 27.0-ft. bgs)
	24-26	9.0	2,5 6,6	16"				
-25								



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

IP-1S/D

INJECTION POINT

ID NO. **IP-1S/D**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**52-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-22-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-25								
-30	30-32	--	2,6 9,9	--			Auger	Bentonite seal (27.0 - 52.0-ft. bgs)
-35	35-37	14.3	4,7 11,11	20"	CL: CLAY, trace GRAVEL (sandstone), BROWN-RED, MOIST.	CL		
	37-39	7.5	1,4 7,11	24"	CL: CLAY, some to trace SILT, trace GRAVEL (sandstone), BROWN-RED, MOIST.			
	39-41	3.1	4,9 10,13	17"	CL: CLAY, trace SILT, trace GRAVEL (sandstone), BROWN-RED, MOIST.			
-40	41-43	1.8	3,6 10,15	23"	CL: CLAY, some to trace GRAVEL (sandstone), trace SILT, BROWN-RED, MOIST.		Auger	
	44-46	1.4	3,4 8,10	20"		CL		
-45	46-48	0.5	3,5 9,12	24"	CL: CLAY, some to trace GRAVEL (sandstone), trace SILT, BROWN-RED, MOIST.			
	48-50	0.5	2,7, 11,17	12"				
-50								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

IP-1S/D

INJECTION POINT

ID NO. **IP-1S/D**

Groundwater and Environmental Services, Inc.

PROJECT:	**Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH: **52-ft**
ADDRESS:	**227 East Main Street**	WATER DEPTH:	CASING EL.: **NA**
JOB NO.	**0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.: **2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-22-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-50	50-52	--	--	20"	CL: CLAY, trace GRAVEL (sandstone), dark BROWN-RED, MOIST.			
					Boring complete to 52.0-ft. bgs.			
-55								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

IP-1S/D

INJECTION POINT

ID NO. **IP-2**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**52-ft**
ADDRESS: **227 Eas Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**227 East Main Street**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	AK	--	AK	AK	Asphalt: ASPHALT with GRAVEL subbase, BLACK.	ASPHALT		Flush-mounted roadbox
		--	AK	AK	FILL: GRAVEL, some COBBLES (rounded), some SAND (f-m), BROWN, MOIST, concrete chunks.	FILL		
		--	AK	AK				
		--	AK	AK				
		--	AK	AK				
-5	HSA							Grout seal (1 - 20.0-ft. bgs)
-10	HSA							
-15	HSA						Auger	
-20	HSA							1-inch dia. SCH 40 PVC riser (0 - 32.0-ft. bgs)
-25								Sand pack (20.0 - 38.0-ft. bgs)

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface

HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained

SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

IP-2

INJECTION POINT

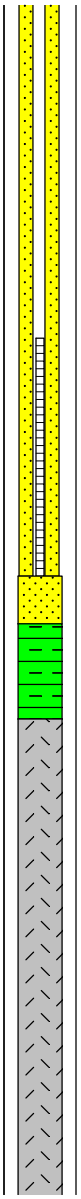
ID NO. **IP-2**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**52-ft**
ADDRESS: **227 Eas Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**227 East Main Street**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-25	HSA							
-30	30-32	0.6	3,14 12,20	18	CL: CLAY, trace SILT, trace GRAVEL (sandstone), BROWN, MOIST.	**CL**		
	32-34	0.8	3,8 10,15	22				
	34-36	0.9	4,13 50,15	16	CL: CLAY, some SILT, trace SAND, trace GRAVEL (sandstone), BROWN, MOIST, wet at 35-ft bgs.			2-inch dia. stainless steel screen (32.0 - 37.0-ft. bgs)
-35	36-38	1.7	2,11 10, 13	22				
	38-40	0.9	2,11 10,11	10	CL: CLAY, trace SILT, trace GRAVEL (sandstone), BROWN, MOIST.			Bentonite seal (38.0 - 4.00-ft. bgs)
-40	40-42	1.6	6,10 10,15	17				
	42-44	1.3	2,6 11,16	23				Boring collapsed (40.0 - 50.0-ft. bgs)
	44-46	0.9	9,6 6,12	23				
-45		0.7	9,17 17,18	23	CL: CLAY, some GRAVEL (sandstone), trace SILT, BROWN, MOIST.			
		1.1	2,4 5,6	23	CL: CLAY, trace SAND, trace GRAVEL (sandstone), BROWN,			
-50								



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

INJECTION POINT

ID NO. **IP-2**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**52-ft**
ADDRESS: **227 Eas Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**227 East Main Street**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-50		1.2	3,13 10,17	23	MOIST.			
-55					Boring complete to 52.0-ft. bgs.			

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

INJECTION POINT

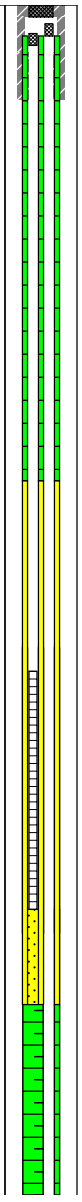
ID NO. **IP-3S/D**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**42.0-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-23-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-5	--	AK	AK	Topsoil: Top soil.	**Top soil**		Flush-mounted roadbox
		--	AK	AK	CL: CLAY, trace SILT, trace GRAVEL (rounded sandstone), BROWN, MOIST.	**CL**		
		--	AK	AK				
		--	AK	AK				
		--	AK	AK				Bentonite seal (2.0 - 10.0-ft. bgs)
-5	6-8							
	8-10	1.5	7,10 11,13	24				1-inch dia. SCH 40 PVC riser (0 - 14.0-ft. bgs, 0 - 30.0-ft. bgs)
-10	10-12	2.3	9,10 11,13	24				
	12-14	3.9	1,4 7,10	12	CL: CLAY(stiff), trace SILT, trace to some GRAVEL (sandstone), BROWN-RED, MOIST.	**CL**		Sand pack (10.0 - 21.0-ft. bgs)
	14-16	8.9	4,7 8,8	24				
-15	16-18	4.0	3,5 8,9	24				2-inch dia. stainless steel screen (14.0 - 19.0-ft. bgs, 30.0 - 35.0-ft. bgs)
	18-20	0.9	5,6 8,9	24				Bentonite seal (21.0 - 25.0-ft. bgs)
-20	20-30	3.3	1,2 6,6	24				Sand pack (25.0 - 37.0-ft. bgs)
-25							Auger	



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface

HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained

SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

INJECTION POINT

ID NO. **IP-3S/D**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**42.0-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-23-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-25								
-30	30-32	0.9			CL: CLAY (stiff), trace SILT, trace to some GRAVEL (sandstone), BROWN-RED, MOIST.	CL		Bentonite seal (37.0 - 39.5-ft. bgs)
	32-34	3.3	5,9 8,8	24	CL: CLAY (stiff), some to trace SAND (f-m), trace GRAVEL (sandstone), BROWN-RED, MOIST TO WET at 33-ft bgs.			
	34-36	1.2	2,4 7,10	23				
-35					CL: CLAY (stiff), trace GRAVEL (sandstone), BROWN-RED, MOIST.			
	36-38	0.9	3,4 5,7	23				
	38-40	0.6	2.4 9.15	23				
-40	40-42	0.8	1,3 5,8	23				Boring collapsed (39.5 - 42.0-ft. bgs)
			1,1 3,5		Boring complete to 42.0-ft. bgs.			
-45								

Location:
- Northing/Latitude: **NA**
- Easting/Longitude: **NA**
- Horizontal Datum: **NA**
- Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:
- Static Water Level
- Lab Sample Location
- Apparent Water Level

IP-3S/D

INJECTION POINT

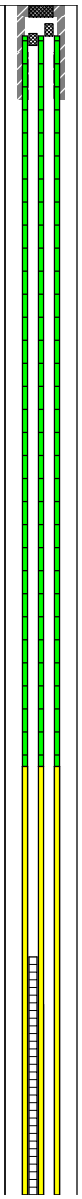
ID NO. **IP-4S/D**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**46-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-24-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	--	AK	AK	Topsoil: Top soil.	**TOPSOIL**		Flush-mounted roadbox
	1-2	293.4	AK	AK	FILL: FILL, CLAY, some SILT, root fragments, GRAY, strong hydrocarbon odor, MOIST.	**FILL**		
	2-3	134.3	AK	AK				
	3-4	211.0	AK	AK				
	4-5	38.3	AK	AK				
-5							Auger	Bentonite seal (2.0-16.0-ft. bgs)
								1-inch dia. SCH 40 PVC riser (0.0 - 20.0-ft. bgs, 0.0 - 38.0-ft. bgs)
	8-10	6.8	2,4 8,7	16	CL: CLAY (stiff), trace GRAVEL (sandstone), BROWN, MOIST.	**CL**		
-10	10-12	5.5	4,5 5,8	19	CL: CLAY (stiff), some to trace GRAVEL) (sandstone), BROWN, MOIST.			
	12-14	4.3	2,3 5,6	5				
	14-16	7.8	3,7 7,12	15				
-15	16-18	0.9	5,7 11,15	23				
	18-20	4.1	3,8 12,12	22				
-20	20-22	4.4	7,7 10,4	28				2-inch dia. stainless steel screen (20.0 - 25.0-ft. bgs, 38.0 - 43.0-ft. bgs)
	22-24	0.9	50/4	4				
								Sand pack (16.0 - 27.0-ft. bgs)
	24-26	1.1	2,6 9,14	22				
-25								



Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface

HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained

SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

IP-4S/D

INJECTION POINT

ID NO. **IP-4S/D**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**46-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-24-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-25	26-28	1.5	1,5 7,9	23	CL: CLAY (stiff), trace GRAVEL (sandstone), BROWN-RED, MOIST.			
	28-30	0.6		23	CL: CLAY (stiff), trace silt, trace GRAVEL (sandstone), BROWN-RED, MOIST.			Bentonite seal (27.0 - 33.0-ft. bgs)
-30	30-32	0.8	4,5 9,12					
	32-34	0.5	1,7 11,15	23				
	34-36	0.9	2,5 17,14	23	CL: CLAY (stiff), trace SILT, BROWN-RED, MOIST.			
-35	36-38	1.1	2,5 8,8	23				
	38-40	0.8	3,4 7,9	20				
-40	40-42	0.7	1,3 4,4	21				Sand pack (33.0 - 44.0-ft. bgs)
	42-44	0.6	2,8 12,15	23				
	44-46	0.9	1,3 5,9	22	CL: CLAY (stiff), some SAND, trace SILT, BROWN-RED, MOIST.			
-45					Boring complete to 46.0-ft. bgs.			
-50								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

IP-4S/D

INJECTION POINT

ID NO. **IP-5**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**46-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-23-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
0	0-1	--	AK	AK	Topsoil: Top Soil	**Topsoil**		Flush-mounted roadbox
	1-2	0	AK	AK	CL: CLAY, some GRAVEL (sandstone),trace SILT, BROWN, MOIST.	**CC**		
	2-3	0	AK	AK				
	3-4	0	AK	AK				
	4-4.75	0	AK	AK				
-5								Bentonite seal (1 - 35.0-ft. bgs)
	8-10	1.4	5,9 12,13	16	CL: CLAY (stiff), trace to some GRAVEL (sandstone), trace SILT, BROWN, MOIST.	**CL**		
-10	10-12	3.9	1,7 8,11	18				
	12-14	2.4	5,8 10,10	15				
	14-16	16.8	2,7 8,12	23	CL: CLAY (stiff), trace SILT, trace GRAVEL (sandstone), BROWN-RED, MOIST.			
-15	16-18							
	18-20						Auger	
-20	20-22							1-inch dia. SCH 40 PVC riser (0 - 38.0-ft. bgs)
	22-24							
	24-26							
-25								

Location:

Northing/Latitude: **NA**

Easting/Longitude: **NA**

Horizontal Datum: **NA**

Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface

HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained

SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:

Static Water Level

Lab Sample Location

Apparent Water Level

INJECTION POINT

ID NO. **IP-5**

Groundwater and Environmental Services, Inc.

PROJECT: **Kwik Fill #M-061 Bradford**	SURFACE ELEV.: **NA**	TOTAL DEPTH:	**46-ft**
ADDRESS: **227 East Main Street**	WATER DEPTH:	CASING EL.:	**NA**
JOB NO. **0704231**	BOREHOLE DIA.: **4.25-inch**	WELL DIA.:	**2-inch**

Logged By:	**JMP**	Drilling Method:	**Hollow Stem Auger**
Dates Drilled:	**7-23-15**	Sampling Method:	**Split-spoon**
Drilling Company:	**HAD Inc.**	Soil Class. System:	**USCS**
Drill Rig Type:	**CME LC-60**	Field Screening:	**PID 10.6 eV Lamp (ppm)**

Depth (feet)	Sample Interval	Field Screen	Blow Counts	Rec-overy	SAMPLE LITHOLOGY	Stratigraphy	Comments	COMPLETION DETAILS
-25	26-28	1.3	2,7 7,10	23	CL: CLAY (stiff), trace SILT, trace GRAVEL (sandstone), BROWN-RED, MOIST.	**CL**		
	28-30	0.7	2,6 6,8	23				
-30	30-32	2.4	1,3 4,7	23				
	32-34	0.7	2,3 5,8	24	CL: CLAY (stiff), BROWN-RED, MOIST.			
	34-36	0.8	3,5 6,8	24				
-35	36-38	0.9	2,4 6,10	24	CL: CLAY (stiff), RED-GRAY, MOIST.			Sand pack (35.0 - 43.5-ft. bgs)
	38-40	1.1	1,1 5,6	22	SM: SAND (f-m), some SILT, GRAY, SATURATED.	**SM**		2-inch dia. stainless steel screen (38 - 43-ft. bgs)
-40	40-42	1.4	1,1 4,7	23				
	42-44	1.2	9,13 22,22	21				
	44-46	0.8	6,18 10,13	16	GP: GRAVEL (sandstone), some SAND (f-m), GRAY, SATURATED.	**GP**	Boring heaved to 43.5-ft. bgs	
-45					Boring complete to 46.0-ft. bgs			
-50								

Location:
- Northing/Latitude: **NA**
- Easting/Longitude: **NA**
- Horizontal Datum: **NA**
- Vertical Datum: **NA**

General Comments:

Complete with concrete pad and locking cap, bgs=below ground surface
HA=Hand Auger, HSA=Hollow Stem Auger, (f-m)=fine to medium grained
SAA=Same as above, wt=weight of hammer, AK=air knife

Symbol Key:
- Static Water Level
- Lab Sample Location
- Apparent Water Level

APPENDIX B

Remedial Feasibility Study Data

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:00:00	10:19:39	0.00	0.00	58.60	18.00	
0:00:02	10:19:41	0.00	0.00	58.30	8.16	
0:00:32	10:20:11	0.00	0.00	58.50	8.16	
0:01:02	10:20:41	0.00	0.00	58.40	19.02	
0:01:32	10:21:11	0.00	0.00	58.40	19.02	
0:02:02	10:21:41	0.00	0.00	58.40	19.02	
0:02:32	10:22:11	0.00	0.00	58.30	6.58	
0:03:02	10:22:41	0.00	0.00	58.60	6.58	
0:03:32	10:23:11	0.00	0.00	58.40	6.58	
0:04:02	10:23:41	0.00	0.00	58.60	6.38	START PUMP TEST
0:04:32	10:24:11	0.00	0.00	58.40	10.05	
0:05:02	10:24:41	0.00	0.00	58.00	15.86	
0:05:32	10:25:11	0.00	0.00	58.20	-125.04	
0:06:02	10:25:41	0.00	0.00	58.20	-172.53	
0:06:32	10:26:11	0.00	0.00	58.10	-172.53	
0:07:02	10:26:41	0.00	0.00	58.60	-172.53	
0:07:32	10:27:11	0.00	0.00	58.50	-172.53	
0:08:03	10:27:42	0.00	0.00	58.60	-172.53	
0:08:32	10:28:11	0.00	0.00	58.60	-9.84	
0:09:02	10:28:41	0.00	0.00	58.60	-38.88	
0:09:32	10:29:11	0.00	0.00	58.60	-38.88	
0:10:02	10:29:41	0.00	0.00	58.60	-38.88	
0:10:37	10:30:16	0.00	0.00	58.60	-38.88	
0:11:07	10:30:46	0.00	0.00	58.50	86.90	
0:11:37	10:31:16	0.00	0.00	58.60	86.90	
0:12:07	10:31:46	0.00	0.00	58.40	86.90	
0:12:37	10:32:16	0.00	0.00	58.60	-25.38	
0:13:07	10:32:46	0.00	0.00	58.60	-25.38	
0:13:37	10:33:16	0.00	0.00	58.80	-31.44	
0:14:07	10:33:46	0.00	0.00	58.60	-31.44	
0:14:37	10:34:16	0.00	0.00	58.50	-19.27	
0:15:07	10:34:46	0.00	0.00	58.60	-19.27	
0:15:37	10:35:16	0.00	0.00	58.80	-19.27	
0:16:07	10:35:46	0.00	0.00	58.60	-19.27	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:16:37	10:36:16	0.00	0.00	58.30	-19.27	
0:17:07	10:36:46	0.00	0.00	58.50	-19.27	
0:17:37	10:37:16	0.00	0.00	58.70	-19.27	
0:18:07	10:37:46	0.00	0.00	58.30	-10.64	
0:18:37	10:38:16	0.00	0.00	58.70	-10.64	
0:19:07	10:38:46	0.00	0.00	58.80	-10.64	
0:19:37	10:39:16	0.00	0.00	58.80	-10.64	
0:20:07	10:39:46	0.00	0.00	58.40	-5.12	
0:20:37	10:40:16	0.00	0.00	58.80	-5.12	
0:21:07	10:40:46	0.00	0.00	58.80	-2.84	
0:21:37	10:41:16	0.00	0.00	58.70	-2.84	
0:22:07	10:41:46	0.00	0.00	58.70	-2.84	
0:22:37	10:42:16	0.00	0.00	58.80	-2.84	
0:23:07	10:42:46	0.00	0.00	58.60	-2.84	
0:23:37	10:43:16	0.00	0.00	58.80	1.53	
0:24:07	10:43:46	0.00	0.00	58.70	1.50	
0:24:37	10:44:16	0.00	0.00	58.50	1.46	
0:25:07	10:44:46	0.00	0.00	58.60	1.46	
0:25:37	10:45:16	0.00	0.00	58.80	1.46	
0:26:07	10:45:46	0.00	0.00	58.80	1.43	
0:26:37	10:46:16	0.00	0.00	58.40	1.43	
0:27:07	10:46:46	0.00	0.00	58.80	1.43	
0:27:37	10:47:16	0.00	0.00	58.80	1.43	
0:28:07	10:47:46	0.00	0.00	58.00	2.10	
0:28:37	10:48:16	0.00	0.00	58.80	2.05	
0:29:12	10:48:51	0.00	0.00	58.90	0.87	
0:29:37	10:49:16	0.00	0.00	58.70	-0.41	
0:30:07	10:49:46	0.00	0.00	58.80	-95.61	
0:30:37	10:50:16	0.00	0.00	59.10	-95.61	
0:31:07	10:50:46	0.00	0.00	58.80	-95.61	
0:31:52	10:51:31	0.00	0.00	58.90	-95.61	
0:32:22	10:52:01	0.00	0.00	58.80	-95.61	
0:32:52	10:52:31	0.00	0.00	58.90	-95.61	
0:33:22	10:53:01	0.00	0.00	58.60	-95.61	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:33:52	10:53:31	0.00	0.00	58.80	-12.72	
0:34:22	10:54:01	0.00	0.00	59.10	-12.72	
0:34:52	10:54:31	0.00	0.00	58.70	-12.72	
0:35:22	10:55:01	0.00	0.00	58.90	-12.72	
0:35:52	10:55:31	0.00	0.00	58.90	-12.72	
0:36:22	10:56:01	0.00	0.00	58.40	-12.72	
0:36:52	10:56:31	0.00	0.00	58.90	-12.72	
0:37:22	10:57:01	0.00	0.00	58.80	-12.72	
0:37:52	10:57:31	0.00	0.00	58.80	-31.35	
0:38:22	10:58:01	0.00	0.00	58.90	-9.70	
0:38:52	10:58:31	0.00	0.00	58.90	-9.70	
0:39:22	10:59:01	0.00	0.00	58.90	-9.70	
0:39:52	10:59:31	0.00	0.00	58.60	-5.07	
0:40:22	11:00:01	0.00	0.00	58.90	-5.07	
0:40:52	11:00:31	0.00	0.00	59.00	-5.07	
0:41:22	11:01:01	0.00	0.00	58.90	-5.07	
0:41:52	11:01:31	0.00	0.00	58.90	-5.07	
0:42:22	11:02:01	0.00	0.00	58.90	5.11	
0:42:52	11:02:31	0.00	0.00	58.80	4.73	
0:43:22	11:03:01	0.00	0.00	58.90	4.46	
0:43:52	11:03:31	0.00	0.00	58.60	-31.35	
0:44:22	11:04:01	0.00	0.00	59.10	6.74	
0:44:52	11:04:31	0.00	0.00	59.00	5.79	
0:45:22	11:05:01	0.00	0.00	58.90	5.58	
0:45:52	11:05:31	0.00	0.00	58.90	5.40	
0:46:22	11:06:01	0.00	0.00	58.90	5.40	
0:46:52	11:06:31	0.00	0.00	59.00	5.25	
0:47:22	11:07:01	0.00	0.00	59.10	5.25	
0:47:52	11:07:31	0.00	0.00	58.90	5.25	
0:48:22	11:08:01	0.00	0.00	58.90	5.45	
0:48:52	11:08:31	0.00	0.00	59.00	5.45	
0:49:22	11:09:01	0.00	0.00	58.70	5.68	
0:49:52	11:09:31	0.00	0.00	59.00	5.68	
0:50:22	11:10:01	0.00	0.00	58.90	5.68	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:50:52	11:10:31	0.00	0.00	59.10	5.46	
0:51:22	11:11:01	0.00	0.00	59.10	5.29	
0:51:52	11:11:31	0.00	0.00	59.00	5.29	
0:52:22	11:12:01	0.00	0.00	59.50	5.13	
0:52:52	11:12:31	0.00	0.00	59.10	5.11	
0:53:22	11:13:01	0.00	0.00	58.90	5.11	
0:53:52	11:13:31	0.00	0.00	59.00	5.11	
0:54:22	11:14:01	0.00	0.00	59.10	4.97	
0:54:52	11:14:31	0.00	0.00	59.10	4.97	
0:55:22	11:15:01	0.00	0.00	58.80	5.02	
0:55:52	11:15:31	0.00	0.00	59.00	4.73	
0:56:22	11:16:01	0.00	0.00	59.10	4.73	
0:56:52	11:16:31	0.00	0.00	59.10	4.61	
0:57:22	11:17:01	0.00	0.00	58.80	4.45	
0:57:52	11:17:31	0.00	0.00	59.10	4.45	
0:58:22	11:18:01	0.00	0.00	59.10	-31.35	
0:58:52	11:18:31	0.00	0.00	59.10	-31.35	
0:59:22	11:19:01	0.00	0.00	59.10	-15.25	
0:59:52	11:19:31	0.00	0.00	59.10	-15.25	
1:00:22	11:20:01	0.00	0.00	59.10	-15.25	
1:00:52	11:20:31	0.00	0.00	59.10	-15.25	
1:01:22	11:21:01	0.00	0.00	59.00	-15.25	
1:01:52	11:21:31	0.00	0.00	59.10	-15.25	
1:02:22	11:22:01	0.00	0.00	58.70	-15.25	
1:02:52	11:22:31	0.00	0.00	59.10	-15.25	
1:03:22	11:23:01	0.00	0.00	58.90	-15.25	
1:03:52	11:23:31	0.00	0.00	59.00	-6.16	
1:04:22	11:24:01	0.00	0.00	59.10	-3.29	
1:04:52	11:24:31	0.00	0.00	59.20	-3.29	
1:05:22	11:25:01	0.00	0.00	59.30	-3.29	
1:05:52	11:25:31	0.00	0.00	59.40	-3.29	
1:06:22	11:26:01	0.00	0.00	59.30	-3.29	
1:06:52	11:26:31	0.00	0.00	59.40	-3.29	
1:07:22	11:27:01	0.00	0.00	59.10	-3.29	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:07:52	11:27:31	0.00	0.00	59.20	-1.00	
1:08:24	11:28:03	0.00	0.00	59.10	-1.00	
1:08:55	11:28:34	0.00	0.00	59.10	-1.00	
1:09:25	11:29:04	0.00	0.00	59.20	-1.00	
1:09:58	11:29:37	0.00	0.00	59.40	-1.00	
1:10:28	11:30:07	0.00	0.00	59.30	-1.00	
1:10:58	11:30:37	0.00	0.00	59.40	-1.00	
1:11:28	11:31:07	0.00	0.00	59.40	-1.00	
1:11:58	11:31:37	0.00	0.00	59.40	-1.00	
1:12:28	11:32:07	0.00	0.00	59.40	-1.00	
1:12:58	11:32:37	0.00	0.00	59.40	-1.00	
1:13:28	11:33:07	0.00	0.00	59.40	-1.00	
1:13:58	11:33:37	0.00	0.00	59.40	-1.00	
1:14:28	11:34:07	0.00	0.00	59.40	-1.00	
1:14:58	11:34:37	0.00	0.00	59.50	-1.00	
1:15:28	11:35:07	0.00	0.00	59.80	-1.00	
1:15:58	11:35:37	0.00	0.00	59.40	-1.00	
1:16:28	11:36:07	0.00	0.00	59.40	-1.00	
1:16:58	11:36:37	0.00	0.00	59.40	-0.42	
1:17:28	11:37:07	0.00	0.00	59.40	-0.42	
1:17:58	11:37:37	0.00	0.00	59.10	-0.07	
1:18:28	11:38:07	0.00	0.00	59.40	0.30	
1:18:58	11:38:37	0.00	0.00	59.10	0.30	
1:19:28	11:39:07	0.00	0.00	59.60	0.30	
1:19:58	11:39:37	0.00	0.00	59.30	0.30	
1:20:28	11:40:07	0.00	0.00	59.50	0.58	
1:20:58	11:40:37	0.00	0.00	59.70	0.81	
1:21:28	11:41:07	0.00	0.00	59.50	0.81	
1:21:58	11:41:37	0.00	0.00	59.50	0.99	
1:22:28	11:42:07	0.00	0.00	59.70	0.99	
1:22:58	11:42:37	0.00	0.00	59.70	0.99	
1:23:29	11:43:07	0.00	0.00	59.70	0.99	
1:23:58	11:43:37	0.00	0.00	59.70	0.99	
1:24:28	11:44:07	0.00	0.00	59.70	0.99	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments Click to add a comment
		IN HG	SCFM	DEG F	Feet	
1:24:58	11:44:37	0.00	0.00	59.50	0.99	
1:25:28	11:45:07	0.00	0.00	59.40	0.99	
1:25:58	11:45:37	0.00	0.00	59.70	0.99	
1:26:28	11:46:07	0.00	0.00	59.80	0.99	
1:26:58	11:46:37	0.00	0.00	59.80	0.99	
1:27:28	11:47:07	0.00	0.00	59.50	0.99	
1:27:59	11:47:38	0.00	0.00	59.70	0.99	
1:28:28	11:48:07	0.00	0.00	59.30	0.99	
1:28:58	11:48:37	0.00	0.00	59.80	0.99	
1:29:29	11:49:08	0.00	0.00	59.80	0.99	
1:29:59	11:49:38	0.00	0.00	60.00	0.99	
1:30:29	11:50:08	0.00	0.00	59.90	0.99	
1:30:59	11:50:38	0.00	0.00	59.60	0.99	
1:31:29	11:51:08	0.00	0.00	59.70	0.99	
1:31:59	11:51:38	0.00	0.00	60.00	1.15	
1:32:29	11:52:08	0.00	0.00	59.90	1.15	
1:32:59	11:52:38	0.00	0.00	59.90	1.15	
1:33:29	11:53:08	0.00	0.00	59.90	1.15	
1:33:59	11:53:38	0.00	0.00	59.70	1.28	
1:34:29	11:54:08	0.00	0.00	60.00	1.35	
1:34:59	11:54:38	0.00	0.00	59.80	1.47	
1:35:29	11:55:08	0.00	0.00	59.70	1.47	
1:36:02	11:55:40	0.00	0.00	60.00	1.47	
1:36:29	11:56:08	0.00	0.00	60.00	1.47	
1:36:59	11:56:38	0.00	0.00	60.00	1.47	
1:37:29	11:57:08	0.00	0.00	60.00	1.47	
1:37:59	11:57:38	-0.35	2.00	60.00	1.47	VEGE test - max vac 808 blower
1:38:31	11:58:10	-4.38	87.20	71.70	1.47	
1:38:59	11:58:38	-7.02	88.20	88.40	1.47	
1:39:29	11:59:08	-3.50	60.10	97.80	1.47	
1:39:59	11:59:38	-3.48	60.90	102.20	1.47	
1:40:29	12:00:08	-3.48	62.00	107.00	20.76	MAX VAC 808 @ 80"wc
1:40:59	12:00:38	-3.47	60.70	111.70	9.12	
1:41:29	12:01:08	-3.41	60.70	115.60	9.17	VEGE TEST STEP 1 @ 40"WC

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:41:59	12:01:38	-3.36	57.10	117.80	9.17	
1:42:29	12:02:08	-3.29	60.30	122.20	6.56	
1:42:59	12:02:38	-3.33	56.90	125.60	7.36	
1:43:29	12:03:08	-3.34	60.10	128.30	7.36	
1:44:00	12:03:39	-3.28	59.00	130.60	7.36	
1:44:30	12:04:09	-3.27	57.70	133.00	6.13	
1:45:00	12:04:39	-3.31	58.30	135.60	6.72	
1:45:30	12:05:09	-3.26	58.60	137.60	7.67	
1:46:00	12:05:39	-3.31	58.20	139.50	7.67	
1:46:30	12:06:09	-3.28	60.20	141.40	7.67	
1:47:00	12:06:39	-3.27	58.20	143.20	7.67	
1:47:30	12:07:09	-3.90	35.00	144.90	11.14	
1:48:00	12:07:39	-4.06	28.00	146.80	-5.16	
1:48:30	12:08:09	-4.03	28.80	149.00	-5.16	
1:49:00	12:08:39	-4.05	28.70	150.80	-5.16	
1:49:30	12:09:09	-4.05	29.30	152.40	181.11	
1:50:01	12:09:40	-3.97	28.00	153.70	181.11	
1:50:30	12:10:09	-3.95	28.00	155.00	4.73	
1:51:04	12:10:42	-3.88	27.40	156.40	5.11	
1:51:30	12:11:09	-3.91	28.50	157.30	5.11	
1:52:00	12:11:39	-3.97	28.70	158.30	-6.11	
1:52:30	12:12:09	-3.90	27.40	159.40	-6.11	
1:53:00	12:12:39	-3.93	27.50	160.50	-2.05	
1:53:32	12:13:11	-3.88	28.10	161.40	-0.52	
1:54:00	12:13:39	-3.91	28.80	162.40	0.80	
1:54:30	12:14:09	-3.91	28.00	163.10	1.15	
1:55:00	12:14:39	-3.94	27.40	164.00	1.15	
1:55:30	12:15:09	-3.89	28.10	164.80	1.74	
1:56:00	12:15:39	-3.95	29.60	165.40	1.74	
1:56:30	12:16:09	-3.95	28.70	166.30	2.01	
1:57:00	12:16:39	-3.86	27.50	166.90	2.11	
1:57:30	12:17:09	-3.83	28.10	167.60	2.11	
1:58:00	12:17:39	-3.97	28.80	168.20	2.11	
1:58:30	12:18:09	-3.83	27.30	168.80	2.11	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:59:00	12:18:39	-3.81	27.40	169.40	2.19	
1:59:30	12:19:09	-3.83	27.40	170.10	2.33	
2:00:01	12:19:39	-3.90	28.80	170.80	2.44	
2:00:31	12:20:09	-3.91	28.50	171.60	2.44	
2:01:01	12:20:39	-3.86	27.20	172.20	2.57	
2:01:31	12:21:09	-3.93	28.50	172.80	2.60	
2:02:01	12:21:39	-3.98	28.80	173.60	2.63	
2:02:35	12:22:14	-3.85	27.30	174.20	2.72	
2:03:01	12:22:40	-3.86	27.40	174.60	-2.92	
2:03:31	12:23:09	-3.83	27.80	175.00	-2.92	
2:04:01	12:23:39	-3.83	26.20	175.30	-2.92	
2:04:31	12:24:10	-3.84	27.50	175.60	0.58	
2:05:01	12:24:40	-3.78	26.80	176.10	1.45	
2:05:31	12:25:10	-3.75	29.10	176.30	1.97	
2:06:01	12:25:40	-3.86	29.00	176.70	2.24	
2:06:31	12:26:10	-3.84	28.10	177.00	2.44	
2:07:01	12:26:40	-3.80	28.00	177.30	2.44	
2:07:31	12:27:10	-3.73	26.70	177.60	2.44	
2:08:01	12:27:40	-3.80	27.70	178.10	-2.92	
2:08:31	12:28:10	-3.83	27.10	178.30	-2.92	
2:09:01	12:28:40	-3.79	28.90	178.50	-2.92	
2:09:31	12:29:10	-3.80	27.30	178.90	-2.92	
2:10:01	12:29:40	-3.83	27.20	179.20	-2.92	
2:10:31	12:30:10	-3.75	27.90	179.60	-2.92	
2:11:01	12:30:40	-3.79	28.50	179.70	-2.92	
2:11:31	12:31:10	-3.72	27.40	180.20	-2.92	
2:12:01	12:31:40	-3.76	26.80	180.50	-2.32	
2:12:31	12:32:10	-3.82	27.80	180.80	-2.32	
2:13:01	12:32:40	-3.78	27.60	181.40	-0.81	
2:13:31	12:33:10	-3.83	28.00	181.80	-2.70	
2:14:01	12:33:40	-3.86	28.10	182.10	-7.02	
2:14:31	12:34:10	-3.83	28.30	182.60	-7.02	
2:15:01	12:34:40	-3.77	27.40	182.40	-7.02	
2:15:31	12:35:10	-3.79	27.40	183.10	-7.02	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
2:16:01	12:35:40	-3.77	28.00	183.20	-7.02	
2:16:31	12:36:10	-3.77	27.40	183.20	-7.02	
2:17:01	12:36:40	-3.80	28.20	183.40	-7.02	
2:17:31	12:37:10	-3.78	28.90	183.50	-7.02	
2:18:01	12:37:40	-3.76	28.70	183.70	-7.02	
2:18:31	12:38:10	-3.72	27.40	183.80	-7.02	
2:19:01	12:38:40	-3.72	27.80	184.00	-7.02	
2:19:31	12:39:10	-3.72	28.50	184.20	-7.02	
2:20:01	12:39:40	-3.78	27.50	184.30	-7.02	
2:20:31	12:40:10	-3.79	27.60	184.40	-7.02	
2:21:01	12:40:40	-3.72	27.90	184.60	-7.02	
2:21:31	12:41:10	-3.76	27.40	184.60	-7.02	
2:22:01	12:41:40	-3.82	28.20	184.90	-7.02	
2:22:31	12:42:10	-3.77	27.30	185.10	-7.02	
2:23:01	12:42:40	-3.71	27.30	185.10	-2.92	
2:23:31	12:43:10	-3.76	27.60	185.30	-2.92	
2:24:01	12:43:40	-3.82	28.70	185.70	-2.92	
2:24:31	12:44:10	-3.82	27.40	186.20	-2.92	
2:25:01	12:44:40	-3.86	28.10	186.30	-2.92	
2:25:31	12:45:10	-3.80	27.80	186.70	-2.92	
2:26:01	12:45:40	-3.75	29.40	187.10	-2.92	
2:26:31	12:46:10	-3.80	28.10	187.30	-2.92	
2:27:01	12:46:40	-3.75	27.50	187.40	-2.92	
2:27:31	12:47:10	-3.74	26.60	187.50	-2.92	
2:28:01	12:47:40	-3.77	27.20	187.50	-2.92	
2:28:31	12:48:10	-3.70	28.10	187.90	-2.92	
2:29:01	12:48:40	-3.78	28.30	187.60	-2.92	
2:29:31	12:49:10	-3.75	26.90	187.90	-2.92	
2:30:01	12:49:40	-3.80	27.40	187.90	-2.92	
2:30:31	12:50:10	-3.72	27.40	188.10	-2.92	
2:31:01	12:50:40	-3.74	26.80	188.20	-7.02	
2:31:31	12:51:10	-3.81	26.90	188.40	-7.02	
2:32:01	12:51:40	-3.67	26.60	188.40	-7.02	
2:32:31	12:52:10	-3.75	28.00	188.60	-7.02	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
2:33:01	12:52:40	-3.81	29.00	188.80	-7.02	
2:33:31	12:53:10	-3.81	26.90	188.70	-7.02	
2:34:01	12:53:40	-3.73	26.90	188.90	-29.13	VEGE step 2 @ 80"wc
2:34:31	12:54:10	-7.36	42.50	193.60	-29.13	
2:35:01	12:54:40	-7.25	40.00	195.00	29.02	
2:35:31	12:55:10	-7.39	47.50	197.30	18.27	
2:36:01	12:55:40	-7.45	33.30	198.70	#########	
2:36:31	12:56:10	-7.35	34.60	199.80	-24.39	
2:37:01	12:56:40	-7.25	35.70	201.50	-5.36	
2:37:31	12:57:10	-7.34	35.00	204.00	-1.00	
2:38:01	12:57:40	-7.26	34.20	206.30	12.11	
2:38:31	12:58:10	-7.27	34.90	209.50	-7.02	
2:39:01	12:58:40	-7.20	33.60	212.00	-1.75	
2:39:31	12:59:10	-7.23	34.60	214.30	-0.10	
2:40:01	12:59:40	-7.12	33.10	217.00	-0.10	
2:40:31	13:00:10	-7.01	33.80	219.00	-0.10	
2:41:01	13:00:40	-7.01	33.30	221.00	-0.10	
2:41:31	13:01:10	-7.06	34.10	222.90	-0.10	
2:42:01	13:01:40	-6.84	33.30	224.90	-0.10	
2:42:31	13:02:10	-6.91	35.70	226.70	0.73	
2:43:01	13:02:40	-6.86	33.30	227.90	1.56	
2:43:31	13:03:10	-6.78	36.90	230.40	1.80	
2:44:01	13:03:40	-6.83	34.90	233.40	1.98	
2:44:31	13:04:10	-6.73	35.70	234.70	2.13	
2:45:01	13:04:40	-6.75	35.70	236.30	2.13	
2:45:31	13:05:10	-6.79	35.10	237.50	2.13	
2:46:01	13:05:40	-6.76	38.80	239.60	2.13	
2:46:31	13:06:10	-6.82	33.70	241.30	2.26	
2:47:01	13:06:40	-6.84	34.40	242.30	2.26	
2:47:31	13:07:10	-6.78	34.50	243.90	2.77	
2:48:01	13:07:40	-6.81	34.20	245.50	3.06	
2:48:31	13:08:10	-6.76	34.30	246.80	3.68	
2:49:01	13:08:40	-6.54	37.00	248.80	4.44	
2:49:31	13:09:10	-6.60	36.80	250.10	4.53	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
2:50:01	13:09:40	-6.74	34.20	251.60	4.56	
2:50:31	13:10:10	-6.73	35.70	253.50	4.58	
2:51:01	13:10:40	-6.76	33.90	254.20	4.60	
2:51:31	13:11:10	-6.74	34.50	255.90	4.60	
2:52:01	13:11:40	-6.76	34.40	257.70	4.85	
2:52:31	13:12:10	-6.76	33.80	258.40	4.67	
2:53:01	13:12:40	-6.70	35.10	259.40	4.60	
2:53:31	13:13:10	-6.73	33.90	260.60	4.58	
2:54:01	13:13:40	-6.78	33.80	261.70	4.57	
2:54:31	13:14:10	-6.70	33.80	262.40	4.56	
2:55:01	13:14:40	-6.69	33.10	263.50	4.56	
2:55:31	13:15:10	-6.63	32.60	264.60	4.56	
2:56:01	13:15:40	-6.61	32.50	265.60	4.56	
2:56:31	13:16:10	-6.68	33.30	266.50	4.56	
2:57:01	13:16:40	-6.54	32.50	267.40	4.56	
2:57:33	13:17:12	-6.48	35.80	268.20	84.18	
2:58:02	13:17:41	-6.63	33.60	269.00	29.49	
2:58:34	13:18:13	-6.57	31.90	270.40	-7.02	
2:59:02	13:18:41	-6.64	32.80	270.90	-7.02	
2:59:32	13:19:11	-6.53	36.30	271.80	-7.02	
3:00:02	13:19:41	-6.68	33.60	272.90	-7.02	
3:00:32	13:20:11	-6.92	44.10	273.60	-7.02	
3:01:02	13:20:41	-6.57	33.20	274.60	-29.13	
3:01:32	13:21:11	-6.52	34.70	275.10	6.74	
3:02:02	13:21:41	-6.64	33.80	276.10	4.15	
3:02:32	13:22:11	-6.65	33.80	277.10	4.26	
3:03:03	13:22:42	-6.57	33.40	278.30	4.20	
3:03:32	13:23:11	-6.67	34.50	279.00	-11.21	
3:04:02	13:23:41	-6.69	33.10	280.00	-11.21	
3:04:32	13:24:11	-6.68	35.40	281.00	-11.21	
3:05:02	13:24:41	-6.63	34.40	281.70	-11.21	
3:05:32	13:25:11	-6.61	33.60	282.40	-11.21	
3:06:04	13:25:43	-6.63	33.70	282.60	0.76	
3:06:34	13:26:13	-6.52	35.70	283.40	1.66	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:07:04	13:26:43	-6.55	33.20	283.90	1.66	
3:07:34	13:27:13	-6.50	32.60	284.20	2.47	
3:08:04	13:27:43	-6.50	32.60	284.70	2.78	
3:08:34	13:28:13	-6.54	33.80	285.40	3.24	
3:09:04	13:28:43	-6.49	33.70	285.90	3.35	
3:09:34	13:29:13	-6.60	34.40	286.70	3.37	
3:10:04	13:29:43	-6.58	34.50	287.00	3.39	
3:10:34	13:30:13	-6.60	32.40	287.30	2.87	
3:11:04	13:30:43	-6.59	33.10	287.80	1.66	
3:11:34	13:31:13	-6.50	35.10	288.50	1.56	
3:12:04	13:31:43	-6.66	33.80	289.20	1.56	
3:12:34	13:32:13	-6.57	33.30	289.50	1.56	
3:13:04	13:32:43	-6.64	33.30	290.40	1.56	
3:13:34	13:33:13	-6.71	33.20	291.00	1.56	
3:14:04	13:33:43	-6.64	34.40	291.50	1.56	
3:14:34	13:34:13	-6.63	33.00	292.30	1.56	
3:15:04	13:34:43	-6.71	33.30	293.00	1.56	
3:15:34	13:35:13	-6.63	33.90	293.40	1.56	
3:16:04	13:35:43	0.00	0.00	293.90	1.56	BLOWER OFF - SWITCH TO HIGH VAC BLOWER
3:16:34	13:36:13	0.00	0.00	284.20	1.56	
3:17:04	13:36:43	0.00	0.00	272.30	1.56	
3:17:34	13:37:13	-6.21	49.50	260.50	1.56	
3:18:04	13:37:43	-9.42	42.50	198.90	1.56	VEGE TEST STEP 3 - HIGH VAC BLOWER
3:18:34	13:38:13	-9.35	42.30	170.10	1.56	
3:19:04	13:38:43	-9.17	41.80	158.60	1.80	
3:19:34	13:39:13	-9.19	43.10	153.00	1.80	
3:20:04	13:39:43	-9.14	43.30	150.50	2.25	
3:20:34	13:40:13	-9.13	43.00	148.90	2.25	
3:21:04	13:40:43	-9.06	42.40	148.30	2.25	
3:21:34	13:41:13	-9.21	42.80	147.60	2.25	
3:22:04	13:41:43	-9.27	43.10	147.10	2.25	
3:22:34	13:42:13	-9.15	44.20	146.50	2.25	
3:23:04	13:42:43	-9.19	44.40	146.40	1.64	
3:23:34	13:43:13	-9.09	43.20	146.20	1.64	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:24:09	13:43:47	-9.27	43.80	146.20	1.64	
3:24:39	13:44:17	-9.23	43.80	145.70	1.64	
3:25:09	13:44:47	-9.10	42.80	145.90	1.64	
3:25:39	13:45:17	-9.04	43.70	145.50	2.16	
3:26:09	13:45:47	-9.07	43.70	145.60	2.16	
3:26:39	13:46:18	-8.84	44.30	145.60	2.24	
3:27:09	13:46:48	-8.96	43.30	145.40	2.24	
3:27:39	13:47:18	-8.76	44.70	145.50	2.38	
3:28:09	13:47:48	-8.91	43.50	145.70	2.84	
3:28:45	13:48:24	-8.97	44.00	145.80	2.96	
3:29:15	13:48:54	-8.96	43.60	145.70	3.48	
3:29:45	13:49:24	-8.95	43.80	146.00	4.15	
3:30:15	13:49:54	-8.83	43.00	146.20	4.22	
3:30:48	13:50:27	-9.01	43.90	146.30	4.34	
3:31:15	13:50:54	-8.95	44.40	146.30	1.65	
3:31:45	13:51:24	-9.02	44.00	146.50	4.93	
3:32:15	13:51:54	-9.01	43.10	146.70	3.11	
3:32:45	13:52:24	-8.99	44.30	146.80	3.30	
3:33:15	13:52:54	-9.06	44.30	147.10	1.76	
3:33:45	13:53:24	-8.96	44.50	147.10	3.04	
3:34:15	13:53:54	-8.84	43.70	147.30	3.53	
3:34:45	13:54:24	-8.80	44.60	147.60	4.28	
3:35:16	13:54:55	-8.85	45.00	147.40	5.07	
3:35:46	13:55:25	-8.84	43.70	147.80	5.26	
3:36:16	13:55:55	-8.80	43.80	148.20	5.68	
3:36:46	13:56:25	-8.78	43.70	148.20	5.98	
3:37:16	13:56:55	-8.59	44.30	148.40	6.18	
3:37:46	13:57:25	-8.89	43.70	148.60	6.27	
3:38:16	13:57:55	-8.74	43.70	148.70	6.26	
3:38:46	13:58:25	-8.62	44.40	148.70	6.26	
3:39:16	13:58:55	-8.84	43.10	149.10	6.26	
3:39:46	13:59:25	-8.79	43.70	149.30	6.00	
3:40:17	13:59:56	-8.71	43.50	149.40	6.00	
3:43:16	14:02:55	-8.82	44.50	149.70	6.00	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:43:16	14:02:55	-8.91	43.20	150.00	6.00	
3:43:16	14:02:55	-8.91	43.20	150.00	6.00	
3:43:46	14:03:25	-8.77	44.50	150.30	6.00	
3:44:16	14:03:55	-8.64	44.30	150.40	1.75	
3:44:46	14:04:25	-8.74	43.10	150.60	1.75	
3:45:16	14:04:55	-8.68	43.00	150.60	1.76	
3:45:49	14:05:28	-8.65	43.70	150.60	1.78	
3:46:16	14:05:55	-8.52	44.30	150.80	1.76	
3:46:46	14:06:25	-8.74	44.10	150.60	1.76	
3:47:16	14:06:55	-8.64	44.50	151.20	1.76	
3:47:46	14:07:25	-8.70	44.40	151.00	1.76	
3:48:17	14:07:56	-8.68	44.30	151.10	1.76	
3:48:47	14:08:26	-8.76	44.90	151.10	1.76	
3:49:17	14:08:56	-8.73	45.00	151.40	1.76	
3:49:47	14:09:26	-8.58	44.80	151.00	1.76	
3:50:17	14:09:56	-8.54	44.10	151.40	1.76	
3:50:47	14:10:26	-8.76	44.80	151.40	1.76	
3:51:17	14:10:56	-8.75	44.30	151.50	1.76	
3:51:47	14:11:26	-8.79	44.90	151.50	1.76	
3:52:17	14:11:56	-8.80	44.00	151.60	1.76	
3:52:47	14:12:26	-8.59	45.00	151.60	1.76	
3:53:17	14:12:56	-8.65	43.80	151.80	1.76	
3:53:47	14:13:26	-8.62	43.80	151.70	1.76	
3:54:17	14:13:56	-8.55	44.40	152.00	1.76	
3:54:47	14:14:26	-8.69	43.70	152.10	1.76	
3:55:18	14:14:56	-8.51	44.10	152.00	1.76	
3:55:48	14:15:26	-8.52	44.40	152.00	1.76	
3:56:17	14:15:56	-8.68	44.90	152.20	1.76	
3:56:48	14:16:26	-8.63	43.70	152.30	1.76	
3:57:18	14:16:56	-8.60	44.40	152.30	1.86	
3:57:48	14:17:26	-8.50	44.80	152.30	1.96	
3:58:18	14:17:56	-8.53	44.50	152.10	1.96	
3:58:48	14:18:26	-8.62	43.80	152.30	1.96	
3:59:18	14:18:56	-8.53	45.10	152.30	1.96	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:59:48	14:19:26	-8.69	44.80	152.50	1.96	
4:00:18	14:19:56	-8.68	44.80	152.40	1.96	
4:00:48	14:20:26	-8.65	44.20	152.30	1.96	
4:01:18	14:20:56	-8.71	44.50	152.30	1.96	
4:01:48	14:21:26	-8.69	44.40	152.40	1.96	
4:02:18	14:21:57	-8.52	43.80	152.30	1.96	
4:02:48	14:22:27	-8.53	44.30	152.50	1.96	
4:03:18	14:22:57	-8.62	44.20	152.70	1.96	
4:03:48	14:23:27	-8.59	43.70	152.80	1.96	
4:04:18	14:23:57	-8.37	44.30	152.70	1.96	
4:04:48	14:24:27	-8.47	44.50	152.70	1.96	
4:05:18	14:24:57	-8.51	44.20	152.80	1.96	
4:05:48	14:25:27	-8.48	44.60	152.70	1.96	
4:06:18	14:25:57	-8.34	45.10	152.80	1.96	
4:06:48	14:26:27	-8.52	44.20	152.70	1.96	
4:07:18	14:26:57	-8.50	45.20	152.80	1.96	
4:07:48	14:27:27	-8.64	43.70	152.80	1.96	
4:08:18	14:27:57	-8.50	44.10	152.80	1.96	
4:08:48	14:28:27	-8.45	43.80	152.60	1.96	
4:09:18	14:28:57	-8.71	43.90	152.50	1.96	
4:09:48	14:29:27	-8.61	45.20	152.30	1.96	
4:10:18	14:29:57	-8.63	45.10	152.40	1.96	
4:10:48	14:30:27	-8.57	45.00	152.50	1.96	
4:11:18	14:30:57	-8.52	44.20	152.60	1.96	
4:11:48	14:31:27	-8.58	44.30	152.60	1.96	
4:12:18	14:31:57	-8.60	45.00	152.90	1.96	
4:12:48	14:32:27	-8.54	44.10	152.70	1.96	
4:13:18	14:32:57	-8.49	45.10	152.90	1.96	
4:13:48	14:33:27	-8.43	45.80	153.00	1.96	
4:14:18	14:33:57	-8.33	45.00	153.20	1.96	
4:14:48	14:34:27	-8.50	44.20	152.90	1.96	
4:15:18	14:34:57	-8.30	45.00	152.90	1.96	
4:15:48	14:35:27	-8.43	43.70	152.90	1.96	Pump and blower off
4:16:18	14:35:57	0.00	0.00	151.50	1.96	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments Click to add a comment
		IN HG	SCFM	DEG F	Feet	
4:16:48	14:36:27	0.00	0.00	149.40	1.96	
4:17:18	14:36:57	0.00	0.00	147.10	1.96	
4:17:48	14:37:27	0.00	0.00	145.20	1.96	
4:18:18	14:37:57	0.00	0.00	143.50	1.96	
4:18:48	14:38:27	0.00	0.00	142.10	1.96	
4:19:18	14:38:57	0.00	0.00	140.70	1.96	
4:19:48	14:39:27	0.00	0.00	139.40	1.96	
4:20:18	14:39:57	0.00	0.00	138.40	1.96	
4:20:48	14:40:27	0.00	0.00	137.40	1.96	
4:21:18	14:40:57	0.00	0.00	136.30	1.96	
4:21:48	14:41:27	0.00	0.00	135.60	1.96	
4:22:19	14:41:58	0.00	0.00	134.90	1.96	
4:22:49	14:42:28	0.00	0.00	134.40	1.96	
4:23:19	14:42:58	0.00	0.00	133.50	1.96	
4:23:49	14:43:28	0.00	0.00	132.80	1.96	
4:24:19	14:43:58	0.00	0.00	132.10	1.96	
4:24:51	14:44:30	0.00	0.00	131.70	1.96	
4:25:21	14:45:00	0.00	0.00	130.90	1.96	
4:25:51	14:45:30	0.00	0.00	130.40	1.96	
4:26:21	14:46:00	0.00	0.00	129.80	1.96	
4:26:52	14:46:31	0.00	0.00	129.20	1.96	
4:27:22	14:47:01	0.00	0.00	128.70	1.96	
4:27:52	14:47:31	0.00	0.00	128.00	1.96	
4:28:22	14:48:01	0.00	0.00	127.60	1.96	
4:28:52	14:48:31	0.00	0.00	127.30	1.96	
4:29:22	14:49:01	0.00	0.00	126.90	1.96	
4:29:52	14:49:31	0.00	0.00	126.20	1.96	
4:30:22	14:50:01	0.00	0.00	125.50	1.96	
4:30:52	14:50:31	0.00	0.00	125.10	1.96	
4:31:22	14:51:01	0.00	0.00	124.60	1.96	
4:31:52	14:51:31	0.00	0.00	124.30	1.96	
4:32:25	14:52:04	0.00	0.00	124.30	1.96	
4:32:55	14:52:34	0.00	0.00	123.00	1.96	
4:33:25	14:53:04	0.00	0.00	122.90	1.96	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
4:33:55	14:53:34	0.00	0.00	122.30	1.96	
4:34:25	14:54:04	0.00	0.00	122.10	1.96	
4:34:55	14:54:34	0.00	0.00	121.60	1.96	
4:35:25	14:55:04	0.00	0.00	121.20	1.96	
4:35:55	14:55:34	0.00	0.00	120.70	1.96	
4:36:25	14:56:04	0.00	0.00	120.40	1.96	
4:36:55	14:56:34	0.00	0.00	119.90	1.96	
4:37:25	14:57:04	0.00	0.00	119.50	1.96	
4:37:55	14:57:34	0.00	0.00	118.90	1.96	
4:38:25	14:58:04	0.00	0.00	118.60	1.96	
						End test

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:00:00	10:19:39	11.02	0.00	0.01	9.66	0.00	0.02	5.42	0.00	0.00	
0:00:02	10:19:41	11.02	0.00	0.01	9.66	0.00	0.02	5.42	0.00	0.00	
0:00:32	10:20:11	11.01	-0.01	-0.01	9.67	0.01	0.01	5.41	-0.01	0.00	
0:01:02	10:20:41	10.99	-0.03	0.00	9.69	0.03	0.02	5.41	-0.01	0.00	
0:01:32	10:21:11	10.99	-0.03	-0.01	9.69	0.03	0.01	5.41	-0.01	0.00	
0:02:02	10:21:41	11.01	-0.01	-0.01	9.68	0.02	0.00	5.41	-0.01	-0.01	
0:02:32	10:22:11	11.00	-0.02	-0.01	9.70	0.04	0.01	5.41	-0.01	-0.01	
0:03:02	10:22:41	11.00	-0.02	-0.01	9.69	0.03	0.00	5.42	0.00	0.00	
0:03:32	10:23:11	11.01	-0.01	-0.01	9.68	0.02	0.01	5.41	-0.01	-0.01	
0:04:02	10:23:41	11.01	-0.01	0.00	9.68	0.02	-0.01	5.42	0.00	0.00	START PUMP TEST
0:04:32	10:24:11	10.98	-0.04	-0.02	9.66	0.00	0.00	5.42	0.00	0.00	
0:05:02	10:24:41	11.00	-0.02	-0.03	9.67	0.01	-0.02	5.42	0.00	0.00	
0:05:32	10:25:11	10.99	-0.03	-0.01	9.67	0.01	-0.03	5.41	-0.01	0.02	
0:06:02	10:25:41	11.01	-0.01	-0.01	9.67	0.01	-0.01	5.41	-0.01	0.00	
0:06:32	10:26:11	11.00	-0.02	-0.01	9.67	0.01	-0.01	5.41	-0.01	0.00	
0:07:02	10:26:41	10.98	-0.04	-0.01	9.67	0.01	-0.01	5.41	-0.01	0.01	
0:07:32	10:27:11	11.00	-0.02	-0.01	9.66	0.00	-0.02	5.41	-0.01	0.00	
0:08:03	10:27:42	11.01	-0.01	-0.01	9.66	0.00	-0.04	5.41	-0.01	-0.01	
0:08:32	10:28:11	11.00	-0.02	-0.01	9.68	0.02	-0.02	5.41	-0.01	-0.02	
0:09:02	10:28:41	10.99	-0.03	-0.01	9.66	0.00	-0.03	5.41	-0.01	0.00	
0:09:32	10:29:11	11.01	-0.01	-0.01	9.66	0.00	-0.03	5.41	-0.01	0.00	
0:10:02	10:29:41	11.01	-0.01	-0.01	9.65	-0.01	-0.03	5.41	-0.01	0.00	
0:10:37	10:30:16	10.98	-0.04	-0.01	9.64	-0.02	-0.03	5.41	-0.01	-0.01	
0:11:07	10:30:46	11.01	-0.01	-0.01	9.64	-0.02	-0.03	5.41	-0.01	0.00	
0:11:37	10:31:16	11.00	-0.02	-0.01	9.62	-0.04	-0.01	5.41	-0.01	-0.01	
0:12:07	10:31:46	10.99	-0.03	-0.01	9.63	-0.03	-0.01	5.41	-0.01	-0.01	
0:12:37	10:32:16	10.98	-0.04	-0.01	9.66	0.00	-0.01	5.41	-0.01	0.00	
0:13:07	10:32:46	10.99	-0.03	-0.01	9.64	-0.02	-0.01	5.41	-0.01	-0.01	
0:13:37	10:33:16	10.99	-0.03	-0.01	9.63	-0.03	-0.01	5.41	-0.01	0.00	
0:14:07	10:33:46	11.00	-0.02	-0.01	9.64	-0.02	-0.01	5.41	-0.01	-0.01	
0:14:37	10:34:16	11.01	-0.01	-0.01	9.66	0.00	-0.01	5.41	-0.01	-0.01	
0:15:07	10:34:46	11.00	-0.02	-0.01	9.66	0.00	-0.01	5.41	-0.01	0.00	
0:15:37	10:35:16	10.98	-0.04	-0.01	9.64	-0.02	-0.01	5.41	-0.01	-0.01	
0:16:07	10:35:46	10.99	-0.03	-0.01	9.65	-0.01	-0.01	5.41	-0.01	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:16:37	10:36:16	10.99	-0.03	-0.01	9.64	-0.02	-0.01	5.41	-0.01	-0.01	
0:17:07	10:36:46	11.01	-0.01	-0.01	9.64	-0.02	-0.01	5.41	-0.01	0.00	
0:17:37	10:37:16	10.98	-0.04	-0.01	9.63	-0.03	-0.01	5.41	-0.01	0.00	
0:18:07	10:37:46	10.98	-0.04	-0.01	9.64	-0.02	-0.01	5.41	-0.01	0.00	
0:18:37	10:38:16	10.98	-0.04	-0.01	9.66	0.00	-0.01	5.41	-0.01	0.00	
0:19:07	10:38:46	11.00	-0.02	-0.01	9.62	-0.04	-0.01	5.41	-0.01	0.00	
0:19:37	10:39:16	11.00	-0.02	-0.01	9.65	-0.01	-0.01	5.41	-0.01	0.00	
0:20:07	10:39:46	11.00	-0.02	-0.01	9.63	-0.03	-0.01	5.41	-0.01	0.00	
0:20:37	10:40:16	10.99	-0.03	-0.01	9.64	-0.02	-0.01	5.41	-0.01	0.00	
0:21:07	10:40:46	10.98	-0.04	-0.01	9.63	-0.03	-0.01	5.41	-0.01	0.00	
0:21:37	10:41:16	11.01	-0.01	0.00	9.62	-0.04	-0.01	5.41	-0.01	0.00	
0:22:07	10:41:46	10.98	-0.04	0.00	9.61	-0.05	-0.01	5.41	-0.01	0.00	
0:22:37	10:42:16	11.01	-0.01	0.00	9.64	-0.02	-0.01	5.41	-0.01	0.00	
0:23:07	10:42:46	10.99	-0.03	0.00	9.62	-0.04	-0.01	5.41	-0.01	0.00	
0:23:37	10:43:16	10.98	-0.04	0.00	9.62	-0.04	-0.01	5.41	-0.01	0.00	
0:24:07	10:43:46	10.99	-0.03	0.00	9.63	-0.03	-0.01	5.41	-0.01	0.00	
0:24:37	10:44:16	10.98	-0.04	0.00	9.64	-0.02	-0.01	5.41	-0.01	0.00	
0:25:07	10:44:46	11.00	-0.02	0.00	9.62	-0.04	-0.01	5.41	-0.01	0.00	
0:25:37	10:45:16	11.00	-0.02	0.00	9.62	-0.04	-0.01	5.41	-0.01	0.00	
0:26:07	10:45:46	11.00	-0.02	0.00	9.61	-0.05	-0.01	5.41	-0.01	0.00	
0:26:37	10:46:16	10.99	-0.03	0.00	9.64	-0.02	0.00	5.41	-0.01	0.00	
0:27:07	10:46:46	10.98	-0.04	0.00	9.62	-0.04	0.00	5.41	-0.01	0.00	
0:27:37	10:47:16	11.00	-0.02	0.00	9.66	0.00	0.00	5.41	-0.01	0.00	
0:28:07	10:47:46	11.00	-0.02	0.00	9.66	0.00	0.00	5.41	-0.01	-0.01	
0:28:37	10:48:16	10.98	-0.04	0.00	9.65	-0.01	0.00	5.41	-0.01	-0.01	
0:29:12	10:48:51	10.98	-0.04	0.00	9.66	0.00	0.00	5.42	0.00	-0.01	
0:29:37	10:49:16	11.00	-0.02	0.00	9.64	-0.02	0.00	5.42	0.00	0.00	
0:30:07	10:49:46	10.98	-0.04	0.00	9.62	-0.04	0.01	5.41	-0.01	-0.02	
0:30:37	10:50:16	11.00	-0.02	-0.01	9.63	-0.03	0.01	5.41	-0.01	-0.01	
0:31:07	10:50:46	10.99	-0.03	-0.02	9.65	-0.01	0.02	5.42	0.00	-0.01	
0:31:52	10:51:31	10.98	-0.04	-0.02	9.64	-0.02	0.00	5.41	-0.01	-0.01	
0:32:22	10:52:01	10.98	-0.04	-0.01	9.63	-0.03	0.00	5.41	-0.01	-0.01	
0:32:52	10:52:31	11.00	-0.02	-0.01	9.63	-0.03	0.03	5.41	-0.01	-0.01	
0:33:22	10:53:01	10.99	-0.03	-0.04	9.64	-0.02	0.01	5.41	-0.01	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:33:52	10:53:31	10.99	-0.03	-0.02	9.64	-0.02	0.01	5.42	0.00	-0.02	
0:34:22	10:54:01	10.99	-0.03	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.01	
0:34:52	10:54:31	10.98	-0.04	-0.02	9.66	0.00	0.01	5.41	-0.01	-0.01	
0:35:22	10:55:01	11.00	-0.02	-0.02	9.65	-0.01	0.02	5.41	-0.01	-0.02	
0:35:52	10:55:31	10.99	-0.03	-0.02	9.63	-0.03	0.00	5.41	-0.01	0.00	
0:36:22	10:56:01	10.98	-0.04	-0.02	9.65	-0.01	0.02	5.41	-0.01	0.00	
0:36:52	10:56:31	11.00	-0.02	-0.02	9.63	-0.03	0.02	5.41	-0.01	0.00	
0:37:22	10:57:01	10.99	-0.03	-0.02	9.64	-0.02	0.01	5.41	-0.01	-0.03	
0:37:52	10:57:31	11.00	-0.02	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.01	
0:38:22	10:58:01	10.98	-0.04	-0.02	9.62	-0.04	0.02	5.41	-0.01	-0.01	
0:38:52	10:58:31	10.98	-0.04	-0.02	9.65	-0.01	0.02	5.41	-0.01	-0.02	
0:39:22	10:59:01	10.98	-0.04	-0.02	9.63	-0.03	0.00	5.41	-0.01	-0.01	
0:39:52	10:59:31	11.01	-0.01	-0.02	9.65	-0.01	0.02	5.42	0.00	0.00	
0:40:22	11:00:01	11.01	-0.01	-0.02	9.61	-0.05	0.01	5.41	-0.01	-0.01	
0:40:52	11:00:31	10.99	-0.03	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.01	
0:41:22	11:01:01	11.00	-0.02	-0.02	9.60	-0.06	0.01	5.41	-0.01	-0.01	
0:41:52	11:01:31	11.02	0.00	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.01	
0:42:22	11:02:01	11.00	-0.02	-0.02	9.61	-0.05	0.02	5.41	-0.01	-0.01	
0:42:52	11:02:31	10.98	-0.04	-0.02	9.61	-0.05	0.03	5.41	-0.01	0.00	
0:43:22	11:03:01	10.99	-0.03	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.02	
0:43:52	11:03:31	10.99	-0.03	-0.02	9.62	-0.04	0.02	5.41	-0.01	-0.02	
0:44:22	11:04:01	10.97	-0.05	0.00	9.62	-0.04	0.01	5.41	-0.01	-0.01	
0:44:52	11:04:31	11.01	-0.01	0.00	9.62	-0.04	0.01	5.41	-0.01	-0.01	
0:45:22	11:05:01	11.01	-0.01	0.00	9.61	-0.05	0.00	5.41	-0.01	-0.01	
0:45:52	11:05:31	11.00	-0.02	0.00	9.64	-0.02	0.00	5.41	-0.01	-0.01	
0:46:22	11:06:01	11.02	0.00	0.00	9.60	-0.06	0.01	5.41	-0.01	-0.01	
0:46:52	11:06:31	10.98	-0.04	0.00	9.61	-0.05	0.01	5.41	-0.01	-0.03	
0:47:22	11:07:01	11.02	0.00	0.00	9.62	-0.04	0.00	5.41	-0.01	-0.02	
0:47:52	11:07:31	10.97	-0.05	0.00	9.63	-0.03	0.01	5.41	-0.01	-0.01	
0:48:22	11:08:01	11.02	0.00	0.00	9.63	-0.03	0.01	5.41	-0.01	-0.02	
0:48:52	11:08:31	11.01	-0.01	0.00	9.61	-0.05	0.03	5.41	-0.01	-0.02	
0:49:22	11:09:01	11.01	-0.01	0.00	9.61	-0.05	0.01	5.41	-0.01	-0.02	
0:49:52	11:09:31	11.00	-0.02	0.00	9.62	-0.04	0.02	5.41	-0.01	0.00	
0:50:22	11:10:01	10.98	-0.04	0.00	9.62	-0.04	0.01	5.41	-0.01	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:50:52	11:10:31	11.01	-0.01	0.00	9.62	-0.04	0.01	5.41	-0.01	-0.02	
0:51:22	11:11:01	10.99	-0.03	0.00	9.62	-0.04	0.02	5.41	-0.01	-0.01	
0:51:52	11:11:31	11.00	-0.02	0.00	9.63	-0.03	0.01	5.41	-0.01	-0.02	
0:52:22	11:12:01	10.99	-0.03	0.00	9.60	-0.06	0.02	5.41	-0.01	-0.03	
0:52:52	11:12:31	10.98	-0.04	0.00	9.62	-0.04	0.01	5.41	-0.01	-0.02	
0:53:22	11:13:01	10.99	-0.03	0.00	9.59	-0.07	0.01	5.41	-0.01	-0.02	
0:53:52	11:13:31	11.00	-0.02	0.00	9.60	-0.06	0.01	5.41	-0.01	-0.02	
0:54:22	11:14:01	10.99	-0.03	0.00	9.60	-0.06	0.01	5.41	-0.01	-0.02	
0:54:52	11:14:31	11.00	-0.02	0.00	9.59	-0.07	0.01	5.41	-0.01	-0.01	
0:55:22	11:15:01	11.00	-0.02	0.00	9.60	-0.06	0.01	5.41	-0.01	-0.02	
0:55:52	11:15:31	10.99	-0.03	0.00	9.60	-0.06	0.01	5.41	-0.01	-0.02	
0:56:22	11:16:01	11.00	-0.02	0.00	9.59	-0.07	0.01	5.41	-0.01	-0.01	
0:56:52	11:16:31	10.97	-0.05	0.00	9.60	-0.06	0.03	5.41	-0.01	-0.02	
0:57:22	11:17:01	10.98	-0.04	0.00	9.60	-0.06	0.03	5.41	-0.01	-0.02	
0:57:52	11:17:31	10.99	-0.03	0.01	9.59	-0.07	0.01	5.41	-0.01	-0.02	
0:58:22	11:18:01	11.01	-0.01	0.00	9.61	-0.05	-0.03	5.41	-0.01	-0.02	
0:58:52	11:18:31	10.99	-0.03	-0.02	9.61	-0.05	-0.05	5.41	-0.01	-0.02	
0:59:22	11:19:01	11.00	-0.02	-0.02	9.60	-0.06	0.01	5.41	-0.01	-0.03	
0:59:52	11:19:31	10.98	-0.04	-0.02	9.61	-0.05	0.02	5.41	-0.01	-0.02	
1:00:22	11:20:01	10.99	-0.03	-0.02	9.59	-0.07	-0.01	5.41	-0.01	-0.02	
1:00:52	11:20:31	11.01	-0.01	-0.02	9.62	-0.04	-0.02	5.41	-0.01	-0.02	
1:01:22	11:21:01	11.01	-0.01	-0.02	9.61	-0.05	0.00	5.41	-0.01	-0.02	
1:01:52	11:21:31	11.00	-0.02	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.03	
1:02:22	11:22:01	10.99	-0.03	-0.02	9.60	-0.06	0.00	5.41	-0.01	-0.02	
1:02:52	11:22:31	10.98	-0.04	-0.02	9.61	-0.05	0.00	5.41	-0.01	-0.02	
1:03:22	11:23:01	11.01	-0.01	-0.02	9.62	-0.04	0.01	5.41	-0.01	-0.02	
1:03:52	11:23:31	11.00	-0.02	-0.02	9.60	-0.06	0.01	5.41	-0.01	-0.02	
1:04:22	11:24:01	11.00	-0.02	-0.02	9.61	-0.05	0.00	5.41	-0.01	-0.02	
1:04:52	11:24:31	10.99	-0.03	-0.02	9.62	-0.04	0.01	5.41	-0.01	-0.03	
1:05:22	11:25:01	10.98	-0.04	-0.02	9.61	-0.05	0.01	5.41	-0.01	-0.02	
1:05:52	11:25:31	10.99	-0.03	-0.02	9.63	-0.03	0.01	5.41	-0.01	-0.02	
1:06:22	11:26:01	11.02	0.00	-0.02	9.60	-0.06	0.02	5.41	-0.01	-0.03	
1:06:52	11:26:31	10.99	-0.03	-0.02	9.62	-0.04	0.02	5.41	-0.01	-0.03	
1:07:22	11:27:01	11.01	-0.01	-0.02	9.62	-0.04	0.03	5.41	-0.01	-0.02	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:07:52	11:27:31	10.97	-0.05	-0.02	9.60	-0.06	0.01	5.41	-0.01	-0.02	
1:08:24	11:28:03	10.99	-0.03	-0.02	9.60	-0.06	0.00	5.41	-0.01	-0.02	
1:08:55	11:28:34	11.02	0.00	-0.02	9.59	-0.07	0.04	5.41	-0.01	-0.03	
1:09:25	11:29:04	11.00	-0.02	-0.02	9.59	-0.07	-0.01	5.41	-0.01	-0.03	
1:09:58	11:29:37	11.00	-0.02	-0.02	9.60	-0.06	0.02	5.41	-0.01	-0.03	
1:10:28	11:30:07	11.00	-0.02	-0.02	9.60	-0.06	0.03	5.42	0.00	-0.02	
1:10:58	11:30:37	10.98	-0.04	-0.02	9.59	-0.07	0.03	5.42	0.00	-0.02	
1:11:28	11:31:07	10.99	-0.03	-0.02	9.62	-0.04	0.03	5.42	0.00	-0.03	
1:11:58	11:31:37	10.97	-0.05	-0.02	9.61	-0.05	0.01	5.42	0.00	-0.03	
1:12:28	11:32:07	11.00	-0.02	-0.02	9.60	-0.06	0.03	5.42	0.00	-0.03	
1:12:58	11:32:37	10.97	-0.05	-0.02	9.63	-0.03	0.05	5.42	0.00	-0.03	
1:13:28	11:33:07	11.00	-0.02	-0.02	9.60	-0.06	0.04	5.42	0.00	-0.02	
1:13:58	11:33:37	10.99	-0.03	-0.02	9.61	-0.05	0.04	5.42	0.00	-0.03	
1:14:28	11:34:07	10.99	-0.03	-0.02	9.61	-0.05	0.04	5.42	0.00	-0.02	
1:14:58	11:34:37	10.98	-0.04	-0.02	9.63	-0.03	0.04	5.42	0.00	-0.02	
1:15:28	11:35:07	11.00	-0.02	-0.02	9.60	-0.06	0.05	5.42	0.00	-0.03	
1:15:58	11:35:37	11.02	0.00	-0.02	9.61	-0.05	0.05	5.42	0.00	-0.02	
1:16:28	11:36:07	10.98	-0.04	-0.02	9.61	-0.05	0.05	5.42	0.00	-0.03	
1:16:58	11:36:37	11.00	-0.02	-0.02	9.60	-0.06	0.01	5.42	0.00	-0.03	
1:17:28	11:37:07	10.99	-0.03	-0.02	9.62	-0.04	0.03	5.42	0.00	-0.04	
1:17:58	11:37:37	10.98	-0.04	-0.02	9.61	-0.05	0.02	5.42	0.00	-0.02	
1:18:28	11:38:07	11.01	-0.01	-0.02	9.60	-0.06	0.03	5.42	0.00	-0.03	
1:18:58	11:38:37	11.02	0.00	-0.02	9.60	-0.06	0.01	5.42	0.00	-0.03	
1:19:28	11:39:07	11.01	-0.01	-0.02	9.60	-0.06	0.03	5.42	0.00	-0.03	
1:19:58	11:39:37	11.01	-0.01	-0.02	9.61	-0.05	0.01	5.42	0.00	-0.04	
1:20:28	11:40:07	10.99	-0.03	-0.02	9.60	-0.06	0.05	5.42	0.00	-0.03	
1:20:58	11:40:37	10.98	-0.04	-0.02	9.59	-0.07	0.02	5.42	0.00	-0.02	
1:21:28	11:41:07	10.99	-0.03	-0.02	9.60	-0.06	0.04	5.42	0.00	-0.03	
1:21:58	11:41:37	11.01	-0.01	-0.02	9.58	-0.08	0.05	5.42	0.00	-0.03	
1:22:28	11:42:07	10.99	-0.03	-0.02	9.62	-0.04	0.06	5.42	0.00	-0.03	
1:22:58	11:42:37	10.99	-0.03	-0.02	9.60	-0.06	0.05	5.42	0.00	-0.03	
1:23:29	11:43:07	11.00	-0.02	-0.02	9.62	-0.04	0.08	5.42	0.00	-0.03	
1:23:58	11:43:37	10.99	-0.03	-0.02	9.61	-0.05	0.08	5.42	0.00	-0.03	
1:24:28	11:44:07	10.98	-0.04	-0.02	9.58	-0.08	0.08	5.42	0.00	-0.03	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:24:58	11:44:37	10.99	-0.03	-0.02	9.57	-0.09	0.06	5.42	0.00	-0.04	
1:25:28	11:45:07	11.00	-0.02	-0.02	9.59	-0.07	0.04	5.42	0.00	-0.04	
1:25:58	11:45:37	11.00	-0.02	-0.02	9.62	-0.04	0.05	5.42	0.00	-0.03	
1:26:28	11:46:07	11.00	-0.02	-0.02	9.60	-0.06	0.02	5.42	0.00	-0.03	
1:26:58	11:46:37	11.00	-0.02	-0.02	9.60	-0.06	0.04	5.42	0.00	-0.04	
1:27:28	11:47:07	11.02	0.00	-0.02	9.60	-0.06	0.05	5.42	0.00	-0.04	
1:27:59	11:47:38	10.99	-0.03	-0.02	9.62	-0.04	0.07	5.42	0.00	-0.03	
1:28:28	11:48:07	11.00	-0.02	-0.02	9.63	-0.03	0.05	5.42	0.00	-0.03	
1:28:58	11:48:37	11.00	-0.02	-0.02	9.61	-0.05	0.07	5.42	0.00	-0.04	
1:29:29	11:49:08	11.01	-0.01	-0.02	9.61	-0.05	0.06	5.42	0.00	-0.03	
1:29:59	11:49:38	10.99	-0.03	-0.02	9.58	-0.08	0.07	5.42	0.00	-0.03	
1:30:29	11:50:08	10.99	-0.03	-0.02	9.63	-0.03	0.06	5.42	0.00	-0.04	
1:30:59	11:50:38	11.01	-0.01	-0.02	9.60	-0.06	0.06	5.42	0.00	-0.03	
1:31:29	11:51:08	10.99	-0.03	-0.02	9.58	-0.08	0.03	5.42	0.00	-0.03	
1:31:59	11:51:38	10.98	-0.04	-0.02	9.60	-0.06	0.05	5.42	0.00	-0.04	
1:32:29	11:52:08	10.97	-0.05	-0.02	9.58	-0.08	0.04	5.42	0.00	-0.04	
1:32:59	11:52:38	11.00	-0.02	-0.02	9.59	-0.07	0.04	5.42	0.00	-0.03	
1:33:29	11:53:08	11.00	-0.02	-0.02	9.57	-0.09	0.05	5.42	0.00	-0.03	
1:33:59	11:53:38	10.99	-0.03	-0.02	9.58	-0.08	0.05	5.42	0.00	-0.05	
1:34:29	11:54:08	11.00	-0.02	-0.02	9.60	-0.06	0.03	5.42	0.00	-0.04	
1:34:59	11:54:38	11.02	0.00	-0.02	9.60	-0.06	0.06	5.42	0.00	-0.04	
1:35:29	11:55:08	11.01	-0.01	-0.02	9.58	-0.08	0.05	5.42	0.00	-0.04	
1:36:02	11:55:41	11.01	-0.01	-0.02	9.57	-0.09	0.02	5.42	0.00	-0.03	
1:36:29	11:56:08	11.01	-0.01	-0.02	9.63	-0.03	0.03	5.42	0.00	-0.03	
1:36:59	11:56:38	10.99	-0.03	-0.01	9.56	-0.10	0.03	5.42	0.00	-0.05	
1:37:29	11:57:08	10.99	-0.03	-0.02	9.58	-0.08	0.00	5.42	0.00	-0.04	
1:37:59	11:57:38	11.01	-0.01	-0.02	9.60	-0.06	0.03	5.42	0.00	-0.03	VEGE test - max vac 808 blower
1:38:31	11:58:10	10.99	-0.03	-0.01	9.62	-0.04	0.02	5.42	0.00	-0.03	
1:38:59	11:58:38	11.00	-0.02	-0.02	9.59	-0.07	-0.01	5.42	0.00	-0.03	
1:39:29	11:59:08	11.00	-0.02	-0.02	9.58	-0.08	-0.04	5.42	0.00	-0.03	
1:39:59	11:59:38	10.99	-0.03	-0.02	9.58	-0.08	0.01	5.42	0.00	-0.03	
1:40:29	12:00:08	10.99	-0.03	0.00	9.58	-0.08	-0.01	5.42	0.00	-0.02	MAX VAC 808 @ 80"wc
1:40:59	12:00:38	11.00	-0.02	0.00	9.59	-0.07	-0.01	5.42	0.00	-0.02	
1:41:29	12:01:08	11.00	-0.02	0.00	9.57	-0.09	-0.03	5.42	0.00	-0.02	VEGE TEST STEP 1 @ 40"WC

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:41:59	12:01:38	11.00	-0.02	0.00	9.60	-0.06	-0.02	5.42	0.00	0.00	
1:42:29	12:02:08	10.99	-0.03	0.00	9.60	-0.06	-0.04	5.42	0.00	0.00	
1:42:59	12:02:38	10.98	-0.04	-0.01	9.58	-0.08	-0.04	5.42	0.00	0.00	
1:43:29	12:03:08	10.99	-0.03	-0.01	9.54	-0.12	-0.04	5.42	0.00	0.00	
1:44:00	12:03:39	11.00	-0.02	-0.01	9.60	-0.06	-0.07	5.42	0.00	0.00	
1:44:30	12:04:09	11.02	0.00	-0.01	9.58	-0.08	-0.07	5.42	0.00	0.00	
1:45:00	12:04:39	10.97	-0.05	-0.01	9.59	-0.07	-0.07	5.42	0.00	0.00	
1:45:30	12:05:09	11.00	-0.02	-0.01	9.60	-0.06	-0.07	5.42	0.00	0.00	
1:46:00	12:05:39	11.00	-0.02	-0.01	9.61	-0.05	-0.07	5.42	0.00	0.00	
1:46:30	12:06:09	11.00	-0.02	-0.01	9.57	-0.09	-0.07	5.42	0.00	0.00	
1:47:00	12:06:39	11.01	-0.01	-0.01	9.57	-0.09	-0.07	5.42	0.00	0.00	
1:47:30	12:07:09	10.99	-0.03	-0.01	9.58	-0.08	-0.07	5.42	0.00	0.00	
1:48:00	12:07:39	11.00	-0.02	-0.01	9.56	-0.10	-0.07	5.42	0.00	0.00	
1:48:30	12:08:09	11.00	-0.02	-0.01	9.54	-0.12	-0.07	5.42	0.00	0.00	
1:49:00	12:08:39	10.98	-0.04	-0.01	9.59	-0.07	-0.07	5.42	0.00	0.00	
1:49:30	12:09:09	10.97	-0.05	-0.01	9.58	-0.08	-0.07	5.42	0.00	0.00	
1:50:01	12:09:40	10.99	-0.03	0.00	9.60	-0.06	-0.05	5.42	0.00	0.00	
1:50:30	12:10:09	10.99	-0.03	0.00	9.59	-0.07	-0.07	5.42	0.00	-0.01	
1:51:04	12:10:42	10.98	-0.04	-0.01	9.59	-0.07	-0.06	5.42	0.00	-0.01	
1:51:30	12:11:09	11.01	-0.01	-0.01	9.56	-0.10	-0.10	5.42	0.00	0.00	
1:52:00	12:11:39	11.00	-0.02	-0.01	9.58	-0.08	-0.09	5.42	0.00	-0.02	
1:52:30	12:12:09	10.98	-0.04	-0.01	9.58	-0.08	-0.06	5.42	0.00	0.00	
1:53:00	12:12:39	10.98	-0.04	-0.01	9.57	-0.09	-0.07	5.42	0.00	0.01	
1:53:32	12:13:11	10.98	-0.04	-0.01	9.57	-0.09	-0.05	5.42	0.00	0.00	
1:54:00	12:13:39	10.99	-0.03	-0.01	9.56	-0.10	-0.05	5.42	0.00	0.01	
1:54:30	12:14:09	11.00	-0.02	-0.01	9.57	-0.09	-0.10	5.42	0.00	0.00	
1:55:00	12:14:39	10.98	-0.04	-0.01	9.57	-0.09	-0.11	5.42	0.00	0.00	
1:55:30	12:15:09	11.01	-0.01	-0.01	9.57	-0.09	-0.11	5.42	0.00	0.00	
1:56:00	12:15:39	11.01	-0.01	-0.01	9.55	-0.11	-0.08	5.42	0.00	-0.01	
1:56:30	12:16:09	11.02	0.00	-0.01	9.57	-0.09	-0.06	5.42	0.00	0.00	
1:57:00	12:16:39	11.01	-0.01	-0.01	9.56	-0.10	-0.05	5.42	0.00	0.01	
1:57:30	12:17:09	11.00	-0.02	-0.01	9.56	-0.10	-0.05	5.42	0.00	0.01	
1:58:00	12:17:39	10.97	-0.05	-0.01	9.55	-0.11	-0.07	5.42	0.00	0.00	
1:58:30	12:18:09	11.00	-0.02	-0.01	9.55	-0.11	-0.05	5.42	0.00	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:59:00	12:18:39	10.99	-0.03	-0.01	9.56	-0.10	-0.05	5.42	0.00	-0.01	
1:59:30	12:19:09	11.01	-0.01	-0.01	9.58	-0.08	-0.06	5.42	0.00	0.00	
2:00:00	12:19:39	11.01	-0.01	-0.01	9.58	-0.08	-0.06	5.42	0.00	0.00	
2:00:31	12:20:09	10.98	-0.04	-0.01	9.57	-0.09	-0.10	5.42	0.00	-0.01	
2:01:01	12:20:39	10.99	-0.03	0.00	9.56	-0.10	-0.10	5.42	0.00	-0.01	
2:01:31	12:21:09	11.01	-0.01	0.00	9.56	-0.10	-0.11	5.42	0.00	0.00	
2:02:01	12:21:39	11.00	-0.02	0.00	9.54	-0.12	-0.11	5.42	0.00	0.00	
2:02:35	12:22:14	10.97	-0.05	0.01	9.56	-0.10	-0.13	5.42	0.00	0.00	
2:03:01	12:22:40	11.01	-0.01	0.00	9.56	-0.10	-0.08	5.42	0.00	-0.01	
2:03:31	12:23:09	11.00	-0.02	0.00	9.54	-0.12	-0.08	5.42	0.00	0.00	
2:04:01	12:23:40	10.99	-0.03	0.00	9.54	-0.12	-0.08	5.42	0.00	0.00	
2:04:31	12:24:10	11.03	0.01	0.00	9.56	-0.10	-0.08	5.42	0.00	-0.01	
2:05:01	12:24:40	10.98	-0.04	0.00	9.55	-0.11	-0.08	5.42	0.00	-0.01	
2:05:31	12:25:10	11.02	0.00	0.00	9.57	-0.09	-0.08	5.42	0.00	0.00	
2:06:01	12:25:40	10.96	-0.06	0.00	9.56	-0.10	-0.08	5.42	0.00	0.00	
2:06:31	12:26:10	10.99	-0.03	0.00	9.54	-0.12	-0.08	5.42	0.00	0.00	
2:07:01	12:26:40	10.98	-0.04	0.00	9.56	-0.10	-0.08	5.42	0.00	0.00	
2:07:31	12:27:10	11.01	-0.01	0.04	9.57	-0.09	-0.08	5.42	0.00	0.02	
2:08:01	12:27:40	11.01	-0.01	0.02	9.57	-0.09	-0.09	5.42	0.00	-0.01	
2:08:31	12:28:10	10.98	-0.04	0.02	9.56	-0.10	-0.07	5.42	0.00	0.00	
2:09:01	12:28:40	10.99	-0.03	0.02	9.56	-0.10	-0.07	5.42	0.00	0.00	
2:09:31	12:29:10	10.98	-0.04	0.03	9.55	-0.11	-0.05	5.42	0.00	0.00	
2:10:01	12:29:40	11.00	-0.02	0.01	9.54	-0.12	-0.09	5.42	0.00	-0.01	
2:10:31	12:30:10	11.00	-0.02	-0.01	9.54	-0.12	-0.08	5.42	0.00	-0.01	
2:11:01	12:30:40	11.00	-0.02	0.00	9.56	-0.10	-0.08	5.42	0.00	0.00	
2:11:31	12:31:10	11.00	-0.02	-0.01	9.56	-0.10	-0.08	5.42	0.00	-0.01	
2:12:01	12:31:40	11.00	-0.02	-0.01	9.55	-0.11	-0.08	5.42	0.00	-0.01	
2:12:31	12:32:10	11.00	-0.02	-0.01	9.55	-0.11	-0.08	5.42	0.00	-0.01	
2:13:01	12:32:40	10.98	-0.04	-0.01	9.55	-0.11	-0.08	5.42	0.00	-0.01	
2:13:31	12:33:10	11.02	0.00	-0.01	9.56	-0.10	-0.08	5.42	0.00	0.00	
2:14:01	12:33:40	11.00	-0.02	-0.02	9.55	-0.11	-0.11	5.42	0.00	0.00	
2:14:31	12:34:10	11.00	-0.02	-0.02	9.55	-0.11	-0.07	5.42	0.00	0.01	
2:15:01	12:34:40	11.00	-0.02	0.00	9.54	-0.12	-0.06	5.43	0.01	0.00	
2:15:31	12:35:10	11.00	-0.02	-0.03	9.55	-0.11	-0.05	5.42	0.00	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
2:16:01	12:35:40	11.00	-0.02	-0.02	9.55	-0.11	-0.05	5.42	0.00	-0.01	
2:16:31	12:36:10	11.00	-0.02	-0.01	9.57	-0.09	-0.05	5.42	0.00	-0.01	
2:17:01	12:36:40	11.00	-0.02	-0.01	9.57	-0.09	-0.05	5.42	0.00	-0.01	
2:17:31	12:37:10	10.98	-0.04	-0.01	9.56	-0.10	-0.05	5.42	0.00	0.00	
2:18:01	12:37:40	10.99	-0.03	0.01	9.55	-0.11	-0.05	5.42	0.00	-0.03	
2:18:31	12:38:10	11.00	-0.02	0.01	9.53	-0.13	-0.05	5.42	0.00	-0.01	
2:19:01	12:38:40	11.01	-0.01	-0.01	9.54	-0.12	-0.05	5.42	0.00	-0.01	
2:19:31	12:39:10	11.00	-0.02	0.00	9.52	-0.14	-0.05	5.42	0.00	0.00	
2:20:01	12:39:40	10.98	-0.04	-0.01	9.54	-0.12	-0.05	5.42	0.00	-0.02	
2:20:31	12:40:10	10.98	-0.04	-0.01	9.55	-0.11	-0.05	5.42	0.00	-0.01	
2:21:01	12:40:40	11.01	-0.01	-0.01	9.56	-0.10	-0.05	5.42	0.00	-0.01	
2:21:31	12:41:10	11.03	0.01	0.00	9.57	-0.09	-0.05	5.42	0.00	-0.01	
2:22:01	12:41:40	10.97	-0.05	-0.01	9.54	-0.12	-0.05	5.42	0.00	-0.02	
2:22:31	12:42:10	10.99	-0.03	-0.01	9.54	-0.12	-0.05	5.42	0.00	0.00	
2:23:01	12:42:40	10.98	-0.04	0.01	9.54	-0.12	-0.05	5.42	0.00	-0.02	
2:23:31	12:43:10	11.01	-0.01	0.02	9.54	-0.12	-0.05	5.42	0.00	-0.02	
2:24:01	12:43:40	10.99	-0.03	0.02	9.55	-0.11	-0.05	5.43	0.01	0.00	
2:24:31	12:44:10	10.99	-0.03	0.01	9.55	-0.11	-0.08	5.42	0.00	-0.01	
2:25:01	12:44:40	11.00	-0.02	0.02	9.57	-0.09	-0.08	5.42	0.00	-0.02	
2:25:31	12:45:10	11.00	-0.02	0.01	9.53	-0.13	-0.08	5.42	0.00	-0.01	
2:26:01	12:45:40	11.00	-0.02	0.01	9.54	-0.12	-0.07	5.42	0.00	-0.02	
2:26:31	12:46:10	10.99	-0.03	-0.01	9.54	-0.12	-0.07	5.42	0.00	-0.01	
2:27:01	12:46:40	10.99	-0.03	0.00	9.54	-0.12	-0.07	5.42	0.00	-0.01	
2:27:31	12:47:10	11.00	-0.02	0.00	9.56	-0.10	-0.07	5.42	0.00	-0.01	
2:28:01	12:47:40	11.00	-0.02	0.01	9.54	-0.12	-0.09	5.42	0.00	-0.01	
2:28:31	12:48:10	10.98	-0.04	0.00	9.54	-0.12	-0.10	5.42	0.00	-0.01	
2:29:01	12:48:40	11.00	-0.02	-0.01	9.54	-0.12	-0.10	5.42	0.00	-0.03	
2:29:31	12:49:10	10.98	-0.04	0.00	9.57	-0.09	-0.08	5.42	0.00	-0.02	
2:30:01	12:49:40	10.99	-0.03	0.00	9.55	-0.11	-0.07	5.43	0.01	-0.01	
2:30:31	12:50:10	10.99	-0.03	0.00	9.53	-0.13	-0.09	5.42	0.00	-0.01	
2:31:01	12:50:40	11.01	-0.01	0.01	9.54	-0.12	-0.09	5.42	0.00	0.00	
2:31:31	12:51:10	11.01	-0.01	0.01	9.55	-0.11	-0.09	5.42	0.00	-0.01	
2:32:01	12:51:40	10.97	-0.05	0.02	9.54	-0.12	-0.09	5.42	0.00	-0.01	
2:32:31	12:52:10	11.02	0.00	0.02	9.55	-0.11	-0.11	5.42	0.00	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
2:33:01	12:52:40	11.01	-0.01	0.00	9.54	-0.12	-0.11	5.42	0.00	-0.01	
2:33:31	12:53:10	10.96	-0.06	0.00	9.52	-0.14	-0.08	5.42	0.00	-0.01	
2:34:01	12:53:40	10.98	-0.04	0.00	9.54	-0.12	-0.09	5.42	0.00	-0.01	VEGE step 2 @ 80"wc
2:34:31	12:54:10	11.03	0.01	0.00	9.56	-0.10	-0.07	5.42	0.00	-0.01	
2:35:01	12:54:40	10.99	-0.03	0.00	9.55	-0.11	-0.07	5.42	0.00	-0.03	
2:35:31	12:55:10	11.02	0.00	0.01	9.54	-0.12	-0.07	5.42	0.00	-0.03	
2:36:01	12:55:40	11.00	-0.02	0.01	9.55	-0.11	-0.07	5.42	0.00	-0.04	
2:36:31	12:56:10	11.01	-0.01	0.01	9.52	-0.14	-0.07	5.42	0.00	-0.03	
2:37:01	12:56:40	10.98	-0.04	0.01	9.52	-0.14	-0.07	5.42	0.00	-0.03	
2:37:31	12:57:10	10.99	-0.03	0.00	9.53	-0.13	-0.08	5.42	0.00	-0.01	
2:38:01	12:57:40	11.01	-0.01	-0.03	9.52	-0.14	-0.08	5.42	0.00	-0.04	
2:38:31	12:58:10	11.00	-0.02	-0.03	9.51	-0.15	-0.07	5.42	0.00	-0.02	
2:39:01	12:58:40	11.00	-0.02	-0.03	9.52	-0.14	-0.05	5.42	0.00	-0.02	
2:39:31	12:59:10	10.97	-0.05	-0.03	9.53	-0.13	-0.05	5.42	0.00	-0.03	
2:40:01	12:59:40	11.01	-0.01	-0.03	9.51	-0.15	-0.05	5.42	0.00	-0.03	
2:40:31	13:00:10	11.01	-0.01	-0.03	9.53	-0.13	-0.05	5.42	0.00	-0.04	
2:41:01	13:00:40	11.01	-0.01	-0.03	9.51	-0.15	-0.05	5.42	0.00	-0.02	
2:41:31	13:01:10	11.00	-0.02	-0.03	9.50	-0.16	-0.05	5.42	0.00	-0.04	
2:42:01	13:01:40	11.00	-0.02	-0.03	9.50	-0.16	-0.05	5.42	0.00	-0.02	
2:42:31	13:02:10	11.02	0.00	-0.03	9.51	-0.15	-0.05	5.43	0.01	-0.04	
2:43:01	13:02:40	10.99	-0.03	-0.03	9.51	-0.15	-0.05	5.43	0.01	-0.04	
2:43:31	13:03:10	11.00	-0.02	-0.03	9.50	-0.16	-0.05	5.42	0.00	-0.03	
2:44:01	13:03:40	11.01	-0.01	-0.03	9.49	-0.17	-0.05	5.41	-0.01	-0.04	
2:44:31	13:04:10	11.00	-0.02	-0.03	9.51	-0.15	-0.05	5.42	0.00	-0.03	
2:45:01	13:04:40	11.01	-0.01	-0.03	9.49	-0.17	-0.05	5.41	-0.01	-0.03	
2:45:31	13:05:10	11.02	0.00	-0.03	9.51	-0.15	-0.05	5.41	-0.01	-0.04	
2:46:01	13:05:40	10.98	-0.04	-0.03	9.51	-0.15	-0.08	5.41	-0.01	-0.04	
2:46:31	13:06:10	11.01	-0.01	-0.03	9.50	-0.16	-0.07	5.41	-0.01	-0.01	
2:47:01	13:06:40	11.04	0.02	-0.03	9.51	-0.15	-0.07	5.41	-0.01	-0.03	
2:47:31	13:07:10	11.01	-0.01	-0.03	9.51	-0.15	-0.07	5.41	-0.01	-0.04	
2:48:01	13:07:40	11.00	-0.02	-0.03	9.50	-0.16	-0.07	5.42	0.00	-0.04	
2:48:31	13:08:10	11.01	-0.01	-0.03	9.50	-0.16	-0.07	5.42	0.00	-0.02	
2:49:01	13:08:40	10.98	-0.04	-0.03	9.48	-0.18	-0.07	5.41	-0.01	-0.02	
2:49:31	13:09:10	11.02	0.00	-0.03	9.50	-0.16	-0.07	5.41	-0.01	-0.02	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
2:50:01	13:09:40	11.01	-0.01	-0.03	9.50	-0.16	-0.08	5.41	-0.01	-0.02	
2:50:31	13:10:10	10.98	-0.04	-0.03	9.51	-0.15	-0.08	5.41	-0.01	-0.02	
2:51:01	13:10:40	11.00	-0.02	-0.03	9.51	-0.15	-0.08	5.41	-0.01	-0.02	
2:51:31	13:11:10	10.99	-0.03	-0.03	9.48	-0.18	-0.08	5.42	0.00	-0.03	
2:52:01	13:11:40	10.99	-0.03	-0.03	9.48	-0.18	-0.08	5.41	-0.01	-0.02	
2:52:31	13:12:10	11.01	-0.01	-0.03	9.52	-0.14	-0.08	5.42	0.00	-0.02	
2:53:01	13:12:40	10.98	-0.04	-0.03	9.49	-0.17	-0.08	5.42	0.00	-0.03	
2:53:31	13:13:10	11.03	0.01	-0.03	9.50	-0.16	-0.08	5.41	-0.01	-0.02	
2:54:01	13:13:40	11.00	-0.02	-0.03	9.50	-0.16	-0.08	5.41	-0.01	-0.04	
2:54:31	13:14:10	11.01	-0.01	-0.03	9.50	-0.16	-0.08	5.42	0.00	-0.04	
2:55:01	13:14:40	10.99	-0.03	-0.03	9.49	-0.17	-0.08	5.42	0.00	-0.05	
2:55:31	13:15:10	11.01	-0.01	-0.03	9.51	-0.15	-0.08	5.41	-0.01	-0.04	
2:56:01	13:15:40	10.98	-0.04	-0.03	9.47	-0.19	-0.08	5.41	-0.01	-0.04	
2:56:31	13:16:10	11.03	0.01	-0.03	9.48	-0.18	-0.08	5.42	0.00	-0.05	
2:57:01	13:16:40	11.02	0.00	-0.03	9.48	-0.18	-0.08	5.41	-0.01	-0.04	
2:57:33	13:17:12	10.99	-0.03	-0.02	9.47	-0.19	-0.08	5.41	-0.01	-0.04	
2:58:02	13:17:41	10.99	-0.03	-0.02	9.50	-0.16	-0.09	5.42	0.00	-0.05	
2:58:34	13:18:13	10.98	-0.04	-0.02	9.48	-0.18	-0.08	5.42	0.00	-0.04	
2:59:02	13:18:41	11.01	-0.01	-0.02	9.48	-0.18	-0.07	5.41	-0.01	-0.04	
2:59:32	13:19:11	11.01	-0.01	-0.02	9.47	-0.19	-0.05	5.41	-0.01	-0.04	
3:00:02	13:19:41	11.01	-0.01	-0.02	9.49	-0.17	-0.05	5.41	-0.01	-0.04	
3:00:32	13:20:11	11.03	0.01	-0.02	9.48	-0.18	-0.05	5.42	0.00	-0.04	
3:01:02	13:20:41	11.02	0.00	-0.02	9.46	-0.20	-0.05	5.41	-0.01	-0.04	
3:01:32	13:21:11	11.02	0.00	-0.02	9.48	-0.18	-0.05	5.41	-0.01	-0.05	
3:02:02	13:21:41	11.01	-0.01	-0.02	9.48	-0.18	-0.05	5.41	-0.01	-0.04	
3:02:32	13:22:11	11.01	-0.01	-0.03	9.49	-0.17	-0.05	5.41	-0.01	-0.04	
3:03:03	13:22:42	11.00	-0.02	-0.03	9.49	-0.17	-0.05	5.41	-0.01	-0.05	
3:03:32	13:23:11	11.01	-0.01	-0.03	9.48	-0.18	-0.05	5.41	-0.01	-0.04	
3:04:02	13:23:41	11.00	-0.02	-0.03	9.45	-0.21	-0.06	5.41	-0.01	-0.05	
3:04:32	13:24:11	11.01	-0.01	-0.02	9.47	-0.19	-0.07	5.41	-0.01	-0.04	
3:05:02	13:24:41	11.00	-0.02	-0.03	9.47	-0.19	-0.07	5.41	-0.01	-0.05	
3:05:32	13:25:11	11.00	-0.02	-0.07	9.47	-0.19	-0.07	5.41	-0.01	-0.05	
3:06:04	13:25:43	11.01	-0.01	-0.09	9.45	-0.21	-0.07	5.41	-0.01	-0.05	
3:06:34	13:26:13	11.00	-0.02	-0.05	9.48	-0.18	-0.07	5.41	-0.01	-0.05	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:07:04	13:26:43	10.99	-0.03	-0.01	9.48	-0.18	-0.07	5.41	-0.01	-0.04	
3:07:34	13:27:13	11.00	-0.02	-0.05	9.48	-0.18	-0.07	5.41	-0.01	-0.05	
3:08:04	13:27:43	10.98	-0.04	-0.05	9.47	-0.19	-0.07	5.41	-0.01	-0.05	
3:08:34	13:28:13	11.02	0.00	-0.05	9.46	-0.20	-0.07	5.41	-0.01	-0.05	
3:09:04	13:28:43	10.99	-0.03	-0.05	9.47	-0.19	-0.07	5.41	-0.01	-0.05	
3:09:34	13:29:13	11.00	-0.02	-0.05	9.47	-0.19	-0.07	5.41	-0.01	-0.04	
3:10:04	13:29:43	10.99	-0.03	-0.05	9.47	-0.19	-0.07	5.41	-0.01	-0.04	
3:10:34	13:30:13	11.02	0.00	-0.02	9.46	-0.20	-0.07	5.41	-0.01	-0.05	
3:11:04	13:30:43	11.01	-0.01	-0.02	9.45	-0.21	-0.07	5.41	-0.01	-0.03	
3:11:34	13:31:13	11.01	-0.01	-0.04	9.46	-0.20	-0.07	5.41	-0.01	-0.02	
3:12:04	13:31:43	11.01	-0.01	-0.04	9.48	-0.18	-0.07	5.41	-0.01	-0.03	
3:12:34	13:32:13	11.01	-0.01	-0.04	9.46	-0.20	-0.07	5.41	-0.01	-0.03	
3:13:04	13:32:43	11.01	-0.01	-0.04	9.47	-0.19	-0.07	5.41	-0.01	-0.03	
3:13:34	13:33:13	11.01	-0.01	-0.04	9.46	-0.20	-0.07	5.41	-0.01	-0.03	
3:14:04	13:33:43	10.99	-0.03	-0.04	9.47	-0.19	-0.07	5.41	-0.01	-0.04	
3:14:34	13:34:13	11.00	-0.02	-0.04	9.45	-0.21	-0.07	5.41	-0.01	-0.03	
3:15:04	13:34:43	11.03	0.01	-0.04	9.47	-0.19	-0.09	5.41	-0.01	-0.04	
3:15:34	13:35:13	11.01	-0.01	-0.03	9.47	-0.19	-0.08	5.41	-0.01	-0.03	
3:16:04	13:35:43	11.02	0.00	-0.03	9.48	-0.18	-0.07	5.41	-0.01	-0.03	OWER OFF - SWITCH TO HIGH VAC BLOW
3:16:34	13:36:13	10.98	-0.04	-0.02	9.45	-0.21	-0.09	5.41	-0.01	-0.01	
3:17:04	13:36:43	10.99	-0.03	-0.02	9.47	-0.19	-0.08	5.41	-0.01	-0.01	
3:17:34	13:37:13	11.00	-0.02	-0.03	9.46	-0.20	-0.08	5.41	-0.01	0.01	
3:18:04	13:37:43	11.00	-0.02	-0.02	9.46	-0.20	-0.09	5.41	-0.01	-0.03	VEGE TEST STEP 3 - HIGH VAC BLOWER
3:18:34	13:38:13	11.00	-0.02	-0.02	9.48	-0.18	-0.07	5.41	-0.01	-0.05	
3:19:04	13:38:43	11.00	-0.02	-0.02	9.46	-0.20	-0.07	5.41	-0.01	-0.05	
3:19:34	13:39:13	10.98	-0.04	-0.02	9.45	-0.21	-0.07	5.41	-0.01	-0.05	
3:20:04	13:39:43	10.99	-0.03	-0.02	9.45	-0.21	-0.07	5.41	-0.01	-0.05	
3:20:34	13:40:13	10.98	-0.04	-0.02	9.47	-0.19	-0.07	5.41	-0.01	-0.04	
3:21:04	13:40:43	11.00	-0.02	-0.02	9.45	-0.21	-0.06	5.41	-0.01	-0.04	
3:21:34	13:41:13	10.99	-0.03	-0.01	9.46	-0.20	-0.06	5.41	-0.01	-0.04	
3:22:04	13:41:43	11.00	-0.02	-0.01	9.45	-0.21	-0.06	5.41	-0.01	-0.05	
3:22:34	13:42:13	10.99	-0.03	-0.01	9.43	-0.23	-0.08	5.41	-0.01	-0.06	
3:23:04	13:42:43	11.00	-0.02	-0.02	9.43	-0.23	-0.06	5.41	-0.01	-0.04	
3:23:34	13:43:13	11.00	-0.02	-0.02	9.46	-0.20	-0.07	5.41	-0.01	-0.06	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:24:09	13:43:47	11.01	-0.01	-0.02	9.44	-0.22	-0.08	5.41	-0.01	-0.04	
3:24:39	13:44:17	10.98	-0.04	-0.02	9.45	-0.21	-0.08	5.41	-0.01	-0.04	
3:25:09	13:44:47	10.99	-0.03	-0.02	9.42	-0.24	-0.07	5.41	-0.01	-0.05	
3:25:39	13:45:17	11.01	-0.01	-0.02	9.42	-0.24	-0.07	5.41	-0.01	-0.06	
3:26:09	13:45:47	11.02	0.00	-0.02	9.42	-0.24	-0.09	5.41	-0.01	-0.05	
3:26:39	13:46:18	11.01	-0.01	-0.02	9.41	-0.25	-0.09	5.41	-0.01	-0.05	
3:27:09	13:46:48	10.97	-0.05	-0.02	9.42	-0.24	-0.09	5.41	-0.01	-0.05	
3:27:39	13:47:18	11.01	-0.01	-0.02	9.41	-0.25	-0.09	5.40	-0.02	-0.05	
3:28:09	13:47:48	11.00	-0.02	-0.02	9.42	-0.24	-0.09	5.40	-0.02	-0.05	
3:28:45	13:48:24	11.01	-0.01	-0.02	9.40	-0.26	-0.09	5.41	-0.01	-0.06	
3:29:15	13:48:54	10.99	-0.03	-0.02	9.44	-0.22	-0.09	5.41	-0.01	-0.06	
3:29:45	13:49:24	11.00	-0.02	-0.02	9.40	-0.26	-0.09	5.41	-0.01	-0.06	
3:30:15	13:49:54	11.01	-0.01	-0.02	9.40	-0.26	-0.09	5.40	-0.02	-0.05	
3:30:48	13:50:27	11.00	-0.02	-0.02	9.39	-0.27	-0.09	5.40	-0.02	-0.07	
3:31:15	13:50:54	10.98	-0.04	-0.02	9.39	-0.27	-0.09	5.41	-0.01	-0.06	
3:31:45	13:51:24	10.99	-0.03	-0.02	9.40	-0.26	-0.09	5.41	-0.01	-0.06	
3:32:15	13:51:54	11.00	-0.02	-0.02	9.39	-0.27	-0.09	5.41	-0.01	-0.06	
3:32:45	13:52:24	11.00	-0.02	-0.02	9.40	-0.26	-0.08	5.41	-0.01	-0.05	
3:33:15	13:52:54	10.98	-0.04	-0.02	9.40	-0.26	-0.08	5.41	-0.01	-0.05	
3:33:45	13:53:24	11.04	0.02	-0.02	9.41	-0.25	-0.08	5.40	-0.02	-0.05	
3:34:15	13:53:54	11.00	-0.02	-0.02	9.41	-0.25	-0.08	5.40	-0.02	-0.05	
3:34:45	13:54:24	11.01	-0.01	-0.02	9.44	-0.22	-0.08	5.40	-0.02	-0.04	
3:35:16	13:54:55	11.01	-0.01	-0.02	9.41	-0.25	-0.08	5.40	-0.02	-0.03	
3:35:46	13:55:25	11.00	-0.02	-0.02	9.42	-0.24	-0.08	5.40	-0.02	-0.05	
3:36:16	13:55:55	11.00	-0.02	-0.02	9.37	-0.29	-0.08	5.40	-0.02	-0.03	
3:36:46	13:56:25	11.00	-0.02	-0.02	9.40	-0.26	-0.08	5.40	-0.02	-0.04	
3:37:16	13:56:55	11.03	0.01	-0.02	9.36	-0.30	-0.08	5.40	-0.02	-0.02	
3:37:46	13:57:25	11.01	-0.01	-0.02	9.35	-0.31	-0.08	5.41	-0.01	-0.05	
3:38:16	13:57:55	11.02	0.00	-0.02	9.35	-0.31	-0.08	5.41	-0.01	-0.05	
3:38:46	13:58:25	11.00	-0.02	-0.02	9.35	-0.31	-0.08	5.40	-0.02	-0.04	
3:39:16	13:58:55	10.98	-0.04	-0.02	9.35	-0.31	-0.08	5.40	-0.02	-0.06	
3:39:46	13:59:25	11.01	-0.01	-0.02	9.35	-0.31	-0.08	5.40	-0.02	-0.05	
3:40:17	13:59:56	11.00	-0.02	-0.02	9.35	-0.31	-0.08	5.40	-0.02	-0.05	
3:43:16	14:02:55	10.99	-0.03	-0.02	9.33	-0.33	-0.08	5.40	-0.02	-0.05	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:43:16	14:02:55	10.98	-0.04	-0.02	9.36	-0.30	-0.08	5.40	-0.02	-0.04	
3:43:16	14:02:55	10.98	-0.04	-0.02	9.36	-0.30	-0.08	5.40	-0.02	-0.04	
3:43:46	14:03:25	11.02	0.00	-0.02	9.39	-0.27	-0.08	5.40	-0.02	-0.04	
3:44:16	14:03:55	11.01	-0.01	-0.02	9.36	-0.30	-0.08	5.40	-0.02	-0.05	
3:44:46	14:04:25	11.00	-0.02	-0.02	9.38	-0.28	-0.05	5.40	-0.02	-0.06	
3:45:16	14:04:55	11.01	-0.01	-0.02	9.38	-0.28	-0.05	5.40	-0.02	-0.05	
3:45:49	14:05:28	11.00	-0.02	-0.02	9.36	-0.30	-0.08	5.40	-0.02	-0.05	
3:46:16	14:05:55	11.01	-0.01	-0.03	9.37	-0.29	-0.08	5.40	-0.02	-0.05	
3:46:46	14:06:25	10.99	-0.03	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.06	
3:47:16	14:06:55	10.98	-0.04	-0.03	9.36	-0.30	-0.08	5.40	-0.02	-0.04	
3:47:46	14:07:25	11.01	-0.01	-0.03	9.37	-0.29	-0.08	5.40	-0.02	-0.06	
3:48:17	14:07:56	10.99	-0.03	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.06	
3:48:47	14:08:26	10.99	-0.03	-0.03	9.34	-0.32	-0.08	5.40	-0.02	-0.07	
3:49:17	14:08:56	11.00	-0.02	-0.03	9.31	-0.35	-0.08	5.40	-0.02	-0.07	
3:49:47	14:09:26	10.99	-0.03	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.07	
3:50:17	14:09:56	11.01	-0.01	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.06	
3:50:47	14:10:26	11.01	-0.01	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.05	
3:51:17	14:10:56	11.01	-0.01	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.07	
3:51:47	14:11:26	11.01	-0.01	-0.03	9.34	-0.32	-0.08	5.40	-0.02	-0.05	
3:52:17	14:11:56	11.01	-0.01	-0.03	9.35	-0.31	-0.08	5.40	-0.02	-0.07	
3:52:47	14:12:26	11.00	-0.02	-0.03	9.33	-0.33	-0.08	5.40	-0.02	-0.07	
3:53:17	14:12:56	11.00	-0.02	-0.03	9.34	-0.32	-0.08	5.40	-0.02	-0.06	
3:53:47	14:13:26	10.98	-0.04	-0.03	9.33	-0.33	-0.08	5.40	-0.02	-0.06	
3:54:18	14:13:56	11.00	-0.02	-0.03	9.34	-0.32	-0.08	5.40	-0.02	-0.06	
3:54:47	14:14:26	10.98	-0.04	-0.03	9.32	-0.34	-0.08	5.39	-0.03	-0.06	
3:55:18	14:14:56	11.00	-0.02	-0.03	9.36	-0.30	-0.08	5.40	-0.02	-0.07	
3:55:48	14:15:26	11.00	-0.02	-0.03	9.29	-0.37	-0.08	5.40	-0.02	-0.06	
3:56:17	14:15:56	10.98	-0.04	-0.03	9.30	-0.36	-0.08	5.40	-0.02	-0.06	
3:56:48	14:16:26	10.97	-0.05	-0.03	9.32	-0.34	-0.08	5.40	-0.02	-0.08	
3:57:18	14:16:56	10.99	-0.03	-0.03	9.33	-0.33	-0.08	5.40	-0.02	-0.09	
3:57:48	14:17:26	10.99	-0.03	-0.03	9.29	-0.37	-0.08	5.39	-0.03	-0.08	
3:58:18	14:17:56	10.99	-0.03	-0.03	9.29	-0.37	-0.08	5.39	-0.03	-0.09	
3:58:48	14:18:26	11.01	-0.01	-0.03	9.33	-0.33	-0.08	5.40	-0.02	-0.09	
3:59:18	14:18:56	11.01	-0.01	-0.03	9.31	-0.35	-0.08	5.40	-0.02	-0.07	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:59:48	14:19:26	10.99	-0.03	-0.03	9.31	-0.35	-0.08	5.40	-0.02	-0.08	
4:00:18	14:19:56	11.00	-0.02	-0.03	9.32	-0.34	-0.08	5.40	-0.02	-0.08	
4:00:48	14:20:26	11.02	0.00	-0.03	9.32	-0.34	-0.08	5.40	-0.02	-0.07	
4:01:18	14:20:56	11.00	-0.02	-0.03	9.31	-0.35	-0.08	5.40	-0.02	-0.07	
4:01:48	14:21:27	10.98	-0.04	-0.03	9.30	-0.36	-0.08	5.40	-0.02	-0.07	
4:02:18	14:21:57	10.99	-0.03	-0.03	9.28	-0.38	-0.08	5.40	-0.02	-0.07	
4:02:48	14:22:27	11.00	-0.02	-0.03	9.30	-0.36	-0.08	5.40	-0.02	-0.07	
4:03:18	14:22:57	11.00	-0.02	-0.03	9.31	-0.35	-0.08	5.40	-0.02	-0.07	
4:03:48	14:23:27	11.01	-0.01	-0.03	9.30	-0.36	-0.08	5.40	-0.02	-0.05	
4:04:18	14:23:57	11.01	-0.01	-0.03	9.28	-0.38	-0.08	5.39	-0.03	-0.06	
4:04:48	14:24:27	11.01	-0.01	-0.03	9.29	-0.37	-0.08	5.39	-0.03	-0.06	
4:05:18	14:24:57	11.00	-0.02	-0.03	9.30	-0.36	-0.08	5.38	-0.04	-0.06	
4:05:48	14:25:27	10.98	-0.04	-0.03	9.28	-0.38	-0.08	5.39	-0.03	-0.06	
4:06:18	14:25:57	11.00	-0.02	-0.03	9.31	-0.35	-0.08	5.38	-0.04	-0.08	
4:06:48	14:26:27	11.00	-0.02	-0.03	9.29	-0.37	-0.08	5.39	-0.03	-0.08	
4:07:18	14:26:57	11.01	-0.01	-0.03	9.27	-0.39	-0.08	5.39	-0.03	-0.08	
4:07:48	14:27:27	10.98	-0.04	-0.03	9.29	-0.37	-0.08	5.39	-0.03	-0.08	
4:08:18	14:27:57	10.99	-0.03	-0.03	9.28	-0.38	-0.08	5.39	-0.03	-0.09	
4:08:48	14:28:27	10.98	-0.04	-0.03	9.29	-0.37	-0.08	5.39	-0.03	-0.09	
4:09:18	14:28:57	11.00	-0.02	-0.03	9.28	-0.38	-0.08	5.39	-0.03	-0.06	
4:09:48	14:29:27	11.00	-0.02	-0.03	9.25	-0.41	-0.08	5.39	-0.03	-0.08	
4:10:18	14:29:57	11.00	-0.02	-0.03	9.25	-0.41	-0.08	5.39	-0.03	-0.08	
4:10:48	14:30:27	10.99	-0.03	-0.03	9.26	-0.40	-0.08	5.39	-0.03	-0.07	
4:11:18	14:30:57	11.01	-0.01	-0.03	9.27	-0.39	-0.08	5.39	-0.03	-0.07	
4:11:48	14:31:27	11.02	0.00	-0.03	9.26	-0.40	-0.08	5.39	-0.03	-0.07	
4:12:18	14:31:57	10.99	-0.03	-0.03	9.23	-0.43	-0.08	5.39	-0.03	-0.07	
4:12:48	14:32:27	11.01	-0.01	-0.03	9.25	-0.41	-0.08	5.39	-0.03	-0.07	
4:13:18	14:32:57	10.99	-0.03	-0.03	9.27	-0.39	-0.08	5.39	-0.03	-0.07	
4:13:48	14:33:27	10.99	-0.03	-0.03	9.26	-0.40	-0.08	5.39	-0.03	-0.08	
4:14:18	14:33:57	10.98	-0.04	-0.03	9.27	-0.39	-0.08	5.39	-0.03	-0.08	
4:14:48	14:34:27	10.97	-0.05	-0.03	9.24	-0.42	-0.08	5.39	-0.03	-0.07	
4:15:18	14:34:57	10.98	-0.04	-0.03	9.27	-0.39	-0.08	5.39	-0.03	-0.08	
4:15:48	14:35:27	10.98	-0.04	-0.03	9.25	-0.41	-0.08	5.39	-0.03	-0.09	Pump and blower off
4:16:18	14:35:57	11.01	-0.01	-0.03	9.24	-0.42	-0.08	5.39	-0.03	-0.06	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
4:16:48	14:36:27	11.00	-0.02	-0.03	9.24	-0.42	-0.08	5.39	-0.03	-0.05	
4:17:18	14:36:57	11.01	-0.01	-0.03	9.23	-0.43	-0.08	5.39	-0.03	-0.04	
4:17:48	14:37:27	10.97	-0.05	0.00	9.23	-0.43	0.00	5.39	-0.03	0.00	
4:18:18	14:37:57	11.03	0.01	0.00	9.27	-0.39	0.00	5.39	-0.03	0.00	
4:18:48	14:38:27	10.98	-0.04	0.00	9.26	-0.40	0.00	5.39	-0.03	0.00	
4:19:18	14:38:57	11.03	0.01	0.00	9.27	-0.39	0.00	5.39	-0.03	0.00	
4:19:48	14:39:27	10.98	-0.04	0.00	9.26	-0.40	0.00	5.39	-0.03	0.00	
4:20:18	14:39:57	10.99	-0.03	0.00	9.24	-0.42	0.00	5.39	-0.03	0.00	
4:20:48	14:40:27	10.99	-0.03	0.00	9.27	-0.39	0.00	5.39	-0.03	0.00	
4:21:18	14:40:57	10.99	-0.03	0.00	9.25	-0.41	0.00	5.38	-0.04	0.00	
4:21:48	14:41:27	10.99	-0.03	0.00	9.29	-0.37	0.00	5.37	-0.05	0.00	
4:22:19	14:41:58	10.99	-0.03	0.00	9.27	-0.39	0.00	5.37	-0.05	0.00	
4:22:49	14:42:28	10.98	-0.04	0.00	9.29	-0.37	0.00	5.37	-0.05	0.00	
4:23:19	14:42:58	11.01	-0.01	0.00	9.27	-0.39	0.00	5.38	-0.04	0.00	
4:23:49	14:43:28	10.99	-0.03	0.00	9.29	-0.37	0.00	5.38	-0.04	0.00	
4:24:19	14:43:58	11.01	-0.01	0.00	9.28	-0.38	0.00	5.39	-0.03	0.00	
4:24:51	14:44:30	10.99	-0.03	0.00	9.28	-0.38	0.00	5.39	-0.03	0.00	
4:25:21	14:45:00	11.00	-0.02	0.00	9.29	-0.37	0.00	5.37	-0.05	0.00	
4:25:51	14:45:30	10.99	-0.03	0.00	9.28	-0.38	0.00	5.39	-0.03	0.00	
4:26:21	14:46:00	11.00	-0.02	0.00	9.31	-0.35	0.00	5.38	-0.04	0.00	
4:26:52	14:46:31	11.00	-0.02	0.00	9.30	-0.36	0.00	5.38	-0.04	0.00	
4:27:22	14:47:01	11.00	-0.02	0.00	9.29	-0.37	0.00	5.38	-0.04	0.00	
4:27:52	14:47:31	10.98	-0.04	0.00	9.31	-0.35	0.00	5.37	-0.05	0.00	
4:28:22	14:48:01	10.99	-0.03	0.00	9.31	-0.35	0.00	5.37	-0.05	0.00	
4:28:52	14:48:31	10.99	-0.03	0.00	9.32	-0.34	0.00	5.37	-0.05	0.00	
4:29:22	14:49:01	11.00	-0.02	0.00	9.33	-0.33	0.00	5.37	-0.05	0.00	
4:29:52	14:49:31	11.02	0.00	0.00	9.32	-0.34	0.00	5.37	-0.05	0.00	
4:30:22	14:50:01	10.98	-0.04	0.00	9.31	-0.35	0.00	5.37	-0.05	0.00	
4:30:52	14:50:31	11.00	-0.02	0.00	9.30	-0.36	0.00	5.37	-0.05	0.00	
4:31:22	14:51:01	11.00	-0.02	0.00	9.30	-0.36	0.00	5.37	-0.05	0.00	
4:31:52	14:51:31	11.01	-0.01	0.00	9.33	-0.33	0.00	5.37	-0.05	0.00	
4:32:25	14:52:04	11.01	-0.01	0.00	9.33	-0.33	0.00	5.37	-0.05	0.00	
4:32:55	14:52:34	11.00	-0.02	0.00	9.32	-0.34	0.00	5.37	-0.05	0.00	
4:33:25	14:53:04	11.00	-0.02	0.00	9.33	-0.33	0.00	5.37	-0.05	0.00	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
4:33:55	14:53:34	11.00	-0.02	0.00	9.32	-0.34	0.00	5.37	-0.05	0.00	
4:34:25	14:54:04	10.99	-0.03	0.00	9.33	-0.33	0.00	5.37	-0.05	0.00	
4:34:55	14:54:34	11.00	-0.02	0.00	9.31	-0.35	0.00	5.37	-0.05	0.00	
4:35:25	14:55:04	10.99	-0.03	0.00	9.31	-0.35	0.00	5.37	-0.05	0.00	
4:35:55	14:55:34	10.99	-0.03	0.00	9.35	-0.31	0.00	5.37	-0.05	0.00	
4:36:25	14:56:04	10.99	-0.03	0.00	9.36	-0.30	0.00	5.37	-0.05	0.00	
4:36:55	14:56:34	10.98	-0.04	0.00	9.34	-0.32	0.00	5.37	-0.05	0.00	
4:37:25	14:57:04	10.98	-0.04	0.00	9.35	-0.31	0.00	5.37	-0.05	0.00	
4:37:55	14:57:34	11.01	-0.01	0.00	9.34	-0.32	0.00	5.37	-0.05	0.00	
4:38:25	14:58:04	11.00	-0.02	0.00	9.34	-0.32	0.00	5.37	-0.05	0.00	
											End test

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
0:00:00	10:19:39	-9.25	0.00	-0.02	8.50	0.00	0.00	
0:00:02	10:19:41	-9.25	0.00	-0.02	8.50	0.00	0.00	
0:00:32	10:20:11	-9.25	0.00	-0.03	8.49	-0.01	0.01	
0:01:02	10:20:41	-9.25	0.00	-0.02	8.49	-0.01	-0.02	
0:01:32	10:21:11	-9.25	0.00	-0.02	8.48	-0.02	0.03	
0:02:02	10:21:41	-9.25	0.00	-0.03	8.49	-0.01	0.01	
0:02:32	10:22:11	-9.25	0.00	-0.02	8.48	-0.02	0.00	
0:03:02	10:22:41	-9.25	0.00	-0.03	8.48	-0.02	0.01	
0:03:32	10:23:11	-9.25	0.00	-0.04	8.47	-0.03	0.02	
0:04:02	10:23:41	-9.25	0.00	-0.03	8.47	-0.03	0.04	START PUMP TEST
0:04:32	10:24:11	-9.25	0.00	-0.02	8.46	-0.04	0.02	
0:05:02	10:24:41	-9.25	0.00	0.00	8.45	-0.05	0.04	
0:05:32	10:25:11	-9.25	0.00	0.00	8.52	0.02	0.00	
0:06:02	10:25:41	-9.25	0.00	0.00	4.72	-3.78	0.02	
0:06:32	10:26:11	-9.25	0.00	0.00	3.44	-5.06	0.01	
0:07:02	10:26:41	-9.25	0.00	0.00	3.40	-5.10	0.01	
0:07:32	10:27:11	-9.25	0.00	0.00	3.39	-5.11	-0.01	
0:08:03	10:27:42	-9.25	0.00	0.00	3.40	-5.10	0.00	
0:08:32	10:28:11	-9.25	0.00	0.00	3.39	-5.11	0.01	
0:09:02	10:28:41	-9.25	0.00	0.00	3.39	-5.11	0.06	
0:09:32	10:29:11	-9.25	0.00	0.00	3.38	-5.12	0.07	
0:10:02	10:29:41	-9.25	0.00	0.00	3.38	-5.12	0.09	
0:10:37	10:30:16	-9.25	0.00	0.00	3.38	-5.12	0.08	
0:11:07	10:30:46	-9.25	0.00	0.00	3.37	-5.13	0.09	
0:11:37	10:31:16	-9.25	0.00	0.00	3.37	-5.13	0.08	
0:12:07	10:31:46	-9.25	0.00	0.00	3.36	-5.14	0.12	
0:12:37	10:32:16	-9.25	0.00	0.00	3.39	-5.11	0.13	
0:13:07	10:32:46	-9.25	0.00	0.00	3.37	-5.13	0.12	
0:13:37	10:33:16	-9.25	0.00	0.00	3.35	-5.15	0.09	
0:14:07	10:33:46	-9.25	0.00	0.00	3.35	-5.15	0.10	
0:14:37	10:34:16	-9.25	0.00	0.00	3.39	-5.11	0.12	
0:15:07	10:34:46	-9.25	0.00	0.00	3.37	-5.13	0.09	
0:15:37	10:35:16	-9.25	0.00	0.00	3.36	-5.14	0.11	
0:16:07	10:35:46	-9.25	0.00	0.00	3.37	-5.13	0.09	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
0:16:37	10:36:16	-9.25	0.00	0.00	3.38	-5.12	0.10	
0:17:07	10:36:46	-9.25	0.00	0.00	3.37	-5.13	0.07	
0:17:37	10:37:16	-9.25	0.00	0.00	3.36	-5.14	0.08	
0:18:07	10:37:46	-9.25	0.00	0.00	3.38	-5.12	0.09	
0:18:37	10:38:16	-9.25	0.00	0.00	3.35	-5.15	0.09	
0:19:07	10:38:46	-9.25	0.00	0.00	3.37	-5.13	0.10	
0:19:37	10:39:16	-9.25	0.00	0.00	3.37	-5.13	0.07	
0:20:07	10:39:46	-9.25	0.00	0.00	3.35	-5.15	0.08	
0:20:37	10:40:16	-9.25	0.00	0.00	3.37	-5.13	0.08	
0:21:07	10:40:46	-9.25	0.00	0.00	3.33	-5.17	0.10	
0:21:37	10:41:16	-9.25	0.00	0.00	3.35	-5.15	0.06	
0:22:07	10:41:46	-9.25	0.00	0.00	3.35	-5.15	0.10	
0:22:37	10:42:16	-9.25	0.00	0.00	3.36	-5.14	0.07	
0:23:07	10:42:46	-9.25	0.00	0.00	3.36	-5.14	0.10	
0:23:37	10:43:16	-9.25	0.00	0.00	3.36	-5.14	0.07	
0:24:07	10:43:46	-9.25	0.00	0.00	3.37	-5.13	0.09	
0:24:37	10:44:16	-9.25	0.00	0.00	3.36	-5.14	0.09	
0:25:07	10:44:46	-9.25	0.00	0.00	3.35	-5.15	0.10	
0:25:37	10:45:16	-9.25	0.00	0.00	3.34	-5.16	0.06	
0:26:07	10:45:46	-9.25	0.00	0.00	3.36	-5.14	0.10	
0:26:37	10:46:16	-9.25	0.00	0.00	3.34	-5.16	0.08	
0:27:07	10:46:46	-9.25	0.00	0.00	3.38	-5.12	0.11	
0:27:37	10:47:16	-9.25	0.00	0.00	3.34	-5.16	0.11	
0:28:07	10:47:46	-9.25	0.00	0.00	3.37	-5.13	0.10	
0:28:37	10:48:16	-9.25	0.00	0.00	3.36	-5.14	0.12	
0:29:12	10:48:51	-9.25	0.00	0.01	3.36	-5.14	0.08	
0:29:37	10:49:16	-9.25	0.00	-0.01	3.38	-5.12	0.09	
0:30:07	10:49:46	-9.25	0.00	0.00	3.37	-5.13	0.10	
0:30:37	10:50:16	-9.25	0.00	0.00	3.35	-5.15	0.12	
0:31:07	10:50:46	-9.25	0.00	0.00	3.33	-5.17	0.08	
0:31:52	10:51:31	-9.25	0.00	-0.01	3.33	-5.17	0.11	
0:32:22	10:52:01	-9.25	0.00	-0.01	3.35	-5.15	0.09	
0:32:52	10:52:31	-9.25	0.00	-0.01	3.34	-5.16	0.07	
0:33:22	10:53:01	-9.25	0.00	-0.01	3.34	-5.16	0.05	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
0:33:52	10:53:31	-9.25	0.00	0.00	3.35	-5.15	0.06	
0:34:22	10:54:01	-9.25	0.00	-0.01	3.36	-5.14	0.10	
0:34:52	10:54:31	-9.25	0.00	0.00	3.34	-5.16	0.05	
0:35:22	10:55:01	-9.25	0.00	-0.01	3.32	-5.18	0.08	
0:35:52	10:55:31	-9.25	0.00	-0.02	3.36	-5.14	0.09	
0:36:22	10:56:01	-9.25	0.00	-0.01	3.35	-5.15	0.08	
0:36:52	10:56:31	-9.25	0.00	-0.02	3.36	-5.14	0.06	
0:37:22	10:57:01	-9.25	0.00	-0.01	3.34	-5.16	0.05	
0:37:52	10:57:31	-9.25	0.00	-0.02	3.34	-5.16	0.05	
0:38:22	10:58:01	-9.25	0.00	-0.01	3.34	-5.16	0.07	
0:38:52	10:58:31	-9.25	0.00	-0.04	3.34	-5.16	0.04	
0:39:22	10:59:01	-9.25	0.00	-0.03	3.34	-5.16	0.03	
0:39:52	10:59:31	-9.25	0.00	-0.02	3.35	-5.15	0.05	
0:40:22	11:00:01	-9.25	0.00	-0.03	3.33	-5.17	0.04	
0:40:52	11:00:31	-9.25	0.00	-0.03	3.34	-5.16	0.04	
0:41:22	11:01:01	-9.25	0.00	-0.03	3.33	-5.17	0.06	
0:41:52	11:01:31	-9.25	0.00	-0.03	3.36	-5.14	0.03	
0:42:22	11:02:01	-9.25	0.00	-0.03	3.33	-5.17	0.04	
0:42:52	11:02:31	-9.25	0.00	-0.03	3.34	-5.16	0.04	
0:43:22	11:03:01	-9.25	0.00	0.00	3.33	-5.17	0.04	
0:43:52	11:03:31	-9.25	0.00	0.00	3.33	-5.17	0.06	
0:44:22	11:04:01	-9.25	0.00	0.00	3.33	-5.17	0.05	
0:44:52	11:04:31	-9.25	0.00	0.00	3.33	-5.17	0.03	
0:45:22	11:05:01	-9.25	0.00	0.00	3.36	-5.14	0.05	
0:45:52	11:05:31	-9.25	0.00	0.00	3.34	-5.16	0.05	
0:46:22	11:06:01	-9.25	0.00	0.00	3.33	-5.17	0.05	
0:46:52	11:06:31	-9.25	0.00	0.00	3.35	-5.15	0.07	
0:47:22	11:07:01	-9.25	0.00	0.00	3.33	-5.17	0.04	
0:47:52	11:07:31	-9.25	0.00	0.00	3.33	-5.17	0.06	
0:48:22	11:08:01	-9.25	0.00	0.00	3.34	-5.16	0.04	
0:48:52	11:08:31	-9.25	0.00	0.00	3.34	-5.16	0.05	
0:49:22	11:09:01	-9.25	0.00	0.00	3.37	-5.13	0.03	
0:49:52	11:09:31	-9.25	0.00	0.00	3.35	-5.15	0.07	
0:50:22	11:10:01	-9.25	0.00	0.00	3.34	-5.16	0.06	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
0:50:52	11:10:31	-9.25	0.00	0.00	3.34	-5.16	0.05	
0:51:22	11:11:01	-9.25	0.00	0.00	3.35	-5.15	0.04	
0:51:52	11:11:31	-9.25	0.00	0.00	3.34	-5.16	0.07	
0:52:22	11:12:01	-9.25	0.00	0.00	3.38	-5.12	0.05	
0:52:52	11:12:31	-9.25	0.00	0.00	3.35	-5.15	0.07	
0:53:22	11:13:01	-9.25	0.00	0.00	3.34	-5.16	0.07	
0:53:52	11:13:31	-9.25	0.00	0.00	3.36	-5.14	0.03	
0:54:22	11:14:01	-9.25	0.00	0.00	3.39	-5.11	0.05	
0:54:52	11:14:31	-9.25	0.00	0.00	3.35	-5.15	0.04	
0:55:22	11:15:01	-9.25	0.00	0.00	3.35	-5.15	0.06	
0:55:52	11:15:31	-9.25	0.00	0.00	3.34	-5.16	0.04	
0:56:22	11:16:01	-9.25	0.00	0.00	3.33	-5.17	0.05	
0:56:52	11:16:31	-9.25	0.00	0.00	3.35	-5.15	0.05	
0:57:22	11:17:01	-9.25	0.00	0.00	3.36	-5.14	0.08	
0:57:52	11:17:31	-9.25	0.00	-0.01	3.33	-5.17	0.04	
0:58:22	11:18:01	-9.25	0.00	-0.01	3.34	-5.16	0.05	
0:58:52	11:18:31	-9.25	0.00	-0.01	3.34	-5.16	0.05	
0:59:22	11:19:01	-9.25	0.00	-0.02	3.33	-5.17	0.05	
0:59:52	11:19:31	-9.25	0.00	-0.01	3.34	-5.16	0.05	
1:00:22	11:20:01	-9.25	0.00	0.00	3.33	-5.17	0.04	
1:00:52	11:20:31	-9.25	0.00	0.00	3.33	-5.17	0.01	
1:01:22	11:21:01	-9.25	0.00	0.01	3.32	-5.18	0.01	
1:01:52	11:21:31	-9.25	0.00	-0.02	3.34	-5.16	0.00	
1:02:22	11:22:01	-9.25	0.00	-0.01	3.35	-5.15	-0.02	
1:02:52	11:22:31	-9.25	0.00	-0.01	3.36	-5.14	-0.02	
1:03:22	11:23:01	-9.25	0.00	-0.01	3.34	-5.16	-0.04	
1:03:52	11:23:31	-9.25	0.00	-0.01	3.35	-5.15	-0.04	
1:04:22	11:24:01	-9.25	0.00	-0.01	3.35	-5.15	-0.03	
1:04:52	11:24:31	-9.25	0.00	-0.01	3.34	-5.16	-0.06	
1:05:22	11:25:01	-9.25	0.00	-0.01	3.33	-5.17	-0.06	
1:05:52	11:25:31	-9.25	0.00	-0.01	3.32	-5.18	-0.09	
1:06:22	11:26:01	-9.25	0.00	-0.01	3.36	-5.14	-0.08	
1:06:52	11:26:31	-9.25	0.00	-0.01	3.37	-5.13	-0.05	
1:07:22	11:27:01	-9.25	0.00	-0.01	3.34	-5.16	-0.08	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
1:07:52	11:27:31	-9.25	0.00	-0.01	3.35	-5.15	-0.06	
1:08:24	11:28:03	-9.25	0.00	-0.01	3.36	-5.14	-0.08	
1:08:55	11:28:34	-9.25	0.00	-0.01	3.36	-5.14	-0.07	
1:09:25	11:29:04	-9.25	0.00	-0.01	3.33	-5.17	-0.07	
1:09:58	11:29:37	-9.25	0.00	-0.01	3.37	-5.13	-0.07	
1:10:28	11:30:07	-9.25	0.00	-0.01	3.36	-5.14	-0.08	
1:10:58	11:30:37	-9.25	0.00	-0.01	3.35	-5.15	-0.08	
1:11:28	11:31:07	-9.25	0.00	-0.01	3.34	-5.16	-0.07	
1:11:58	11:31:37	-9.25	0.00	-0.01	3.35	-5.15	-0.03	
1:12:28	11:32:07	-9.25	0.00	-0.02	3.34	-5.16	-0.05	
1:12:58	11:32:37	-9.25	0.00	-0.02	3.34	-5.16	-0.06	
1:13:28	11:33:07	-9.25	0.00	-0.01	3.34	-5.16	-0.07	
1:13:58	11:33:37	-9.25	0.00	0.00	3.35	-5.15	-0.05	
1:14:28	11:34:07	-9.25	0.00	0.00	3.34	-5.16	-0.05	
1:14:58	11:34:37	-9.25	0.00	0.01	3.32	-5.18	-0.06	
1:15:28	11:35:07	-9.25	0.00	-0.01	3.35	-5.15	-0.05	
1:15:58	11:35:37	-9.25	0.00	-0.01	3.33	-5.17	-0.03	
1:16:28	11:36:07	-9.25	0.00	-0.01	3.34	-5.16	-0.02	
1:16:58	11:36:37	-9.25	0.00	-0.01	3.34	-5.16	0.05	
1:17:28	11:37:07	-9.25	0.00	-0.01	3.36	-5.14	-0.02	
1:17:58	11:37:37	-9.25	0.00	0.00	3.34	-5.16	-0.01	
1:18:28	11:38:07	-9.25	0.00	0.00	3.34	-5.16	0.02	
1:18:58	11:38:37	-9.25	0.00	0.02	3.35	-5.15	0.03	
1:19:28	11:39:07	-9.25	0.00	0.02	3.34	-5.16	0.01	
1:19:58	11:39:37	-9.25	0.00	0.00	3.34	-5.16	0.04	
1:20:28	11:40:07	-9.25	0.00	0.00	3.34	-5.16	0.03	
1:20:58	11:40:37	-9.25	0.00	0.00	3.33	-5.17	0.03	
1:21:28	11:41:07	-9.25	0.00	0.00	3.34	-5.16	0.02	
1:21:58	11:41:37	-9.25	0.00	0.00	3.34	-5.16	0.03	
1:22:28	11:42:07	-9.25	0.00	0.00	3.34	-5.16	0.03	
1:22:58	11:42:37	-9.25	0.00	0.01	3.36	-5.14	0.01	
1:23:29	11:43:07	-9.25	0.00	0.01	3.33	-5.17	0.04	
1:23:58	11:43:37	-9.25	0.00	0.01	3.35	-5.15	0.04	
1:24:28	11:44:07	-9.25	0.00	0.01	3.34	-5.16	0.02	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
1:24:58	11:44:37	-9.25	0.00	0.02	3.35	-5.15	0.03	
1:25:28	11:45:07	-9.25	0.00	0.01	3.34	-5.16	0.04	
1:25:58	11:45:37	-9.25	0.00	0.01	3.32	-5.18	0.01	
1:26:28	11:46:07	-9.25	0.00	0.00	3.34	-5.16	0.02	
1:26:58	11:46:37	-9.25	0.00	0.02	3.32	-5.18	0.04	
1:27:28	11:47:07	-9.25	0.00	0.03	3.35	-5.15	-0.01	
1:27:59	11:47:38	-9.25	0.00	0.01	3.38	-5.12	-0.03	
1:28:28	11:48:07	-9.25	0.00	0.02	3.34	-5.16	0.00	
1:28:58	11:48:37	-9.25	0.00	0.03	3.35	-5.15	0.02	
1:29:29	11:49:08	-9.25	0.00	0.02	3.35	-5.15	0.03	
1:29:59	11:49:38	-9.25	0.00	0.02	3.37	-5.13	0.01	
1:30:29	11:50:08	-9.25	0.00	0.03	3.34	-5.16	0.03	
1:30:59	11:50:38	-9.25	0.00	0.01	3.37	-5.13	0.06	
1:31:29	11:51:08	-9.25	0.00	0.00	3.32	-5.18	0.03	
1:31:59	11:51:38	-9.25	0.00	0.01	3.34	-5.16	0.02	
1:32:29	11:52:08	-9.25	0.00	0.00	3.34	-5.16	0.05	
1:32:59	11:52:38	-9.25	0.00	0.01	3.34	-5.16	0.03	
1:33:29	11:53:08	-9.25	0.00	-0.02	3.34	-5.16	0.03	
1:33:59	11:53:38	-9.25	0.00	-0.01	3.33	-5.17	0.02	
1:34:29	11:54:08	-9.25	0.00	-0.01	3.33	-5.17	0.06	
1:34:59	11:54:38	-9.25	0.00	-0.01	3.34	-5.16	0.03	
1:35:29	11:55:08	-9.25	0.00	-0.01	3.32	-5.18	0.04	
1:36:02	11:55:41	-9.25	0.00	-0.01	3.33	-5.17	0.04	
1:36:29	11:56:08	-9.25	0.00	-0.01	3.33	-5.17	0.04	
1:36:59	11:56:38	-9.25	0.00	-0.01	3.34	-5.16	0.09	
1:37:29	11:57:08	-9.25	0.00	-0.01	3.35	-5.15	0.09	
1:37:59	11:57:38	-9.25	0.00	0.00	3.34	-5.16	0.05	VEGE test - max vac 808 blower
1:38:31	11:58:10	-9.25	0.00	0.00	3.31	-5.19	-0.50	
1:38:59	11:58:38	-9.25	0.00	0.00	3.55	-4.95	-4.96	
1:39:29	11:59:08	-9.25	0.00	0.00	3.29	-5.21	-2.17	
1:39:59	11:59:38	-9.25	0.00	0.00	3.36	-5.14	-2.18	
1:40:29	12:00:08	-9.25	0.00	-0.01	3.37	-5.13	-2.13	MAX VAC 808 @ 80"wc
1:40:59	12:00:38	-9.25	0.00	-0.01	3.38	-5.12	-2.10	
1:41:29	12:01:08	-9.25	0.00	-0.01	3.37	-5.13	-2.10	VEGE TEST STEP 1 @ 40"WC

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
1:41:59	12:01:38	-9.25	0.00	0.00	3.37	-5.13	-2.07	
1:42:29	12:02:08	-9.25	0.00	0.00	3.37	-5.13	-2.06	
1:42:59	12:02:38	-9.25	0.00	0.00	3.45	-5.05	-2.00	
1:43:29	12:03:08	-9.25	0.00	0.00	3.38	-5.12	-2.04	
1:44:00	12:03:39	-9.25	0.00	0.00	3.37	-5.13	-2.03	
1:44:30	12:04:09	-9.25	0.00	0.00	3.38	-5.12	-2.05	
1:45:00	12:04:39	-9.25	0.00	0.00	3.37	-5.13	-2.04	
1:45:30	12:05:09	-9.25	0.00	0.00	3.37	-5.13	-2.04	
1:46:00	12:05:39	-9.25	0.00	0.00	3.38	-5.12	-1.98	
1:46:30	12:06:09	-9.25	0.00	0.00	3.35	-5.15	-2.02	
1:47:00	12:06:39	-9.25	0.00	0.00	3.46	-5.04	-1.97	
1:47:30	12:07:09	-9.25	0.00	0.00	3.42	-5.08	-2.81	
1:48:00	12:07:39	-9.25	0.00	0.00	3.41	-5.09	-3.18	
1:48:30	12:08:09	-9.25	0.00	0.00	3.38	-5.12	-3.21	
1:49:00	12:08:39	-9.25	0.00	0.00	3.41	-5.09	-3.21	
1:49:30	12:09:09	-9.25	0.00	0.00	3.44	-5.06	-3.10	
1:50:01	12:09:40	-9.25	0.00	0.00	3.38	-5.12	-3.13	
1:50:30	12:10:09	-9.25	0.00	0.00	3.39	-5.11	-3.14	
1:51:04	12:10:42	-9.25	0.00	0.00	3.39	-5.11	-3.13	
1:51:30	12:11:09	-9.25	0.00	0.00	3.37	-5.13	-3.12	
1:52:00	12:11:39	-9.25	0.00	-0.02	3.39	-5.11	-3.12	
1:52:30	12:12:09	-9.25	0.00	-0.02	3.38	-5.12	-3.14	
1:53:00	12:12:39	-9.25	0.00	-0.02	3.37	-5.13	-3.12	
1:53:32	12:13:11	-9.25	0.00	-0.02	3.44	-5.06	-3.06	
1:54:00	12:13:39	-9.25	0.00	-0.03	3.36	-5.14	-3.10	
1:54:30	12:14:09	-9.25	0.00	-0.01	3.39	-5.11	-3.08	
1:55:00	12:14:39	-9.25	0.00	-0.03	3.36	-5.14	-3.09	
1:55:30	12:15:09	-9.25	0.00	-0.03	3.36	-5.14	-3.08	
1:56:00	12:15:39	-9.25	0.00	-0.02	3.34	-5.16	-3.12	
1:56:30	12:16:09	-9.25	0.00	-0.02	3.38	-5.12	-3.06	
1:57:00	12:16:39	-9.25	0.00	-0.02	3.38	-5.12	-3.06	
1:57:30	12:17:09	-9.25	0.00	-0.02	3.44	-5.06	-2.99	
1:58:00	12:17:39	-9.25	0.00	-0.02	3.36	-5.14	-3.07	
1:58:30	12:18:09	-9.25	0.00	-0.02	3.39	-5.11	-3.07	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
1:59:00	12:18:39	-9.25	0.00	-0.02	3.37	-5.13	-3.03	
1:59:30	12:19:09	-9.25	0.00	-0.02	3.37	-5.13	-3.10	
2:00:01	12:19:39	-9.25	0.00	-0.01	3.40	-5.10	-3.14	
2:00:31	12:20:09	-9.25	0.00	-0.01	3.36	-5.14	-3.11	
2:01:01	12:20:39	-9.25	0.00	-0.03	3.37	-5.13	-3.15	
2:01:31	12:21:09	-9.25	0.00	-0.04	3.40	-5.10	-3.14	
2:02:01	12:21:39	-9.25	0.00	-0.02	3.39	-5.11	-3.16	
2:02:35	12:22:14	-9.25	0.00	-0.03	3.38	-5.12	-3.12	
2:03:01	12:22:40	-9.25	0.00	-0.03	3.37	-5.13	-3.12	
2:03:31	12:23:09	-9.25	0.00	-0.03	3.38	-5.12	-3.10	
2:04:01	12:23:40	-9.25	0.00	-0.03	3.35	-5.15	-3.09	
2:04:31	12:24:10	-9.25	0.00	-0.03	3.41	-5.09	-3.06	
2:05:01	12:24:40	-9.25	0.00	-0.02	3.38	-5.12	-3.07	
2:05:31	12:25:10	-9.25	0.00	-0.02	3.38	-5.12	-3.07	
2:06:01	12:25:40	-9.25	0.00	-0.02	3.38	-5.12	-3.07	
2:06:31	12:26:10	-9.25	0.00	-0.02	3.37	-5.13	-3.09	
2:07:01	12:26:40	-9.25	0.00	-0.02	3.38	-5.12	-3.04	
2:07:31	12:27:10	-9.25	0.00	-0.02	3.36	-5.14	-3.03	
2:08:01	12:27:40	-9.25	0.00	-0.02	3.38	-5.12	-3.04	
2:08:31	12:28:10	-9.25	0.00	-0.02	3.39	-5.11	-3.02	
2:09:01	12:28:40	-9.25	0.00	-0.02	3.38	-5.12	-3.04	
2:09:31	12:29:10	-9.25	0.00	-0.02	3.39	-5.11	-3.04	
2:10:01	12:29:40	-9.25	0.00	-0.02	3.37	-5.13	-3.03	
2:10:31	12:30:10	-9.25	0.00	-0.02	3.37	-5.13	-3.06	
2:11:01	12:30:40	-9.25	0.00	-0.02	3.37	-5.13	-3.03	
2:11:31	12:31:10	-9.25	0.00	-0.02	3.37	-5.13	-3.04	
2:12:01	12:31:40	-9.25	0.00	-0.02	3.37	-5.13	-3.11	
2:12:31	12:32:10	-9.25	0.00	-0.02	3.37	-5.13	-3.07	
2:13:01	12:32:40	-9.25	0.00	-0.02	3.37	-5.13	-3.08	
2:13:31	12:33:10	-9.25	0.00	-0.02	3.40	-5.10	-3.04	
2:14:01	12:33:40	-9.25	0.00	-0.02	3.36	-5.14	-3.03	
2:14:31	12:34:10	-9.25	0.00	0.00	3.38	-5.12	-2.99	
2:15:01	12:34:40	-9.25	0.00	0.01	3.36	-5.14	-2.97	
2:15:31	12:35:10	-9.25	0.00	0.01	3.41	-5.09	-2.92	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
2:16:01	12:35:40	-9.25	0.00	0.02	3.38	-5.12	-2.89	
2:16:31	12:36:10	-9.25	0.00	0.00	3.36	-5.14	-2.95	
2:17:01	12:36:40	-9.25	0.00	0.01	3.39	-5.11	-2.96	
2:17:31	12:37:10	-9.25	0.00	0.01	3.36	-5.14	-2.95	
2:18:01	12:37:40	-9.25	0.00	-0.02	3.38	-5.12	-2.93	
2:18:31	12:38:10	-9.25	0.00	-0.01	3.36	-5.14	-2.94	
2:19:01	12:38:40	-9.25	0.00	0.00	3.37	-5.13	-2.92	
2:19:31	12:39:10	-9.25	0.00	0.00	3.37	-5.13	-2.93	
2:20:01	12:39:40	-9.25	0.00	0.00	3.37	-5.13	-2.89	
2:20:31	12:40:10	-9.25	0.00	0.00	3.38	-5.12	-2.90	
2:21:01	12:40:40	-9.25	0.00	0.00	3.38	-5.12	-2.92	
2:21:31	12:41:10	-9.25	0.00	0.00	3.38	-5.12	-2.90	
2:22:01	12:41:40	-9.25	0.00	0.00	3.36	-5.14	-2.90	
2:22:31	12:42:10	-9.25	0.00	0.00	3.35	-5.15	-2.91	
2:23:01	12:42:40	-9.25	0.00	-0.01	3.38	-5.12	-2.94	
2:23:31	12:43:10	-9.25	0.00	-0.01	3.37	-5.13	-2.94	
2:24:01	12:43:40	-9.25	0.00	-0.01	3.37	-5.13	-2.95	
2:24:31	12:44:10	-9.25	0.00	-0.01	3.38	-5.12	-2.95	
2:25:01	12:44:40	-9.25	0.00	-0.02	3.36	-5.14	-2.96	
2:25:31	12:45:10	-9.25	0.00	-0.03	3.37	-5.13	-2.95	
2:26:01	12:45:40	-9.25	0.00	-0.03	3.44	-5.06	-2.88	
2:26:31	12:46:10	-9.25	0.00	-0.02	3.36	-5.14	-2.92	
2:27:01	12:46:40	-9.25	0.00	-0.04	3.39	-5.11	-2.88	
2:27:31	12:47:10	-9.25	0.00	-0.03	3.34	-5.16	-2.90	
2:28:01	12:47:40	-9.25	0.00	-0.03	3.40	-5.10	-2.88	
2:28:31	12:48:10	-9.25	0.00	-0.02	3.42	-5.08	-2.83	
2:29:01	12:48:40	-9.25	0.00	-0.03	3.37	-5.13	-2.85	
2:29:31	12:49:10	-9.25	0.00	-0.04	3.35	-5.15	-2.85	
2:30:01	12:49:40	-9.25	0.00	-0.04	3.37	-5.13	-2.84	
2:30:31	12:50:10	-9.25	0.00	-0.05	3.37	-5.13	-2.85	
2:31:01	12:50:40	-9.25	0.00	-0.05	3.37	-5.13	-2.83	
2:31:31	12:51:10	-9.25	0.00	-0.05	3.39	-5.11	-2.83	
2:32:01	12:51:40	-9.25	0.00	-0.03	3.38	-5.12	-2.85	
2:32:31	12:52:10	-9.25	0.00	-0.03	3.37	-5.13	-2.83	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
2:33:01	12:52:40	-9.25	0.00	-0.03	3.38	-5.12	-2.84	
2:33:31	12:53:10	-9.25	0.00	-0.03	3.36	-5.14	-2.86	
2:34:01	12:53:40	-9.25	0.00	-0.03	3.38	-5.12	-2.86	VEGE step 2 @ 80"wc
2:34:31	12:54:10	-9.25	0.00	-0.03	3.55	-4.95	-6.27	
2:35:01	12:54:40	-9.25	0.00	-0.03	3.48	-5.02	-6.22	
2:35:31	12:55:10	-9.25	0.00	-0.03	3.46	-5.04	-6.13	
2:36:01	12:55:40	-9.25	0.00	-0.03	3.42	-5.08	-6.45	
2:36:31	12:56:10	-9.25	0.00	-0.03	3.47	-5.03	-6.38	
2:37:01	12:56:40	-9.25	0.00	-0.03	3.51	-4.99	-6.32	
2:37:31	12:57:10	-9.25	0.00	-0.03	3.47	-5.03	-6.39	
2:38:01	12:57:40	-9.25	0.00	-0.03	3.49	-5.01	-6.35	
2:38:31	12:58:10	-9.25	0.00	-0.03	3.45	-5.05	-6.34	
2:39:01	12:58:40	-9.25	0.00	-0.02	3.47	-5.03	-6.30	
2:39:31	12:59:10	-9.25	0.00	-0.02	3.47	-5.03	-6.22	
2:40:01	12:59:40	-9.25	0.00	-0.03	3.47	-5.03	-6.19	
2:40:31	13:00:10	-9.25	0.00	-0.02	3.48	-5.02	-6.10	
2:41:01	13:00:40	-9.25	0.00	-0.02	3.52	-4.98	-6.01	
2:41:31	13:01:10	-9.25	0.00	-0.02	3.46	-5.04	-6.01	
2:42:01	13:01:40	-9.25	0.00	-0.02	3.43	-5.07	-5.97	
2:42:31	13:02:10	-9.25	0.00	-0.02	3.46	-5.04	-5.94	
2:43:01	13:02:40	-9.25	0.00	-0.02	3.45	-5.05	-5.98	
2:43:31	13:03:10	-9.25	0.00	-0.03	3.44	-5.06	-5.76	
2:44:01	13:03:40	-9.25	0.00	-0.01	3.42	-5.08	-5.87	
2:44:31	13:04:10	-9.25	0.00	-0.04	3.41	-5.09	-5.90	
2:45:01	13:04:40	-9.25	0.00	-0.03	3.48	-5.02	-5.78	
2:45:31	13:05:10	-9.25	0.00	-0.03	3.49	-5.01	-5.88	
2:46:01	13:05:40	-9.25	0.00	-0.03	3.45	-5.05	-5.80	
2:46:31	13:06:10	-9.25	0.00	-0.03	3.44	-5.06	-5.89	
2:47:01	13:06:40	-9.25	0.00	-0.03	3.43	-5.07	-5.88	
2:47:31	13:07:10	-9.25	0.00	-0.03	3.46	-5.04	-5.79	
2:48:01	13:07:40	-9.25	0.00	-0.03	3.45	-5.05	-5.82	
2:48:31	13:08:10	-9.25	0.00	-0.03	3.44	-5.06	-5.84	
2:49:01	13:08:40	-9.25	0.00	-0.03	3.43	-5.07	-5.70	
2:49:31	13:09:10	-9.25	0.00	-0.03	3.49	-5.01	-5.71	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
2:50:01	13:09:40	-9.25	0.00	-0.03	3.39	-5.11	-5.77	
2:50:31	13:10:10	-9.25	0.00	-0.03	3.44	-5.06	-5.73	
2:51:01	13:10:40	-9.25	0.00	-0.03	3.43	-5.07	-5.80	
2:51:31	13:11:10	-9.25	0.00	-0.03	3.46	-5.04	-5.80	
2:52:01	13:11:40	-9.25	0.00	-0.03	3.46	-5.04	-5.80	
2:52:31	13:12:10	-9.25	0.00	-0.03	3.43	-5.07	-5.85	
2:53:01	13:12:40	-9.25	0.00	-0.03	3.46	-5.04	-5.77	
2:53:31	13:13:10	-9.25	0.00	-0.03	3.40	-5.10	-5.84	
2:54:01	13:13:40	-9.25	0.00	-0.03	3.44	-5.06	-5.75	
2:54:31	13:14:10	-9.25	0.00	-0.03	3.44	-5.06	-5.74	
2:55:01	13:14:40	-9.25	0.00	-0.03	3.44	-5.06	-5.73	
2:55:31	13:15:10	-9.25	0.00	-0.03	3.43	-5.07	-5.77	
2:56:01	13:15:40	-9.25	0.00	-0.03	3.44	-5.06	-5.74	
2:56:31	13:16:10	-9.25	0.00	-0.03	3.40	-5.10	-5.78	
2:57:01	13:16:40	-9.25	0.00	-0.03	3.43	-5.07	-5.78	
2:57:33	13:17:12	-9.25	0.00	-0.03	3.37	-5.13	-5.69	
2:58:02	13:17:41	-9.25	0.00	-0.03	3.44	-5.06	-5.72	
2:58:34	13:18:13	-9.25	0.00	-0.03	3.49	-5.01	-5.65	
2:59:02	13:18:41	-9.25	0.00	-0.01	3.43	-5.07	-5.70	
2:59:32	13:19:11	-9.25	0.00	-0.03	3.36	-5.14	-5.73	
3:00:02	13:19:41	-9.25	0.00	-0.03	3.44	-5.06	-5.71	
3:00:32	13:20:11	-9.25	0.00	-0.03	3.44	-5.06	-5.71	
3:01:02	13:20:41	-9.25	0.00	-0.03	3.44	-5.06	-5.62	
3:01:32	13:21:11	-9.25	0.00	-0.03	3.40	-5.10	-5.69	
3:02:02	13:21:41	-9.25	0.00	-0.03	3.43	-5.07	-5.71	
3:02:32	13:22:11	-9.25	0.00	-0.03	3.42	-5.08	-5.73	
3:03:03	13:22:42	-9.25	0.00	-0.03	3.43	-5.07	-5.74	
3:03:32	13:23:11	-9.25	0.00	-0.04	3.42	-5.08	-5.79	
3:04:02	13:23:41	-9.25	0.00	0.00	3.41	-5.09	-5.81	
3:04:32	13:24:11	-9.25	0.00	-0.02	3.42	-5.08	-5.77	
3:05:02	13:24:41	-9.25	0.00	-0.02	3.46	-5.04	-5.59	
3:05:32	13:25:11	-9.25	0.00	-0.03	3.43	-5.07	-5.66	
3:06:04	13:25:43	-9.25	0.00	-0.02	3.42	-5.08	-5.63	
3:06:34	13:26:13	-9.25	0.00	-0.02	3.45	-5.05	-5.59	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
3:07:04	13:26:43	-9.25	0.00	-0.03	3.42	-5.08	-5.55	
3:07:34	13:27:13	-9.25	0.00	-0.05	3.46	-5.04	-5.48	
3:08:04	13:27:43	-9.25	0.00	-0.05	3.42	-5.08	-5.50	
3:08:34	13:28:13	-9.25	0.00	-0.03	3.45	-5.05	-5.54	
3:09:04	13:28:43	-9.25	0.00	-0.03	3.46	-5.04	-5.52	
3:09:34	13:29:13	-9.25	0.00	-0.02	3.47	-5.03	-5.55	
3:10:04	13:29:43	-9.25	0.00	-0.01	3.45	-5.05	-5.48	
3:10:34	13:30:13	-9.25	0.00	-0.01	3.42	-5.08	-5.53	
3:11:04	13:30:43	-9.25	0.00	-0.02	3.41	-5.09	-5.55	
3:11:34	13:31:13	-9.25	0.00	-0.03	3.43	-5.07	-5.56	
3:12:04	13:31:43	-9.25	0.00	-0.02	3.40	-5.10	-5.62	
3:12:34	13:32:13	-9.25	0.00	-0.03	3.47	-5.03	-5.51	
3:13:04	13:32:43	-9.25	0.00	-0.04	3.43	-5.07	-5.62	
3:13:34	13:33:13	-9.25	0.00	-0.04	3.43	-5.07	-5.60	
3:14:04	13:33:43	-9.25	0.00	-0.03	3.48	-5.02	-5.61	
3:14:34	13:34:13	-9.25	0.00	-0.03	3.44	-5.06	-5.60	
3:15:04	13:34:43	-9.25	0.00	-0.04	3.44	-5.06	-5.62	
3:15:34	13:35:13	-9.25	0.00	-0.05	3.43	-5.07	-5.60	
3:16:04	13:35:43	-9.25	0.00	-0.04	3.44	-5.06	-5.55	BLOWER OFF - SWITCH TO HIGH VAC BLOWER
3:16:34	13:36:13	-9.25	0.00	-0.05	3.04	-5.46	-0.08	
3:17:04	13:36:43	-9.25	0.00	-0.05	3.25	-5.25	-0.01	
3:17:34	13:37:13	-9.25	0.00	-0.05	3.28	-5.22	0.00	
3:18:04	13:37:43	-9.25	0.00	-0.04	3.45	-5.05	-8.07	VEGE TEST STEP 3 - HIGH VAC BLOWER
3:18:34	13:38:13	-9.25	0.00	-0.05	3.51	-4.99	-8.07	
3:19:04	13:38:43	-9.25	0.00	-0.04	3.49	-5.01	-7.99	
3:19:34	13:39:13	-9.25	0.00	-0.04	3.67	-4.83	-7.90	
3:20:04	13:39:43	-9.25	0.00	-0.05	3.46	-5.04	-7.92	
3:20:34	13:40:13	-9.25	0.00	-0.04	3.50	-5.00	-7.78	
3:21:04	13:40:43	-9.25	0.00	-0.05	3.48	-5.02	-7.89	
3:21:34	13:41:13	-9.25	0.00	-0.04	3.45	-5.05	-7.81	
3:22:04	13:41:43	-9.25	0.00	-0.04	3.48	-5.02	-7.95	
3:22:34	13:42:13	-9.25	0.00	-0.04	3.50	-5.00	-7.85	
3:23:04	13:42:43	-9.25	0.00	-0.04	3.47	-5.03	-7.89	
3:23:34	13:43:13	-9.25	0.00	-0.04	3.67	-4.83	-7.87	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
3:24:09	13:43:47	-9.25	0.00	-0.04	3.46	-5.04	-7.95	
3:24:39	13:44:17	-9.25	0.00	-0.04	3.52	-4.98	-7.92	
3:25:09	13:44:47	-9.25	0.00	-0.04	3.50	-5.00	-7.75	
3:25:39	13:45:17	-9.25	0.00	-0.04	3.59	-4.91	-7.73	
3:26:09	13:45:48	-9.25	0.00	-0.04	3.43	-5.07	-7.71	
3:26:39	13:46:18	-9.25	0.00	-0.04	3.46	-5.04	-7.73	
3:27:09	13:46:48	-9.25	0.00	-0.05	3.45	-5.05	-7.61	
3:27:39	13:47:18	-9.25	0.00	-0.05	3.47	-5.03	-7.69	
3:28:09	13:47:48	-9.25	0.00	-0.05	3.49	-5.01	-7.57	
3:28:45	13:48:24	-9.25	0.00	-0.05	3.51	-4.99	-7.65	
3:29:15	13:48:54	-9.25	0.00	-0.05	3.50	-5.00	-7.62	
3:29:45	13:49:24	-9.25	0.00	-0.05	3.47	-5.03	-7.53	
3:30:15	13:49:54	-9.25	0.00	-0.05	3.62	-4.88	-7.43	
3:30:48	13:50:27	-9.25	0.00	-0.05	3.46	-5.04	-7.58	
3:31:15	13:50:54	-9.25	0.00	-0.05	3.44	-5.06	-7.53	
3:31:45	13:51:24	-9.25	0.00	-0.03	3.54	-4.96	-7.68	
3:32:15	13:51:54	-9.25	0.00	-0.02	3.47	-5.03	-7.62	
3:32:45	13:52:24	-9.25	0.00	-0.02	3.46	-5.04	-7.72	
3:33:15	13:52:54	-9.25	0.00	-0.02	3.52	-4.98	-7.77	
3:33:45	13:53:24	-9.25	0.00	-0.05	3.44	-5.06	-7.62	
3:34:15	13:53:54	-9.25	0.00	-0.05	3.58	-4.92	-7.43	
3:34:45	13:54:24	-9.25	0.00	-0.05	3.46	-5.04	-7.51	
3:35:16	13:54:55	-9.25	0.00	-0.05	3.48	-5.02	-7.56	
3:35:46	13:55:25	-9.25	0.00	-0.05	3.57	-4.93	-7.52	
3:36:16	13:55:55	-9.25	0.00	-0.05	3.49	-5.01	-7.58	
3:36:46	13:56:25	-9.25	0.00	-0.05	3.44	-5.06	-7.54	
3:37:16	13:56:55	-9.25	0.00	-0.05	3.48	-5.02	-7.58	
3:37:46	13:57:25	-9.25	0.00	-0.05	3.45	-5.05	-7.51	
3:38:16	13:57:55	-9.25	0.00	-0.05	3.55	-4.95	-7.39	
3:38:46	13:58:25	-9.25	0.00	-0.05	3.65	-4.85	-7.39	
3:39:16	13:58:55	-9.25	0.00	-0.05	3.64	-4.86	-7.38	
3:39:46	13:59:25	-9.25	0.00	-0.05	3.60	-4.90	-7.37	
3:40:17	13:59:56	-9.25	0.00	-0.05	3.44	-5.06	-7.49	
3:43:16	14:02:55	-9.25	0.00	-0.05	3.48	-5.02	-7.63	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
3:43:16	14:02:55	-9.25	0.00	-0.05	3.44	-5.06	-7.59	
3:43:16	14:02:55	-9.25	0.00	-0.05	3.44	-5.06	-7.59	
3:43:46	14:03:25	-9.25	0.00	-0.05	3.48	-5.02	-7.46	
3:44:16	14:03:55	-9.25	0.00	-0.05	3.53	-4.97	-7.54	
3:44:46	14:04:25	-9.25	0.00	-0.05	3.48	-5.02	-7.45	
3:45:16	14:04:55	-9.25	0.00	-0.03	3.52	-4.98	-7.27	
3:45:49	14:05:28	-9.25	0.00	-0.03	3.45	-5.05	-7.24	
3:46:16	14:05:55	-9.25	0.00	-0.02	3.49	-5.01	-7.41	
3:46:46	14:06:25	-9.25	0.00	-0.02	3.44	-5.06	-7.37	
3:47:16	14:06:55	-9.25	0.00	-0.02	3.52	-4.98	-7.29	
3:47:46	14:07:25	-9.25	0.00	-0.02	3.49	-5.01	-7.28	
3:48:17	14:07:56	-9.25	0.00	-0.02	3.46	-5.04	-7.40	
3:48:47	14:08:26	-9.25	0.00	-0.02	3.45	-5.05	-7.44	
3:49:17	14:08:56	-9.25	0.00	-0.02	3.43	-5.07	-7.40	
3:49:47	14:09:26	-9.25	0.00	-0.02	3.57	-4.93	-7.45	
3:50:17	14:09:56	-9.25	0.00	-0.02	3.51	-4.99	-7.37	
3:50:47	14:10:26	-9.25	0.00	-0.02	3.47	-5.03	-7.31	
3:51:17	14:10:56	-9.25	0.00	-0.02	3.42	-5.08	-7.28	
3:51:47	14:11:26	-9.25	0.00	-0.02	3.50	-5.00	-7.42	
3:52:17	14:11:56	-9.25	0.00	-0.02	3.43	-5.07	-7.40	
3:52:47	14:12:26	-9.25	0.00	-0.02	3.40	-5.10	-7.36	
3:53:17	14:12:56	-9.25	0.00	-0.02	3.56	-4.94	-7.23	
3:53:47	14:13:26	-9.25	0.00	-0.02	3.44	-5.06	-7.33	
3:54:18	14:13:56	-9.25	0.00	-0.02	3.38	-5.12	-7.40	
3:54:47	14:14:26	-9.25	0.00	-0.02	3.39	-5.11	-7.35	
3:55:18	14:14:56	-9.25	0.00	-0.02	3.46	-5.04	-7.39	
3:55:48	14:15:26	-9.25	0.00	-0.02	3.39	-5.11	-7.34	
3:56:18	14:15:56	-9.25	0.00	-0.02	3.43	-5.07	-7.22	
3:56:48	14:16:26	-9.25	0.00	-0.02	3.43	-5.07	-7.32	
3:57:18	14:16:56	-9.25	0.00	-0.02	3.55	-4.95	-7.23	
3:57:48	14:17:26	-9.25	0.00	-0.02	3.43	-5.07	-7.31	
3:58:18	14:17:56	-9.25	0.00	-0.02	3.45	-5.05	-7.42	
3:58:48	14:18:26	-9.25	0.00	-0.02	3.48	-5.02	-7.34	
3:59:18	14:18:56	-9.25	0.00	-0.02	3.43	-5.07	-7.44	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
3:59:48	14:19:26	-9.25	0.00	-0.02	3.40	-5.10	-7.36	
4:00:18	14:19:56	-9.25	0.00	-0.02	3.45	-5.05	-7.45	
4:00:48	14:20:26	-9.25	0.00	-0.02	3.41	-5.09	-7.44	
4:01:18	14:20:57	-9.25	0.00	-0.02	3.41	-5.09	-7.42	
4:01:48	14:21:27	-9.25	0.00	-0.02	3.56	-4.94	-7.41	
4:02:18	14:21:57	-9.25	0.00	-0.02	3.48	-5.02	-7.37	
4:02:48	14:22:27	-9.25	0.00	-0.02	3.40	-5.10	-7.30	
4:03:18	14:22:57	-9.25	0.00	-0.02	3.40	-5.10	-7.26	
4:03:48	14:23:27	-9.25	0.00	-0.02	3.41	-5.09	-7.26	
4:04:18	14:23:57	-9.25	0.00	-0.02	3.46	-5.04	-7.36	
4:04:48	14:24:27	-9.25	0.00	-0.02	3.42	-5.08	-7.25	
4:05:18	14:24:57	-9.25	0.00	-0.02	3.48	-5.02	-7.13	
4:05:48	14:25:27	-9.25	0.00	-0.02	3.62	-4.88	-7.16	
4:06:18	14:25:57	-9.25	0.00	-0.02	3.51	-4.99	-7.08	
4:06:48	14:26:27	-9.25	0.00	-0.02	3.44	-5.06	-7.21	
4:07:18	14:26:57	-9.25	0.00	-0.02	3.49	-5.01	-7.09	
4:07:48	14:27:27	-9.25	0.00	-0.02	3.52	-4.98	-7.29	
4:08:18	14:27:57	-9.25	0.00	-0.02	3.59	-4.91	-7.18	
4:08:48	14:28:27	-9.25	0.00	-0.02	3.50	-5.00	-7.31	
4:09:18	14:28:57	-9.25	0.00	-0.02	3.48	-5.02	-7.33	
4:09:48	14:29:27	-9.25	0.00	-0.02	3.41	-5.09	-7.25	
4:10:18	14:29:57	-9.25	0.00	-0.02	3.40	-5.10	-7.27	
4:10:48	14:30:27	-9.25	0.00	-0.02	3.45	-5.05	-7.19	
4:11:18	14:30:57	-9.25	0.00	-0.02	3.41	-5.09	-7.15	
4:11:48	14:31:27	-9.25	0.00	-0.02	3.52	-4.98	-7.21	
4:12:18	14:31:57	-9.25	0.00	-0.02	3.49	-5.01	-7.27	
4:12:48	14:32:27	-9.25	0.00	-0.02	3.43	-5.07	-7.20	
4:13:18	14:32:57	-9.25	0.00	-0.02	3.42	-5.08	-7.18	
4:13:48	14:33:27	-9.25	0.00	-0.02	3.40	-5.10	-7.19	
4:14:18	14:33:57	-9.25	0.00	-0.02	3.43	-5.07	-7.11	
4:14:48	14:34:27	-9.25	0.00	-0.02	3.54	-4.96	-7.24	
4:15:18	14:34:57	-9.25	0.00	-0.02	3.42	-5.08	-7.12	
4:15:48	14:35:27	-9.25	0.00	-0.02	3.45	-5.05	-7.19	Pump and blower off
4:16:18	14:35:57	-9.25	0.00	-0.02	2.83	-5.67	-0.01	

Table B-1

VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

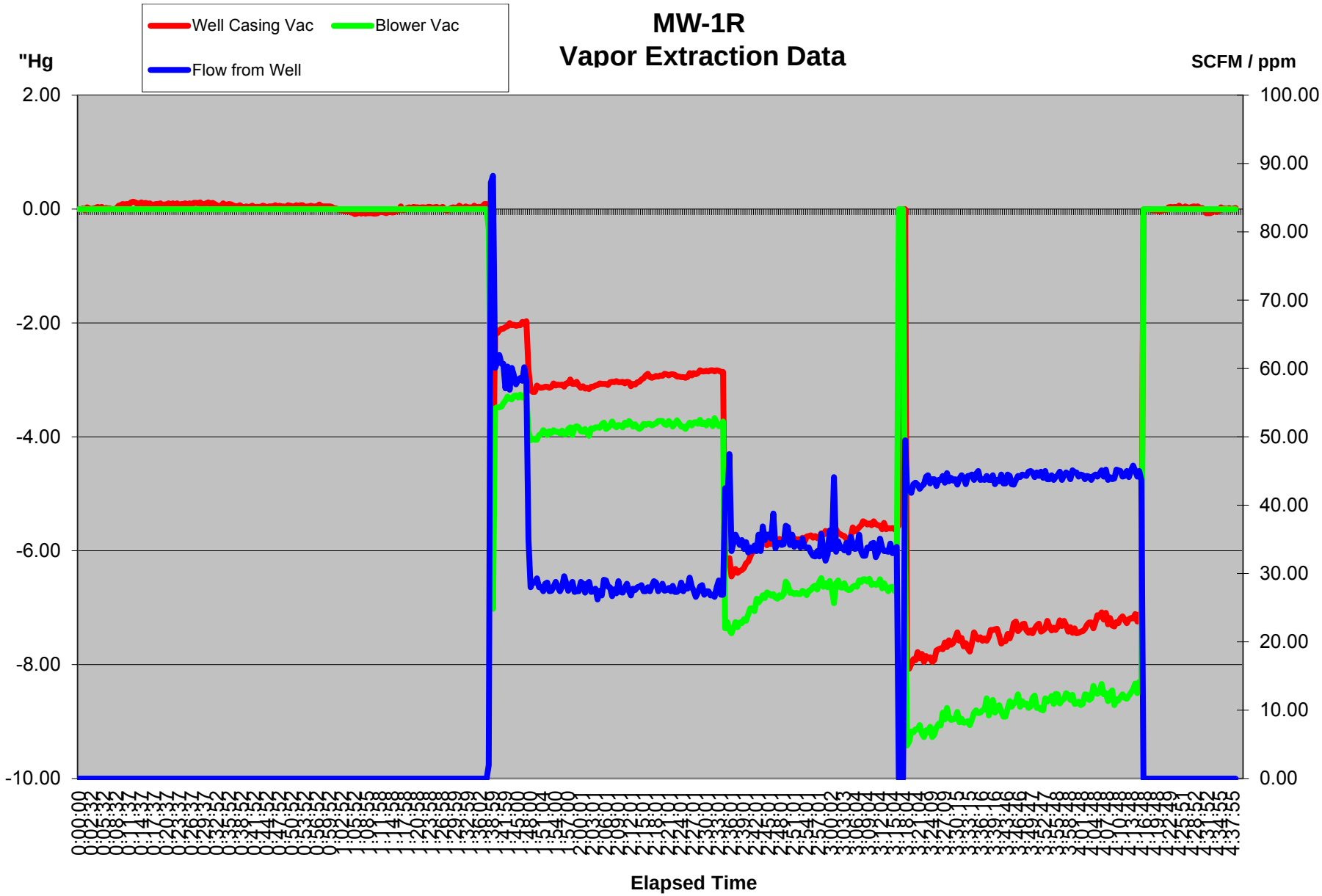
ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Click to add a comment
4:16:48	14:36:27	-9.25	0.00	-0.02	3.19	-5.31	0.00	
4:17:18	14:36:57	-9.25	0.00	-0.02	3.45	-5.05	0.00	
4:17:48	14:37:27	-9.25	0.00	0.00	3.82	-4.68	0.00	
4:18:18	14:37:57	-9.25	0.00	0.00	4.13	-4.37	-0.01	
4:18:48	14:38:27	-9.25	0.00	0.00	4.47	-4.03	-0.03	
4:19:18	14:38:57	-9.25	0.00	0.00	4.74	-3.76	-0.01	
4:19:48	14:39:27	-9.25	0.00	0.00	5.03	-3.47	-0.04	
4:20:18	14:39:57	-9.25	0.00	0.00	5.30	-3.20	-0.04	
4:20:48	14:40:27	-9.25	0.00	0.00	5.61	-2.89	-0.03	
4:21:18	14:40:57	-9.25	0.00	0.00	5.94	-2.56	0.00	
4:21:48	14:41:27	-9.25	0.00	0.00	6.16	-2.34	-0.02	
4:22:19	14:41:58	-9.25	0.00	0.00	6.41	-2.09	0.03	
4:22:49	14:42:28	-9.25	0.00	0.00	6.70	-1.80	0.04	
4:23:19	14:42:58	-9.25	0.00	0.00	6.95	-1.55	0.03	
4:23:49	14:43:28	-9.25	0.00	0.00	7.15	-1.35	0.04	
4:24:19	14:43:58	-9.25	0.00	0.00	7.39	-1.11	0.03	
4:24:51	14:44:30	-9.25	0.00	0.00	7.49	-1.01	0.06	
4:25:21	14:45:00	-9.25	0.00	0.00	7.62	-0.88	0.03	
4:25:51	14:45:30	-9.25	0.00	0.00	7.72	-0.78	0.01	
4:26:21	14:46:00	-9.25	0.00	0.00	7.78	-0.72	0.05	
4:26:52	14:46:31	-9.25	0.00	0.00	7.85	-0.65	0.03	
4:27:22	14:47:01	-9.25	0.00	0.00	7.92	-0.58	0.02	
4:27:52	14:47:31	-9.25	0.00	0.00	7.96	-0.54	0.04	
4:28:22	14:48:01	-9.25	0.00	0.00	8.01	-0.49	0.05	
4:28:52	14:48:31	-9.25	0.00	0.00	8.05	-0.45	0.04	
4:29:22	14:49:01	-9.25	0.00	0.00	8.08	-0.42	0.05	
4:29:52	14:49:31	-9.25	0.00	0.00	8.11	-0.39	0.00	
4:30:22	14:50:01	-9.25	0.00	0.00	8.13	-0.37	0.02	
4:30:52	14:50:31	-9.25	0.00	0.00	8.17	-0.33	-0.01	
4:31:22	14:51:01	-9.25	0.00	0.00	8.16	-0.34	-0.07	
4:31:52	14:51:31	-9.25	0.00	0.00	8.18	-0.32	-0.07	
4:32:25	14:52:04	-9.25	0.00	0.00	8.18	-0.32	-0.07	
4:32:55	14:52:34	-9.25	0.00	0.00	8.20	-0.30	-0.05	
4:33:25	14:53:04	-9.25	0.00	0.00	8.20	-0.30	-0.04	

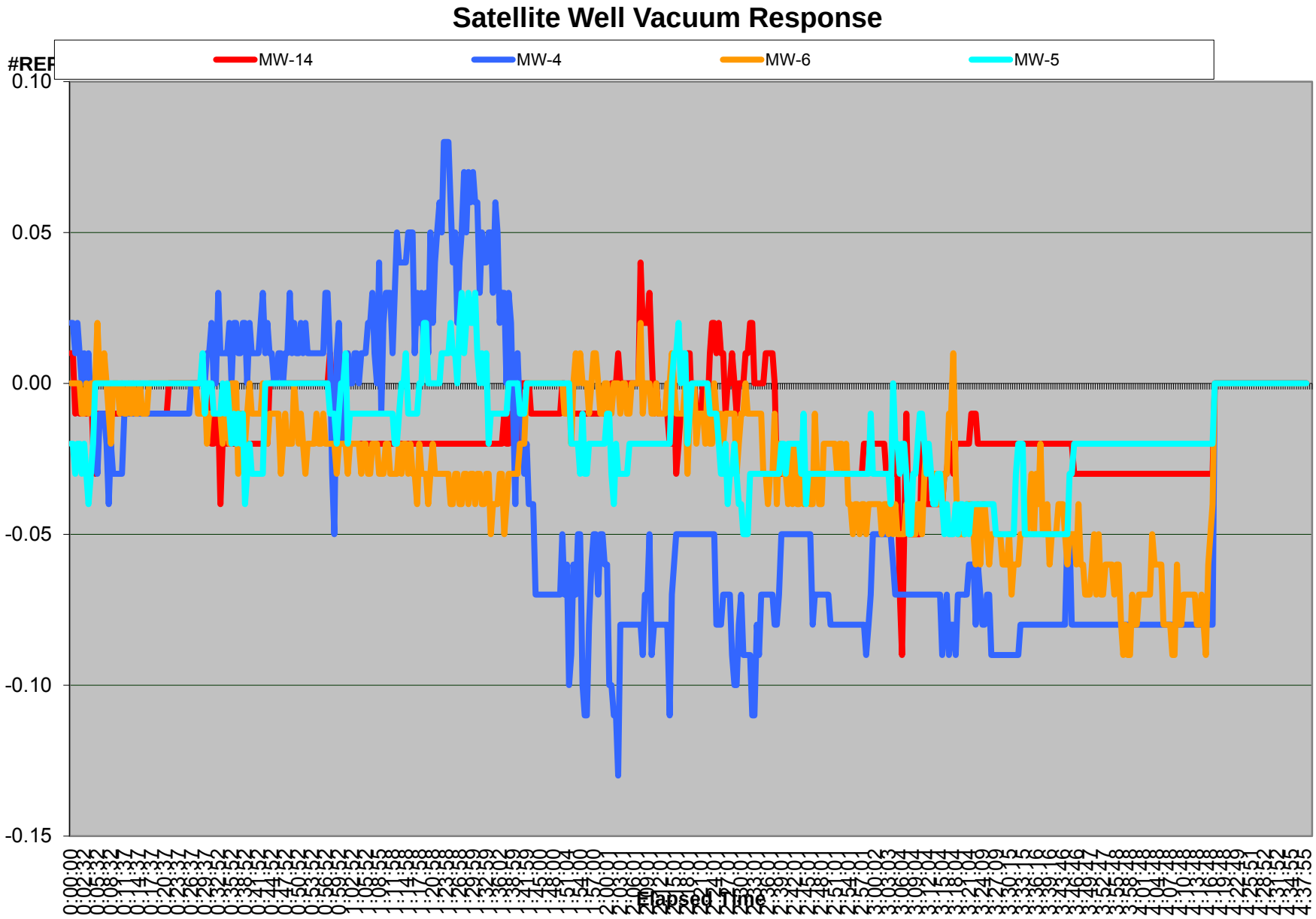
Table B-1

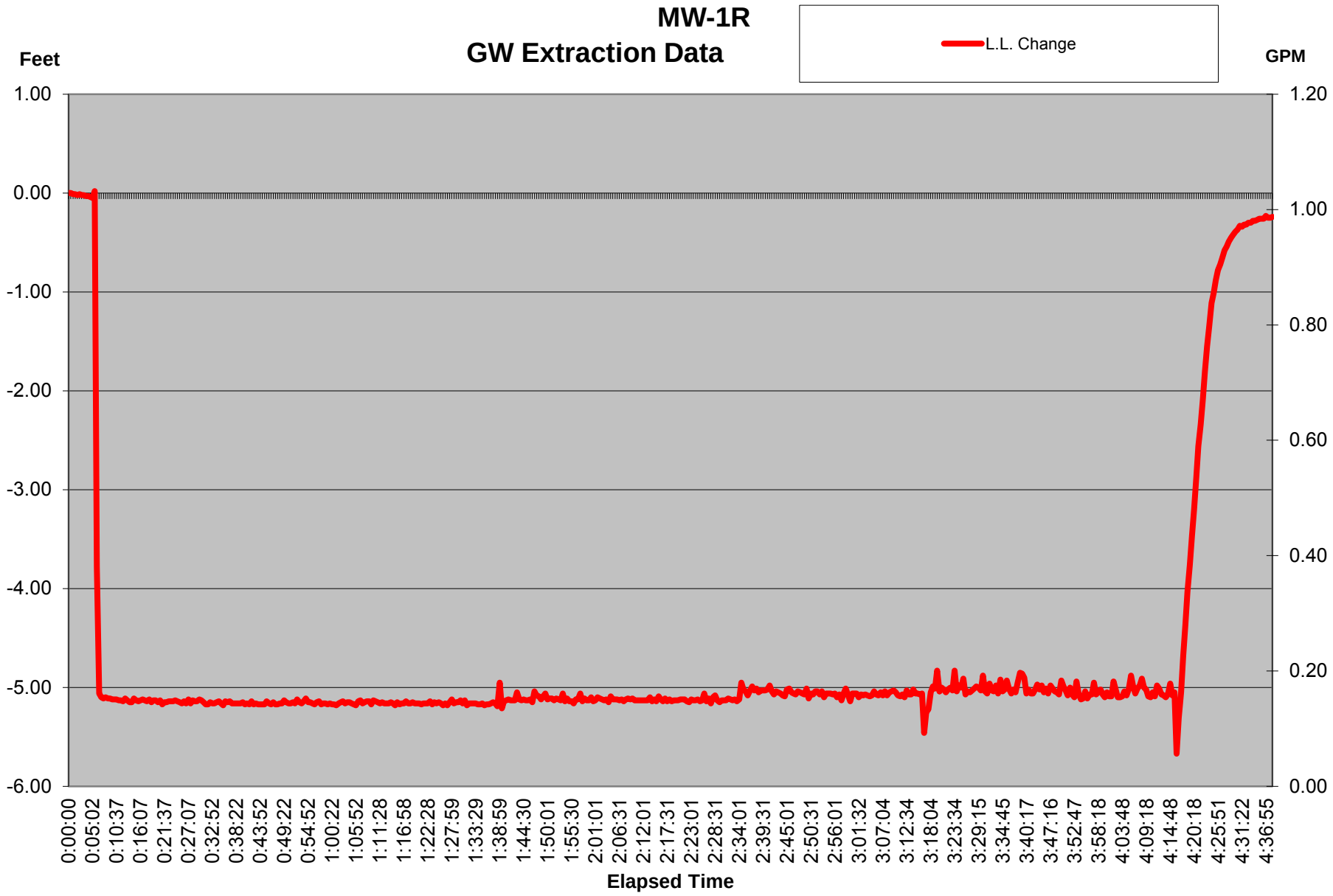
VEGE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	
4:33:55	14:53:34	-9.25	0.00	0.00	8.22	-0.28	-0.05	
4:34:25	14:54:04	-9.25	0.00	0.00	8.22	-0.28	-0.03	
4:34:55	14:54:34	-9.25	0.00	0.00	8.23	-0.27	0.03	
4:35:25	14:55:04	-9.25	0.00	0.00	8.24	-0.26	0.00	
4:35:55	14:55:34	-9.25	0.00	0.00	8.24	-0.26	0.01	
4:36:25	14:56:04	-9.25	0.00	0.00	8.24	-0.26	0.00	
4:36:55	14:56:34	-9.25	0.00	0.00	8.27	-0.23	0.02	
4:37:25	14:57:04	-9.25	0.00	0.00	8.25	-0.25	-0.01	
4:37:55	14:57:34	-9.25	0.00	0.00	8.25	-0.25	0.01	
4:38:25	14:58:04	-9.25	0.00	0.00	8.26	-0.24	0.02	
								End test


MW-1R
Vapor Extraction Data
Well Casing Vac
Blower Vac
Flow from Well
"Hg
SCFM / ppm
2.00
0.00
-2.00
-4.00
-6.00
-8.00
-10.00
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
Elapsed Time


Satellite Well Vacuum Response
MW-14
MW-4
MW-6
MW-5
#REF
0.10
0.05
0.00
-0.05
-0.10
-0.15
Elapsed Time


MW-1R
GW Extraction Data
L.L. Change
Feet
GPM
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0:00:00
0:05:02
0:10:37
0:16:07
0:21:37
0:27:07
0:32:52
0:38:22
0:43:52
0:49:22
0:54:52
1:00:22
1:05:52
1:11:28
1:16:58
1:22:28
1:27:59
1:33:29
1:38:59
1:44:30
1:50:01
1:55:30
2:01:01
2:06:31
2:12:01
2:17:31
2:23:01
2:28:31
2:34:01
2:39:31
2:45:01
2:50:31
2:56:01
3:01:32
3:07:04
3:12:34
3:18:04
3:23:34
3:29:15
3:34:45
3:40:17
3:47:16
3:52:47
3:58:18
4:03:48
4:09:18
4:14:48
4:20:18
4:25:51
4:31:22
4:36:55
Elapsed Time

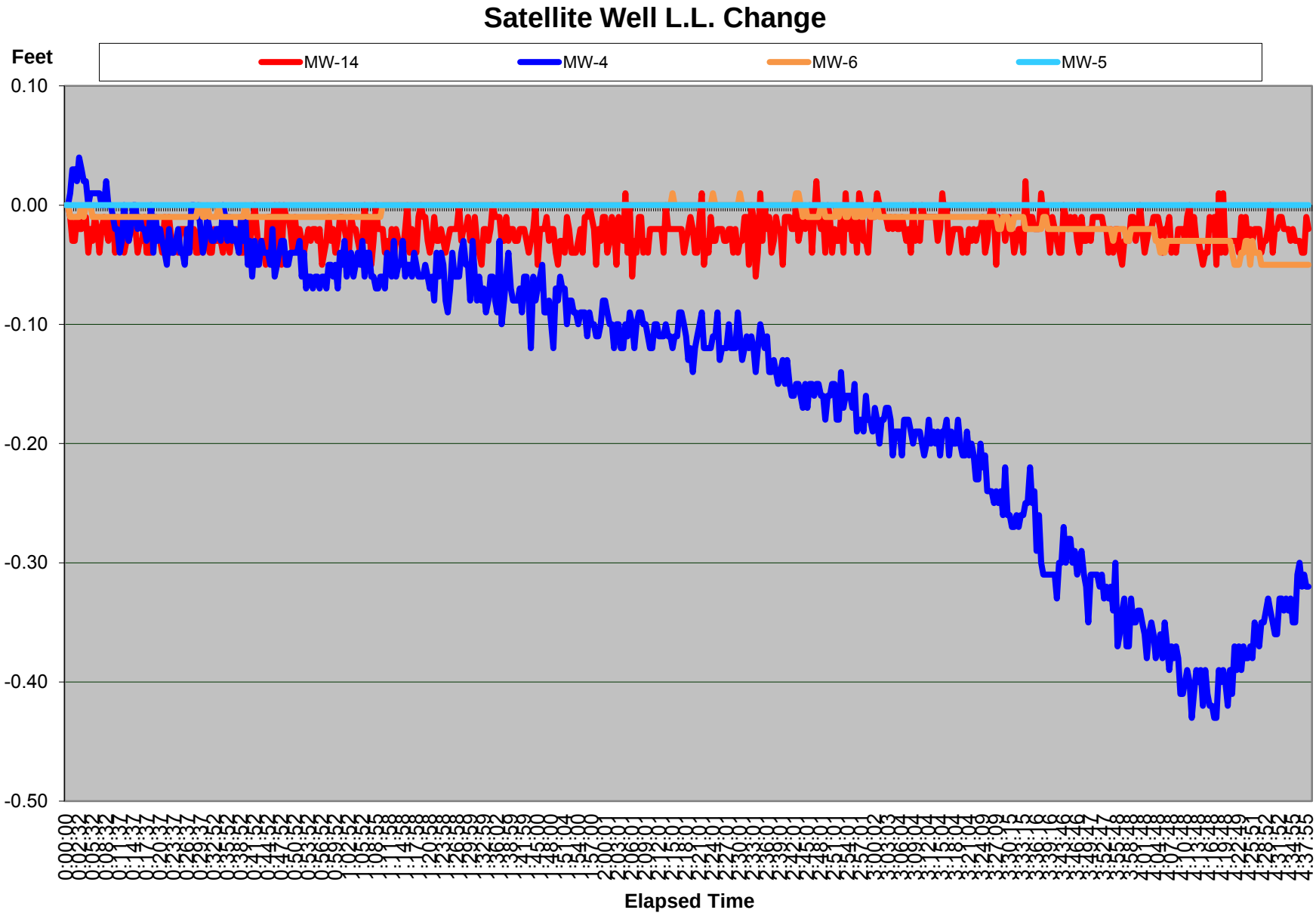

Satellite Well L.L. Change
Feet
MW-14
MW-4
MW-6
MW-5
0.10
0.00
-0.10
-0.20
-0.30
-0.40
-0.50
Elapsed Time

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
0:00:00	15:09:37	0.00	0.00	110.70	18.00	
0:00:29	15:10:06	0.00	0.00	110.40	8.62	
0:00:59	15:10:35	0.00	0.00	110.20	-13.25	
0:01:29	15:11:05	0.00	0.00	110.00	-6.68	
0:01:59	15:11:35	0.00	0.00	109.40	9.49	
0:02:29	15:12:06	0.00	0.00	109.20	8.53	START TEST - STRAW @ 12' BELOW TOC
0:02:59	15:12:35	0.00	0.00	109.00	-13.25	
0:03:29	15:13:05	-19.73	13.40	110.40	-0.41	
0:03:59	15:13:35	-23.53	4.10	111.10	0.10	
0:04:29	15:14:05	-23.64	3.80	110.60	0.30	
0:04:59	15:14:36	-23.64	4.00	110.50	0.40	
0:05:29	15:15:05	-23.62	4.00	110.80	0.48	
0:05:59	15:15:35	-12.27	35.50	112.50	0.48	
0:06:29	15:16:05	-13.28	32.30	120.90	0.56	
0:06:59	15:16:35	-14.41	29.40	125.90	0.56	
0:07:31	15:17:07	-14.50	29.30	128.30	0.56	
0:07:59	15:17:35	-14.38	30.00	130.60	29.88	
0:08:29	15:18:05	-14.38	30.00	132.60	29.88	
0:08:59	15:18:36	-14.30	31.00	134.00	-16.11	
0:09:29	15:19:06	-14.22	30.40	135.20	-0.43	
0:09:59	15:19:36	-14.16	30.00	136.30	-0.43	
0:10:29	15:20:06	-14.15	30.00	137.40	-0.43	
0:10:59	15:20:36	-14.15	30.60	138.30	-0.43	
0:11:29	15:21:06	-14.11	30.50	139.20	-0.43	
0:11:59	15:21:36	-14.09	30.80	140.20	-2.06	
0:12:29	15:22:06	-14.13	30.20	140.90	-2.06	
0:12:59	15:22:36	-14.12	29.70	141.50	-2.06	
0:13:29	15:23:06	-14.11	30.70	142.10	-2.06	
0:13:59	15:23:36	-14.14	30.10	142.60	-2.06	
0:14:29	15:24:06	-14.16	30.70	143.10	-33.11	
0:14:59	15:24:36	-14.21	30.30	143.20	-33.11	
0:15:29	15:25:06	-14.33	30.40	143.80	-33.11	
0:15:59	15:25:36	-14.28	30.70	144.10	-33.11	
0:16:29	15:26:06	-14.32	30.70	144.40	445.46	

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
0:16:59	15:26:36	-14.35	30.40	144.80	445.46	
0:17:29	15:27:06	-14.19	30.60	144.90	25.04	
0:17:59	15:27:36	-14.18	30.80	145.20	25.04	
0:18:29	15:28:06	-14.12	31.20	145.80	-2.01	
0:18:59	15:28:36	-14.13	30.60	146.10	0.71	
0:19:29	15:29:06	-14.10	30.50	146.40	2.13	
0:19:59	15:29:36	-14.09	30.70	146.50	2.66	
0:20:29	15:30:06	-14.04	30.50	146.70	3.06	
0:20:59	15:30:36	-14.02	31.30	146.80	3.44	
0:21:29	15:31:06	-14.10	30.50	147.10	3.48	
0:22:00	15:31:36	-14.08	31.20	147.10	3.48	
0:22:30	15:32:06	-14.05	31.10	147.30	3.48	
0:23:00	15:32:36	-14.08	31.40	147.50	3.48	
0:23:30	15:33:06	-14.10	31.00	147.30	3.48	
0:24:00	15:33:36	-14.19	31.20	147.50	3.48	
0:24:30	15:34:06	-14.15	30.60	147.30	3.48	
0:25:00	15:34:36	-14.18	31.10	147.90	3.48	
0:25:30	15:35:06	-14.05	31.00	148.10	3.48	
0:26:00	15:35:36	-14.03	31.30	148.20	3.48	
0:26:30	15:36:06	-13.94	31.20	148.30	3.48	
0:27:00	15:36:36	-13.96	31.10	148.50	3.48	
0:27:30	15:37:06	-13.92	31.00	148.40	-5.53	
0:28:00	15:37:36	-13.90	30.70	148.70	-32.31	
0:28:30	15:38:06	-13.92	31.20	148.70	-32.31	
0:29:00	15:38:37	-13.97	31.10	148.60	-32.31	
0:29:30	15:39:07	-14.02	31.20	148.80	-12.68	
0:30:00	15:39:37	-14.04	31.30	148.90	-0.56	
0:30:30	15:40:07	-13.99	31.60	148.70	0.02	
0:31:00	15:40:37	-14.08	31.10	148.70	0.47	
0:31:30	15:41:07	-14.06	31.40	148.90	0.47	
0:32:00	15:41:37	-14.04	30.70	148.90	1.13	
0:32:30	15:42:07	-14.05	31.20	149.00	1.13	
0:33:00	15:42:37	-14.01	30.50	149.00	1.13	
0:33:30	15:43:07	-14.42	30.10	149.00	1.13	

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
0:34:00	15:43:37	-14.53	29.70	149.00	1.13	
0:34:30	15:44:07	-14.41	29.10	148.90	1.13	AWS PUMP OUT
0:38:28	15:48:04	-14.38	29.30	148.70	1.13	
0:38:28	15:48:04	-14.32	30.00	148.90	1.13	
0:38:31	15:48:07	-14.40	29.90	149.00	1.13	
0:39:01	15:48:37	-14.49	30.60	149.00	-6.87	
0:39:31	15:49:07	-14.44	30.00	149.00	-6.87	
0:40:01	15:49:37	-17.63	21.20	148.90	-6.87	
0:40:31	15:50:07	-15.23	28.20	148.20	-6.87	
0:41:01	15:50:37	-14.51	29.40	148.50	-6.87	
0:41:31	15:51:07	-14.44	30.10	149.00	-6.87	
0:42:01	15:51:37	-14.47	29.40	149.30	-6.87	
0:42:31	15:52:07	-14.35	30.00	149.30	-6.87	
0:43:01	15:52:37	-14.35	30.00	149.50	-6.87	
0:43:31	15:53:07	-14.29	29.40	149.40	-6.87	
0:44:01	15:53:37	-14.32	30.20	149.40	-6.87	
0:44:31	15:54:07	-14.28	30.60	149.60	-6.87	
0:45:01	15:54:37	-14.36	30.20	149.50	-6.87	
0:45:31	15:55:07	-14.49	30.50	149.50	-6.87	
0:46:02	15:55:39	-14.49	30.50	149.50	-6.87	
0:46:32	15:56:09	-14.30	30.50	149.40	-6.87	
0:47:02	15:56:39	-14.36	30.60	149.50	-6.87	
0:47:32	15:57:09	-14.32	30.40	149.60	-6.87	
0:48:02	15:57:39	-14.34	30.00	149.50	-6.87	
0:48:32	15:58:09	-14.35	30.10	149.50	-6.87	
0:49:02	15:58:39	-14.32	30.70	149.80	-6.87	
0:49:32	15:59:09	-14.27	29.80	149.70	-2.43	
0:50:02	15:59:39	-14.49	30.00	149.80	0.02	
0:50:32	16:00:09	-14.46	29.30	149.20	1.38	AWS PUMP OUT
0:51:02	16:00:39	-14.49	29.70	149.60	2.51	
0:51:32	16:01:09	-14.53	29.50	149.70	-2.30	
0:52:02	16:01:39	-14.60	29.30	149.60	-0.34	
0:52:32	16:02:09	-14.60	29.50	149.50	-0.07	
0:53:02	16:02:39	-14.44	30.10	149.60	-0.09	

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
0:53:32	16:03:09	-14.49	30.70	149.80	-0.19	
0:54:02	16:03:39	-14.47	30.40	149.60	-0.19	
0:54:32	16:04:09	-14.51	29.80	149.70	-0.19	
0:55:02	16:04:39	-14.52	30.40	149.70	-0.19	
0:55:32	16:05:09	-14.41	30.00	149.70	-0.19	
0:56:02	16:05:39	-14.35	30.00	149.70	-0.19	
0:56:32	16:06:09	-14.27	30.00	149.80	-0.19	
0:57:02	16:06:39	-14.34	30.10	149.70	-0.19	
0:57:32	16:07:09	-14.16	30.70	149.90	-0.19	
0:58:02	16:07:39	-14.13	30.40	149.70	0.90	
0:58:32	16:08:09	-14.11	30.90	149.60	2.36	
0:59:03	16:08:40	-14.09	30.70	149.80	-6.87	
0:59:32	16:09:09	-14.16	30.00	149.80	-6.87	
1:00:03	16:09:39	-14.16	31.30	149.70	-6.87	
1:00:32	16:10:09	-14.04	31.20	149.70	-6.87	
1:01:02	16:10:39	-14.16	30.60	149.60	-6.87	
1:01:32	16:11:09	-14.13	31.20	149.50	-6.87	
1:02:02	16:11:39	-14.16	30.20	149.70	-6.87	
1:02:33	16:12:09	-14.14	30.80	149.40	-6.87	
1:03:03	16:12:39	-14.23	30.40	149.40	-4.08	
1:03:33	16:13:09	-14.09	30.60	149.30	-4.08	
1:04:03	16:13:39	-14.52	29.50	148.80	-4.08	
1:04:33	16:14:09	-13.87	31.00	149.00	-4.08	
1:05:03	16:14:39	-13.90	30.80	149.20	-4.08	
1:05:33	16:15:09	-14.00	30.50	149.30	-4.08	
1:06:03	16:15:39	-13.95	30.70	149.40	-4.08	
1:06:33	16:16:09	-13.92	30.70	149.30	-4.08	
1:07:03	16:16:39	-14.06	30.60	149.30	-4.08	
1:07:33	16:17:09	-14.43	29.90	149.00	-4.08	AWS PUMP OUT
1:08:03	16:17:39	-14.45	29.80	148.80	-4.08	
1:08:33	16:18:09	-14.53	29.90	148.70	-4.08	
1:09:03	16:18:39	-14.51	29.70	148.80	-4.08	
1:09:33	16:19:09	-14.46	29.90	148.70	-4.08	
1:10:03	16:19:39	-14.53	30.00	148.80	-4.08	

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
1:10:33	16:20:09	-14.32	30.00	148.50	-4.08	
1:11:03	16:20:39	-14.26	29.90	148.70	-1.34	
1:11:33	16:21:09	-14.27	30.00	148.70	-1.34	
1:12:03	16:21:39	-14.20	30.50	148.80	-1.34	
1:12:33	16:22:09	-14.15	30.50	148.90	-1.34	
1:13:03	16:22:39	-14.15	29.60	148.80	0.02	
1:13:33	16:23:09	-14.10	31.10	148.70	0.83	
1:14:06	16:23:43	-14.08	30.60	148.70	1.38	
1:14:36	16:24:13	-14.17	30.60	148.70	1.38	
1:15:13	16:24:49	-14.12	30.50	148.50	1.38	
1:15:54	16:25:30	-14.21	30.60	148.50	-4.08	
1:16:35	16:26:11	-14.16	30.60	148.50	-4.08	
1:17:16	16:26:52	-14.21	30.50	148.40	-4.08	
1:17:57	16:27:33	-14.21	31.10	148.30	-4.08	
1:18:38	16:28:15	-14.14	30.70	148.40	-4.08	
1:19:20	16:28:57	-14.05	31.30	148.40	-4.08	
1:20:01	16:29:38	-13.90	30.60	148.60	-4.08	
1:20:42	16:30:19	-13.94	31.30	148.50	-4.08	
1:21:23	16:31:00	-13.85	31.40	148.30	-4.08	
1:22:04	16:31:41	-13.93	31.80	148.40	-4.08	
1:22:45	16:32:22	-13.92	31.20	148.40	-4.08	
1:23:26	16:33:03	-14.01	31.30	148.30	-4.08	
1:24:07	16:33:44	-14.02	31.00	148.20	-4.08	
1:24:49	16:34:25	-14.08	31.30	148.00	-4.08	
1:25:30	16:35:06	-14.10	31.20	147.90	-4.08	
1:26:11	16:35:48	-13.99	30.80	147.90	-4.08	AWS PUMP OUT
1:26:52	16:36:29	-14.11	31.10	148.20	-4.08	BLOWER OFF
1:27:33	16:37:10	0.00	0.00	143.50	-4.08	
1:28:14	16:37:51	0.00	0.00	140.10	-4.08	
1:28:58	16:38:35	0.00	0.00	137.10	-4.08	
1:29:45	16:39:22	0.00	0.00	134.40	-4.08	
1:30:27	16:40:04	0.00	0.00	131.90	-4.08	
1:31:09	16:40:46	0.00	0.00	130.10	-4.08	
1:31:50	16:41:27	0.00	0.00	128.80	-4.08	

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
1:32:32	16:42:09	0.00	0.00	127.50	-4.08	
1:33:13	16:42:50	0.00	0.00	126.40	-4.08	
1:33:55	16:43:32	0.00	0.00	125.40	-4.08	
1:34:37	16:44:13	0.00	0.00	124.30	-4.08	
1:35:18	16:44:55	0.00	0.00	123.50	-4.08	
1:36:00	16:45:37	0.00	0.00	122.60	-4.08	
1:36:42	16:46:18	0.00	0.00	121.80	-4.08	
1:37:23	16:47:00	0.00	0.00	120.90	-4.08	
1:38:05	16:47:42	0.00	0.00	120.20	-4.08	
1:38:47	16:48:23	0.00	0.00	119.50	-4.08	
1:39:28	16:49:05	0.00	0.00	118.80	-4.08	
1:40:10	16:49:47	0.00	0.00	118.00	-4.08	
1:40:52	16:50:28	0.00	0.00	117.30	-4.08	
1:41:33	16:51:10	0.00	0.00	116.70	-4.08	
1:42:15	16:51:52	0.00	0.00	115.80	-4.08	
1:42:56	16:52:33	0.00	0.00	115.40	-4.08	
1:43:38	16:53:15	0.00	0.00	114.70	-4.08	
1:44:22	16:53:59	0.00	0.00	113.90	-4.08	
1:45:09	16:54:46	0.00	0.00	113.60	-4.08	
1:45:50	16:55:27	0.00	0.00	112.50	-4.08	
1:46:31	16:56:08	0.00	0.00	112.20	-4.08	
1:47:12	16:56:49	0.00	0.00	111.60	-4.08	
1:47:53	16:57:30	0.00	0.00	110.90	-4.08	
1:48:34	16:58:11	0.00	0.00	110.40	-4.08	
1:49:15	16:58:52	0.00	0.00	109.70	-4.08	
1:49:56	16:59:33	0.00	0.00	109.30	-4.08	
1:50:37	17:00:14	0.00	0.00	108.70	-4.08	
1:51:18	17:00:55	0.00	0.00	108.20	-4.08	
1:52:00	17:01:36	0.00	0.00	107.70	-4.08	
1:52:41	17:02:17	0.00	0.00	107.10	-4.08	
1:53:22	17:02:58	0.00	0.00	106.60	-4.08	
1:54:03	17:03:39	0.00	0.00	105.90	-4.08	
1:54:44	17:04:20	0.00	0.00	105.70	-4.08	
1:55:25	17:05:01	0.00	0.00	105.20	-4.08	

Table B-2

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	
1:56:06	17:05:43	0.00	0.00	104.70	-4.08	
1:56:47	17:06:24	0.00	0.00	104.10	-4.08	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Cli
0:00:00	15:09:37	10.98	0.00	0.00	9.32	0.00	0.00	5.36	0.00	0.02	
0:00:29	15:10:06	10.98	0.00	0.00	9.32	0.00	-0.01	5.36	0.00	0.01	
0:00:59	15:10:35	10.98	0.00	0.00	9.36	0.04	-0.01	5.36	0.00	0.01	
0:01:29	15:11:05	11.00	0.02	0.00	9.33	0.01	-0.01	5.36	0.00	0.02	
0:01:59	15:11:35	10.99	0.01	0.00	9.36	0.04	-0.01	5.37	0.01	0.03	
0:02:29	15:12:06	11.01	0.03	0.00	9.35	0.03	0.01	5.37	0.01	0.01	START TEST - STRAW @ 12' BELOW TOC
0:02:59	15:12:35	11.00	0.02	0.00	9.35	0.03	0.00	5.37	0.01	0.01	
0:03:29	15:13:05	10.99	0.01	0.00	9.34	0.02	0.00	5.37	0.01	0.00	
0:03:59	15:13:35	11.00	0.02	0.00	9.34	0.02	0.00	5.37	0.01	0.01	
0:04:29	15:14:05	10.99	0.01	0.00	9.34	0.02	0.00	5.36	0.00	0.01	
0:04:59	15:14:36	10.99	0.01	0.00	9.33	0.01	0.00	5.36	0.00	0.01	
0:05:29	15:15:05	11.01	0.03	0.00	9.35	0.03	0.00	5.36	0.00	0.02	
0:05:59	15:15:35	10.98	0.00	0.00	9.35	0.03	0.00	5.36	0.00	-0.03	
0:06:29	15:16:05	10.99	0.01	0.00	9.33	0.01	0.00	5.36	0.00	-0.01	
0:06:59	15:16:35	11.00	0.02	0.00	9.32	0.00	0.00	5.36	0.00	-0.02	
0:07:31	15:17:07	10.99	0.01	-0.04	9.30	-0.02	0.00	5.36	0.00	-0.02	
0:07:59	15:17:35	10.98	0.00	-0.03	9.31	-0.01	0.00	5.36	0.00	-0.02	
0:08:29	15:18:05	11.00	0.02	-0.05	9.30	-0.02	-0.02	5.36	0.00	-0.02	
0:08:59	15:18:36	10.98	0.00	-0.07	9.29	-0.03	-0.02	5.37	0.01	-0.02	
0:09:29	15:19:06	10.97	-0.01	-0.05	9.29	-0.03	-0.02	5.36	0.00	-0.01	
0:09:59	15:19:36	11.00	0.02	-0.05	9.29	-0.03	-0.02	5.36	0.00	-0.02	
0:10:29	15:20:06	10.98	0.00	-0.03	9.27	-0.05	-0.02	5.36	0.00	-0.02	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Cli
0:10:59	15:20:36	11.00	0.02	-0.02	9.28	-0.04	-0.02	5.36	0.00	-0.02	
0:11:29	15:21:06	11.00	0.02	0.00	9.30	-0.02	-0.05	5.36	0.00	-0.03	
0:11:59	15:21:36	11.00	0.02	0.00	9.27	-0.05	-0.05	5.36	0.00	-0.03	
0:12:29	15:22:06	10.98	0.00	0.00	9.26	-0.06	-0.05	5.36	0.00	-0.02	
0:12:59	15:22:36	10.97	-0.01	0.00	9.28	-0.04	-0.05	5.36	0.00	-0.02	
0:13:29	15:23:06	10.97	-0.01	0.00	9.28	-0.04	-0.05	5.36	0.00	-0.02	
0:13:59	15:23:36	11.00	0.02	0.01	9.25	-0.07	-0.07	5.36	0.00	-0.01	
0:14:29	15:24:06	11.00	0.02	0.01	9.27	-0.05	-0.07	5.36	0.00	-0.02	
0:14:59	15:24:36	10.98	0.00	0.02	9.26	-0.06	-0.07	5.36	0.00	-0.02	
0:15:29	15:25:06	10.96	-0.02	0.00	9.24	-0.08	-0.07	5.36	0.00	-0.01	
0:15:59	15:25:36	10.99	0.01	0.02	9.27	-0.05	-0.07	5.36	0.00	-0.04	
0:16:29	15:26:06	10.99	0.01	0.03	9.24	-0.08	-0.07	5.35	-0.01	-0.01	
0:16:59	15:26:36	10.99	0.01	0.03	9.25	-0.07	-0.07	5.35	-0.01	-0.03	
0:17:29	15:27:06	10.99	0.01	0.01	9.21	-0.11	-0.07	5.36	0.00	-0.03	
0:17:59	15:27:36	10.98	0.00	-0.01	9.24	-0.08	-0.07	5.35	-0.01	-0.02	
0:18:29	15:28:06	10.97	-0.01	-0.02	9.23	-0.09	-0.07	5.35	-0.01	-0.02	
0:18:59	15:28:36	10.99	0.01	-0.04	9.25	-0.07	-0.07	5.35	-0.01	-0.01	
0:19:29	15:29:06	10.99	0.01	-0.04	9.24	-0.08	-0.07	5.36	0.00	-0.01	
0:19:59	15:29:36	11.01	0.03	-0.04	9.23	-0.09	-0.07	5.36	0.00	-0.01	
0:20:29	15:30:06	10.98	0.00	-0.04	9.23	-0.09	-0.07	5.36	0.00	-0.03	
0:20:59	15:30:36	11.02	0.04	-0.04	9.25	-0.07	-0.07	5.36	0.00	-0.02	
0:21:29	15:31:06	10.99	0.01	-0.04	9.25	-0.07	-0.07	5.36	0.00	-0.01	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Cli
0:22:00	15:31:36	10.97	-0.01	-0.04	9.23	-0.09	-0.07	5.36	0.00	-0.03	
0:22:30	15:32:06	10.99	0.01	-0.03	9.23	-0.09	-0.07	5.36	0.00	-0.02	
0:23:00	15:32:36	11.00	0.02	-0.01	9.23	-0.09	-0.07	5.36	0.00	0.00	
0:23:30	15:33:06	11.00	0.02	-0.01	9.24	-0.08	-0.07	5.36	0.00	-0.01	
0:24:00	15:33:36	10.98	0.00	-0.01	9.24	-0.08	-0.07	5.36	0.00	-0.02	
0:24:30	15:34:06	10.99	0.01	-0.01	9.21	-0.11	-0.08	5.36	0.00	-0.01	
0:25:00	15:34:36	11.00	0.02	-0.01	9.21	-0.11	-0.07	5.36	0.00	-0.03	
0:25:30	15:35:06	10.98	0.00	-0.01	9.20	-0.12	-0.09	5.36	0.00	-0.04	
0:26:00	15:35:36	11.01	0.03	-0.01	9.20	-0.12	-0.06	5.36	0.00	-0.03	
0:26:30	15:36:06	10.99	0.01	0.00	9.19	-0.13	-0.09	5.35	-0.01	-0.01	
0:27:00	15:36:36	10.98	0.00	-0.01	9.20	-0.12	-0.06	5.34	-0.02	-0.02	
0:27:30	15:37:06	10.98	0.00	-0.02	9.21	-0.11	-0.03	5.35	-0.01	-0.02	
0:28:00	15:37:36	10.97	-0.01	-0.04	9.20	-0.12	-0.06	5.35	-0.01	-0.02	
0:28:30	15:38:06	10.99	0.01	-0.04	9.20	-0.12	-0.09	5.36	0.00	-0.01	
0:29:00	15:38:37	10.98	0.00	-0.05	9.20	-0.12	-0.09	5.36	0.00	-0.03	
0:29:30	15:39:07	10.97	-0.01	-0.04	9.21	-0.11	-0.09	5.36	0.00	-0.02	
0:30:00	15:39:37	10.99	0.01	-0.03	9.19	-0.13	-0.09	5.36	0.00	-0.03	
0:30:30	15:40:07	10.99	0.01	-0.04	9.21	-0.11	-0.09	5.36	0.00	-0.01	
0:31:00	15:40:37	10.99	0.01	-0.04	9.19	-0.13	-0.09	5.36	0.00	-0.03	
0:31:30	15:41:07	10.97	-0.01	-0.03	9.19	-0.13	-0.09	5.36	0.00	-0.03	
0:32:00	15:41:37	10.99	0.01	-0.04	9.19	-0.13	-0.09	5.36	0.00	-0.03	
0:32:30	15:42:07	10.99	0.01	-0.03	9.19	-0.13	-0.09	5.36	0.00	-0.03	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Cli
0:33:00	15:42:37	10.98	0.00	-0.03	9.19	-0.13	-0.09	5.36	0.00	-0.03	
0:33:30	15:43:07	11.00	0.02	-0.03	9.17	-0.15	-0.09	5.36	0.00	-0.02	
0:34:00	15:43:37	10.98	0.00	-0.01	9.17	-0.15	-0.09	5.36	0.00	-0.03	
0:34:30	15:44:07	11.00	0.02	0.00	9.15	-0.17	-0.11	5.35	-0.01	-0.03	AWS PUMP OUT
0:38:28	15:48:04	10.98	0.00	0.01	9.17	-0.15	-0.09	5.36	0.00	-0.02	
0:38:28	15:48:04	10.98	0.00	-0.01	9.16	-0.16	-0.09	5.36	0.00	-0.02	
0:38:31	15:48:07	10.98	0.00	-0.01	9.16	-0.16	-0.09	5.36	0.00	-0.02	
0:39:01	15:48:37	11.00	0.02	0.00	9.17	-0.15	-0.11	5.36	0.00	-0.02	
0:39:31	15:49:07	10.95	-0.03	-0.01	9.17	-0.15	-0.11	5.35	-0.01	-0.02	
0:40:01	15:49:37	10.98	0.00	0.00	9.15	-0.17	-0.09	5.36	0.00	0.00	
0:40:31	15:50:07	11.00	0.02	0.00	9.15	-0.17	-0.09	5.35	-0.01	-0.01	
0:41:01	15:50:37	11.01	0.03	0.00	9.16	-0.16	-0.08	5.35	-0.01	-0.02	
0:41:31	15:51:07	11.00	0.02	0.00	9.16	-0.16	-0.10	5.35	-0.01	-0.01	
0:42:01	15:51:37	11.00	0.02	-0.01	9.16	-0.16	-0.09	5.35	-0.01	-0.02	
0:42:31	15:52:07	10.97	-0.01	0.01	9.14	-0.18	-0.08	5.35	-0.01	-0.01	
0:43:01	15:52:37	10.98	0.00	0.00	9.14	-0.18	-0.08	5.35	-0.01	-0.02	
0:43:31	15:53:07	10.96	-0.02	0.02	9.12	-0.20	-0.08	5.34	-0.02	-0.02	
0:44:01	15:53:37	10.97	-0.01	0.01	9.15	-0.17	-0.08	5.35	-0.01	-0.03	
0:44:31	15:54:07	10.96	-0.02	0.01	9.13	-0.19	-0.08	5.35	-0.01	-0.02	
0:45:01	15:54:37	10.94	-0.04	0.02	9.17	-0.15	-0.08	5.35	-0.01	-0.02	
0:45:31	15:55:07	10.99	0.01	0.02	9.15	-0.17	-0.10	5.35	-0.01	-0.03	
0:46:03	15:55:39	10.99	0.01	0.02	9.13	-0.19	-0.10	5.35	-0.01	-0.03	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:46:32	15:56:09	10.96	-0.02	0.03	9.12	-0.20	-0.10	5.35	-0.01	-0.02	
0:47:02	15:56:39	10.99	0.01	0.02	9.15	-0.17	-0.10	5.35	-0.01	-0.01	
0:47:32	15:57:09	10.97	-0.01	0.02	9.13	-0.19	-0.10	5.35	-0.01	-0.02	
0:48:02	15:57:39	10.98	0.00	0.02	9.11	-0.21	-0.10	5.35	-0.01	-0.02	
0:48:32	15:58:09	10.97	-0.01	0.00	9.15	-0.17	-0.10	5.35	-0.01	-0.03	
0:49:02	15:58:39	10.99	0.01	-0.01	9.13	-0.19	-0.10	5.35	-0.01	-0.02	
0:49:32	15:59:09	10.98	0.00	0.00	9.12	-0.20	-0.10	5.35	-0.01	-0.02	
0:50:02	15:59:39	10.96	-0.02	-0.01	9.11	-0.21	-0.10	5.35	-0.01	-0.01	
0:50:32	16:00:09	10.99	0.01	-0.02	9.11	-0.21	-0.10	5.34	-0.02	-0.01	AWS PUMP OUT
0:51:02	16:00:39	10.96	-0.02	-0.05	9.12	-0.20	-0.10	5.34	-0.02	-0.02	
0:51:32	16:01:09	11.00	0.02	-0.06	9.11	-0.21	-0.10	5.35	-0.01	-0.01	
0:52:02	16:01:39	10.95	-0.03	-0.06	9.13	-0.19	-0.10	5.35	-0.01	-0.01	
0:52:32	16:02:09	10.96	-0.02	-0.07	9.11	-0.21	-0.10	5.35	-0.01	-0.01	
0:53:02	16:02:39	10.98	0.00	-0.06	9.14	-0.18	-0.10	5.35	-0.01	-0.02	
0:53:32	16:03:09	10.97	-0.01	-0.04	9.11	-0.21	-0.08	5.35	-0.01	0.00	
0:54:02	16:03:39	10.98	0.00	-0.03	9.11	-0.21	-0.09	5.35	-0.01	-0.02	
0:54:32	16:04:09	10.97	-0.01	-0.02	9.12	-0.20	-0.07	5.35	-0.01	-0.02	
0:55:02	16:04:39	10.98	0.00	-0.01	9.10	-0.22	-0.08	5.35	-0.01	-0.02	
0:55:32	16:05:09	10.98	0.00	-0.01	9.10	-0.22	-0.10	5.35	-0.01	-0.01	
0:56:02	16:05:39	11.00	0.02	-0.01	9.13	-0.19	-0.07	5.35	-0.01	-0.01	
0:56:32	16:06:09	10.98	0.00	0.00	9.09	-0.23	-0.07	5.35	-0.01	-0.02	
0:57:02	16:06:39	10.99	0.01	0.02	9.10	-0.22	-0.07	5.35	-0.01	-0.02	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:57:32	16:07:09	10.97	-0.01	0.01	9.10	-0.22	-0.07	5.34	-0.02	0.00	
0:58:02	16:07:39	10.98	0.00	0.03	9.09	-0.23	-0.07	5.35	-0.01	-0.02	
0:58:32	16:08:09	10.96	-0.02	0.01	9.06	-0.26	-0.07	5.35	-0.01	-0.02	
0:59:03	16:08:40	11.00	0.02	0.01	9.06	-0.26	-0.08	5.35	-0.01	-0.02	
0:59:32	16:09:09	11.00	0.02	0.01	9.09	-0.23	-0.08	5.35	-0.01	-0.01	
1:00:03	16:09:39	10.98	0.00	0.01	9.08	-0.24	-0.08	5.35	-0.01	-0.01	
1:00:33	16:10:09	10.97	-0.01	0.01	9.08	-0.24	-0.08	5.35	-0.01	-0.01	
1:01:03	16:10:39	10.98	0.00	0.01	9.09	-0.23	-0.08	5.34	-0.02	-0.03	
1:01:32	16:11:09	10.97	-0.01	0.01	9.09	-0.23	-0.08	5.34	-0.02	-0.02	
1:02:02	16:11:39	10.96	-0.02	0.01	9.09	-0.23	-0.08	5.34	-0.02	-0.01	
1:02:32	16:12:09	10.96	-0.02	0.01	9.09	-0.23	-0.12	5.35	-0.01	-0.01	
1:03:03	16:12:39	10.94	-0.04	-0.04	9.09	-0.23	-0.08	5.34	-0.02	-0.03	
1:03:33	16:13:09	10.98	0.00	-0.04	9.07	-0.25	-0.07	5.33	-0.03	-0.02	
1:04:03	16:13:39	10.97	-0.01	-0.04	9.08	-0.24	-0.05	5.33	-0.03	-0.01	
1:04:33	16:14:09	10.98	0.00	-0.03	9.10	-0.22	-0.06	5.33	-0.03	-0.03	
1:05:03	16:14:39	10.99	0.01	-0.03	9.10	-0.22	-0.04	5.33	-0.03	-0.02	
1:05:33	16:15:09	10.96	-0.02	-0.03	9.05	-0.27	-0.05	5.33	-0.03	-0.01	
1:06:03	16:15:39	10.97	-0.01	-0.04	9.07	-0.25	-0.04	5.33	-0.03	-0.01	
1:06:33	16:16:09	10.97	-0.01	-0.02	9.09	-0.23	-0.05	5.33	-0.03	0.00	
1:07:03	16:16:39	10.98	0.00	-0.02	9.09	-0.23	-0.07	5.33	-0.03	0.00	
1:07:33	16:17:09	10.97	-0.01	-0.04	9.07	-0.25	-0.07	5.33	-0.03	-0.02	AWS PUMP OUT
1:08:03	16:17:39	10.93	-0.05	-0.04	9.08	-0.24	-0.08	5.33	-0.03	-0.02	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Cli
1:08:33	16:18:09	10.97	-0.01	-0.03	9.05	-0.27	-0.09	5.33	-0.03	-0.02	
1:09:03	16:18:39	10.98	0.00	-0.02	9.08	-0.24	-0.10	5.33	-0.03	0.00	
1:09:33	16:19:09	10.96	-0.02	-0.03	9.08	-0.24	-0.10	5.33	-0.03	-0.02	
1:10:03	16:19:39	10.96	-0.02	-0.03	9.07	-0.25	-0.10	5.33	-0.03	-0.02	
1:10:33	16:20:09	10.97	-0.01	-0.03	9.05	-0.27	-0.10	5.33	-0.03	0.00	
1:11:03	16:20:39	10.98	0.00	-0.01	9.05	-0.27	-0.07	5.33	-0.03	0.01	
1:11:33	16:21:09	10.96	-0.02	-0.04	9.05	-0.27	-0.09	5.33	-0.03	-0.01	
1:12:03	16:21:39	10.97	-0.01	-0.03	9.04	-0.28	-0.09	5.33	-0.03	0.01	
1:12:33	16:22:09	10.98	0.00	-0.04	9.07	-0.25	-0.09	5.33	-0.03	-0.01	
1:13:03	16:22:39	10.96	-0.02	-0.02	9.04	-0.28	-0.09	5.33	-0.03	-0.02	
1:13:33	16:23:09	10.99	0.01	-0.02	9.01	-0.31	-0.09	5.33	-0.03	-0.01	
1:14:06	16:23:43	10.99	0.01	-0.02	9.04	-0.28	-0.09	5.33	-0.03	-0.01	
1:14:36	16:24:13	10.94	-0.04	-0.02	9.07	-0.25	-0.09	5.33	-0.03	-0.01	
1:15:13	16:24:49	10.96	-0.02	-0.01	9.04	-0.28	-0.09	5.33	-0.03	-0.01	
1:15:54	16:25:30	10.96	-0.02	-0.01	9.05	-0.27	-0.11	5.33	-0.03	-0.01	
1:16:35	16:26:11	10.96	-0.02	0.00	9.03	-0.29	-0.09	5.33	-0.03	0.00	
1:17:16	16:26:52	10.97	-0.01	0.01	9.03	-0.29	-0.09	5.33	-0.03	0.01	
1:17:57	16:27:33	10.96	-0.02	-0.01	9.03	-0.29	-0.09	5.33	-0.03	-0.01	
1:18:38	16:28:15	10.94	-0.04	0.00	9.04	-0.28	-0.09	5.33	-0.03	0.00	
1:19:20	16:28:57	10.96	-0.02	0.01	9.03	-0.29	-0.09	5.32	-0.04	-0.01	
1:20:01	16:29:38	10.98	0.00	-0.01	9.03	-0.29	-0.09	5.33	-0.03	-0.01	
1:20:42	16:30:19	10.96	-0.02	0.00	9.03	-0.29	-0.09	5.33	-0.03	0.00	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:21:23	16:31:00	10.96	-0.02	0.01	9.02	-0.30	-0.08	5.33	-0.03	0.00	
1:22:04	16:31:41	10.95	-0.03	0.01	9.01	-0.31	-0.08	5.33	-0.03	-0.02	
1:22:45	16:32:22	10.96	-0.02	0.00	9.01	-0.31	-0.08	5.33	-0.03	-0.01	
1:23:26	16:33:03	10.96	-0.02	0.01	9.04	-0.28	-0.08	5.33	-0.03	-0.01	
1:24:07	16:33:44	10.95	-0.03	0.01	9.03	-0.29	-0.08	5.32	-0.04	0.01	
1:24:49	16:34:25	10.98	0.00	0.01	9.02	-0.30	-0.08	5.32	-0.04	-0.01	
1:25:30	16:35:06	10.97	-0.01	0.01	9.01	-0.31	-0.08	5.33	-0.03	0.00	
1:26:11	16:35:48	10.96	-0.02	0.01	9.02	-0.30	-0.09	5.32	-0.04	-0.01	AWS PUMP OUT
1:26:52	16:36:29	10.96	-0.02	0.01	9.02	-0.30	-0.10	5.32	-0.04	-0.02	BLOWER OFF
1:27:33	16:37:10	10.97	-0.01	0.01	9.01	-0.31	-0.05	5.32	-0.04	0.00	
1:28:14	16:37:51	10.96	-0.02	0.01	9.00	-0.32	-0.02	5.32	-0.04	0.00	
1:28:58	16:38:35	10.96	-0.02	0.01	8.99	-0.33	-0.02	5.32	-0.04	0.00	
1:29:45	16:39:22	10.96	-0.02	0.01	9.01	-0.31	-0.02	5.32	-0.04	0.00	
1:30:27	16:40:04	10.97	-0.01	0.01	9.03	-0.29	-0.02	5.32	-0.04	0.00	
1:31:09	16:40:46	10.96	-0.02	0.00	9.01	-0.31	0.00	5.32	-0.04	0.00	
1:31:50	16:41:27	10.96	-0.02	0.00	9.02	-0.30	0.00	5.32	-0.04	0.00	
1:32:32	16:42:09	10.96	-0.02	0.00	9.01	-0.31	0.00	5.32	-0.04	0.00	
1:33:13	16:42:50	10.98	0.00	0.00	9.01	-0.31	0.00	5.32	-0.04	0.00	
1:33:55	16:43:32	10.96	-0.02	0.00	9.01	-0.31	0.00	5.32	-0.04	0.00	
1:34:37	16:44:13	10.96	-0.02	0.00	9.01	-0.31	0.00	5.32	-0.04	0.00	
1:35:18	16:44:55	10.95	-0.03	0.00	9.02	-0.30	0.00	5.32	-0.04	0.00	
1:36:00	16:45:37	10.97	-0.01	0.00	9.05	-0.27	0.00	5.32	-0.04	0.00	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:36:42	16:46:18	10.96	-0.02	0.00	9.03	-0.29	0.00	5.32	-0.04	0.00	
1:37:23	16:47:00	10.95	-0.03	0.00	9.04	-0.28	0.00	5.32	-0.04	0.00	
1:38:05	16:47:42	10.96	-0.02	0.00	9.04	-0.28	0.00	5.32	-0.04	0.00	
1:38:47	16:48:23	10.97	-0.01	0.00	9.07	-0.25	0.00	-9.25	-0.04	0.00	
1:39:28	16:49:05	10.92	-0.06	0.00	9.04	-0.28	0.00	-9.25	-0.04	0.00	
1:40:10	16:49:47	10.95	-0.03	0.00	9.05	-0.27	0.00	-9.25	-0.04	0.00	
1:40:52	16:50:28	-9.25	-0.03	0.00	9.07	-0.25	0.00	-9.25	-0.04	0.00	
1:41:33	16:51:10	-9.25	-0.03	0.00	9.07	-0.25	0.00	-9.25	-0.04	0.00	
1:42:15	16:51:52	-9.25	0.00	0.00	9.06	-0.26	0.00	-9.25	-0.04	0.00	
1:42:56	16:52:33	-9.25	0.00	0.00	9.06	-0.26	0.00	-9.25	0.00	0.00	
1:43:38	16:53:15	-9.25	0.00	0.00	9.06	-0.26	0.00	-9.25	0.00	0.00	
1:44:22	16:53:59	-9.25	0.00	0.00	9.09	-0.23	0.00	-9.25	0.00	0.00	
1:45:09	16:54:46	-9.25	0.00	0.00	9.06	-0.26	0.00	-9.25	0.00	0.00	
1:45:50	16:55:27	-9.25	0.00	0.00	9.10	-0.22	0.00	-9.25	0.00	0.00	
1:46:31	16:56:08	-9.25	0.00	0.00	9.09	-0.23	0.00	-9.25	0.00	0.00	
1:47:12	16:56:49	-9.25	0.00	0.00	9.06	-0.26	0.00	-9.25	0.00	0.00	
1:47:53	16:57:30	-9.25	0.00	0.00	9.10	-0.22	0.00	-9.25	0.00	0.00	
1:48:34	16:58:11	-9.25	0.00	0.00	9.08	-0.24	0.00	-9.25	0.00	0.00	
1:49:15	16:58:52	-9.25	0.00	0.00	9.08	-0.24	0.00	-9.25	0.00	0.00	
1:49:56	16:59:33	-9.25	0.00	0.00	9.06	-0.26	0.00	-9.25	0.00	0.00	
1:50:37	17:00:14	-9.25	0.00	0.00	9.09	-0.23	0.00	-9.25	0.00	0.00	
1:51:18	17:00:55	-9.25	0.00	0.00	9.10	-0.22	0.00	-9.25	0.00	0.00	

Table B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

20:22:51	11:32:28	#REF!	0.00	0.00	#REF!	#REF!	0.00	#REF!	0.00	0.00	
ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-14			RADIO 2 MW-4			RADIO 4 MW-6			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Cli
1:51:59	17:01:36	-9.25	0.00	0.00	9.09	-0.23	0.00	-9.25	0.00	0.00	
1:52:41	17:02:17	-9.25	0.00	0.00	9.11	-0.21	0.00	-9.25	0.00	0.00	
1:53:22	17:02:58	-9.25	0.00	0.00	9.12	-0.20	0.00	-9.25	0.00	0.00	
1:54:03	17:03:39	-9.25	0.00	0.00	9.10	-0.22	0.00	-9.25	0.00	0.00	
1:54:44	17:04:20	-9.25	0.00	0.00	9.09	-0.23	0.00	-9.25	0.00	0.00	
1:55:25	17:05:01	-9.25	0.00	0.00	9.11	-0.21	0.00	-9.25	0.00	0.00	
1:56:06	17:05:43	-9.25	0.00	0.00	9.12	-0.20	0.00	-9.25	0.00	0.00	
1:56:47	17:06:24	-9.25	0.00	0.00	9.10	-0.22	0.00	-9.25	0.00	0.00	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
0:00:00	15:09:37	-9.25	0.00	0.00	8.18	0.00	-0.08	
0:00:29	15:10:06	-9.25	0.00	0.00	8.16	-0.02	-0.10	
0:00:59	15:10:35	-9.25	0.00	0.00	8.18	0.00	-0.07	
0:01:29	15:11:05	-9.25	0.00	0.00	8.18	0.00	-0.06	
0:01:59	15:11:35	-9.25	0.00	0.00	8.18	0.00	-0.03	
0:02:29	15:12:06	-9.25	0.00	0.00	8.19	0.01	-0.05	START TEST - STRAW @ 12' BELOW TOC
0:02:59	15:12:35	-9.25	0.00	-0.03	8.19	0.01	-0.06	
0:03:29	15:13:05	-9.25	0.00	-0.02	5.91	-2.27	-0.21	
0:03:59	15:13:35	-9.25	0.00	-0.02	1.59	-6.59	-0.09	
0:04:29	15:14:05	-9.25	0.00	-0.02	2.06	-6.12	-0.10	
0:04:59	15:14:36	-9.25	0.00	-0.02	2.14	-6.04	-0.10	
0:05:29	15:15:05	-9.25	0.00	-0.02	1.82	-6.36	-0.12	
0:05:59	15:15:35	-9.25	0.00	-0.02	2.36	-5.82	-8.27	
0:06:29	15:16:05	-9.25	0.00	-0.02	2.61	-5.57	-4.63	
0:06:59	15:16:35	-9.25	0.00	-0.02	2.46	-5.72	-4.13	
0:07:31	15:17:07	-9.25	0.00	-0.02	2.48	-5.70	-4.10	
0:07:59	15:17:35	-9.25	0.00	0.03	2.44	-5.74	-4.12	
0:08:29	15:18:05	-9.25	0.00	0.00	2.45	-5.73	-4.08	
0:08:59	15:18:36	-9.25	0.00	0.03	2.43	-5.75	-4.15	
0:09:29	15:19:06	-9.25	0.00	0.02	2.45	-5.73	-4.10	
0:09:59	15:19:36	-9.25	0.00	0.03	2.42	-5.76	-4.11	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
0:10:29	15:20:06	-9.25	0.00	-0.01	2.45	-5.73	-4.10	
0:10:59	15:20:36	-9.25	0.00	0.00	2.41	-5.77	-4.13	
0:11:29	15:21:06	-9.25	0.00	-0.05	2.42	-5.76	-4.09	
0:11:59	15:21:36	-9.25	0.00	-0.05	2.43	-5.75	-4.13	
0:12:29	15:22:06	-9.25	0.00	-0.05	2.45	-5.73	-4.11	
0:12:59	15:22:36	-9.25	0.00	-0.04	2.44	-5.74	-4.09	
0:13:29	15:23:06	-9.25	0.00	-0.04	2.44	-5.74	-4.14	
0:13:59	15:23:36	-9.25	0.00	-0.03	2.45	-5.73	-4.12	
0:14:29	15:24:06	-9.25	0.00	-0.04	2.43	-5.75	-4.10	
0:14:59	15:24:36	-9.25	0.00	-0.04	2.43	-5.75	-4.15	
0:15:29	15:25:06	-9.25	0.00	-0.04	2.43	-5.75	-4.09	
0:15:59	15:25:36	-9.25	0.00	-0.04	2.41	-5.77	-4.03	
0:16:29	15:26:06	-9.25	0.00	-0.05	2.39	-5.79	-4.05	
0:16:59	15:26:36	-9.25	0.00	-0.06	2.44	-5.74	-4.05	
0:17:29	15:27:06	-9.25	0.00	-0.06	2.41	-5.77	-4.08	
0:17:59	15:27:36	-9.25	0.00	-0.06	2.39	-5.79	-4.07	
0:18:29	15:28:06	-9.25	0.00	-0.08	2.43	-5.75	-4.01	
0:18:59	15:28:36	-9.25	0.00	-0.09	2.40	-5.78	-4.04	
0:19:29	15:29:06	-9.25	0.00	-0.08	2.40	-5.78	-4.07	
0:19:59	15:29:36	-9.25	0.00	-0.10	2.40	-5.78	-4.03	
0:20:29	15:30:06	-9.25	0.00	-0.10	2.37	-5.81	-4.07	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
0:20:59	15:30:36	-9.25	0.00	-0.07	2.41	-5.77	-4.05	
0:21:29	15:31:06	-9.25	0.00	-0.07	2.39	-5.79	-4.07	
0:22:00	15:31:36	-9.25	0.00	-0.06	2.38	-5.80	-4.07	
0:22:30	15:32:06	-9.25	0.00	-0.05	2.40	-5.78	-4.10	
0:23:00	15:32:36	-9.25	0.00	-0.04	2.38	-5.80	-4.13	
0:23:30	15:33:06	-9.25	0.00	-0.06	2.37	-5.81	-4.12	
0:24:00	15:33:36	-9.25	0.00	-0.05	2.40	-5.78	-4.08	
0:24:30	15:34:06	-9.25	0.00	-0.06	2.40	-5.78	-4.07	
0:25:00	15:34:36	-9.25	0.00	-0.06	2.41	-5.77	-4.02	
0:25:30	15:35:06	-9.25	0.00	-0.05	2.43	-5.75	-4.00	
0:26:00	15:35:36	-9.25	0.00	-0.04	2.39	-5.79	-3.98	
0:26:30	15:36:06	-9.25	0.00	-0.07	2.40	-5.78	-3.91	
0:27:00	15:36:36	-9.25	0.00	-0.04	2.39	-5.79	-3.98	
0:27:30	15:37:06	-9.25	0.00	-0.05	2.40	-5.78	-3.97	
0:28:00	15:37:36	-9.25	0.00	-0.06	2.39	-5.79	-3.99	
0:28:30	15:38:06	-9.25	0.00	-0.07	2.40	-5.78	-3.91	
0:29:00	15:38:37	-9.25	0.00	-0.06	2.37	-5.81	-4.00	
0:29:30	15:39:07	-9.25	0.00	-0.07	2.36	-5.82	-3.98	
0:30:00	15:39:37	-9.25	0.00	-0.06	2.39	-5.79	-4.04	
0:30:30	15:40:07	-9.25	0.00	-0.06	2.38	-5.80	-3.99	
0:31:00	15:40:37	-9.25	0.00	-0.06	2.39	-5.79	-3.95	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-5			RADIO 6 (Extraction Well) MW-1R			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
0:31:30	15:41:07	-9.25	0.00	-0.07	2.36	-5.82	-4.00	
0:32:00	15:41:37	-9.25	0.00	-0.05	2.37	-5.81	-3.99	
0:32:30	15:42:07	-9.25	0.00	-0.06	2.40	-5.78	-3.93	
0:33:00	15:42:37	-9.25	0.00	-0.06	2.38	-5.80	-3.93	
0:33:30	15:43:07	-9.25	0.00	-0.05	2.38	-5.80	-4.00	
0:34:00	15:43:37	-9.25	0.00	-0.07	2.38	-5.80	-4.02	
0:34:30	15:44:07	-9.25	0.00	-0.05	2.35	-5.83	-4.09	AWS PUMP OUT
0:38:28	15:48:04	-9.25	0.00	-0.06	2.37	-5.81	-4.09	
0:38:28	15:48:04	-9.25	0.00	-0.07	2.38	-5.80	-4.18	
0:38:31	15:48:07	-9.25	0.00	-0.07	2.38	-5.80	-4.18	
0:39:01	15:48:37	-9.25	0.00	-0.06	2.38	-5.80	-4.14	
0:39:31	15:49:07	-9.25	0.00	-0.04	2.35	-5.83	-4.20	
0:40:01	15:49:37	-9.25	0.00	-0.04	0.95	-7.23	-1.09	
0:40:31	15:50:07	-9.25	0.00	-0.05	0.66	-7.52	-3.66	
0:41:01	15:50:37	-9.25	0.00	-0.05	0.67	-7.51	-3.98	
0:41:31	15:51:07	-9.25	0.00	-0.06	0.68	-7.50	-4.02	
0:42:01	15:51:37	-9.25	0.00	-0.04	0.68	-7.50	-3.99	
0:42:31	15:52:07	-9.25	0.00	-0.05	0.68	-7.50	-4.02	
0:43:01	15:52:37	-9.25	0.00	-0.04	0.69	-7.49	-4.01	
0:43:31	15:53:07	-9.25	0.00	-0.05	0.68	-7.50	-3.99	
0:44:01	15:53:37	-9.25	0.00	-0.04	0.66	-7.52	-4.03	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
0:44:31	15:54:07	-9.25	0.00	-0.04	0.64	-7.54	-4.06	
0:45:01	15:54:37	-9.25	0.00	-0.05	0.68	-7.50	-4.03	
0:45:31	15:55:07	-9.25	0.00	-0.03	0.68	-7.50	-4.00	
0:46:03	15:55:39	-9.25	0.00	-0.03	0.68	-7.50	-4.03	
0:46:32	15:56:09	-9.25	0.00	-0.04	0.68	-7.50	-4.00	
0:47:02	15:56:39	-9.25	0.00	-0.03	0.67	-7.51	-4.01	
0:47:32	15:57:09	-9.25	0.00	-0.04	0.72	-7.46	-3.92	
0:48:02	15:57:39	-9.25	0.00	-0.04	0.68	-7.50	-3.93	
0:48:32	15:58:09	-9.25	0.00	-0.04	0.68	-7.50	-3.87	
0:49:02	15:58:39	-9.25	0.00	-0.05	0.72	-7.46	-3.92	
0:49:32	15:59:09	-9.25	0.00	-0.05	0.69	-7.49	-3.96	
0:50:02	15:59:39	-9.25	0.00	-0.05	0.68	-7.50	-4.03	
0:50:32	16:00:09	-9.25	0.00	-0.05	0.67	-7.51	-4.02	AWS PUMP OUT
0:51:02	16:00:39	-9.25	0.00	-0.05	0.69	-7.49	-4.00	
0:51:32	16:01:09	-9.25	0.00	-0.05	0.67	-7.51	-4.01	
0:52:02	16:01:39	-9.25	0.00	-0.05	0.68	-7.50	-4.00	
0:52:32	16:02:09	-9.25	0.00	-0.05	0.67	-7.51	-4.04	
0:53:02	16:02:39	-9.25	0.00	-0.05	0.71	-7.47	-3.95	
0:53:32	16:03:09	-9.25	0.00	-0.05	0.67	-7.51	-4.03	
0:54:02	16:03:39	-9.25	0.00	-0.05	0.69	-7.49	-4.05	
0:54:32	16:04:09	-9.25	0.00	-0.05	0.66	-7.52	-4.03	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
0:55:02	16:04:39	-9.25	0.00	-0.05	0.70	-7.48	-4.03	
0:55:32	16:05:09	-9.25	0.00	-0.07	0.68	-7.50	-4.04	
0:56:02	16:05:39	-9.25	0.00	-0.07	0.68	-7.50	-4.03	
0:56:32	16:06:09	-9.25	0.00	-0.06	0.70	-7.48	-4.06	
0:57:02	16:06:39	-9.25	0.00	-0.05	0.64	-7.54	-4.10	
0:57:33	16:07:09	-9.25	0.00	-0.07	0.65	-7.53	-4.11	
0:58:03	16:07:39	-9.25	0.00	-0.05	0.64	-7.54	-4.06	
0:58:32	16:08:09	-9.25	0.00	-0.04	0.68	-7.50	-3.98	
0:59:03	16:08:40	-9.25	0.00	-0.04	0.66	-7.52	-4.00	
0:59:32	16:09:09	-9.25	0.00	-0.04	0.70	-7.48	-4.00	
1:00:03	16:09:39	-9.25	0.00	-0.05	0.68	-7.50	-4.01	
1:00:33	16:10:09	-9.25	0.00	-0.04	0.67	-7.51	-4.06	
1:01:03	16:10:39	-9.25	0.00	-0.06	0.63	-7.55	-4.10	
1:01:33	16:11:09	-9.25	0.00	-0.04	0.68	-7.50	-4.09	
1:02:03	16:11:39	-9.25	0.00	-0.04	0.66	-7.52	-4.13	
1:02:33	16:12:09	-9.25	0.00	-0.05	0.70	-7.48	-4.11	
1:03:03	16:12:39	-9.25	0.00	-0.04	0.70	-7.48	-4.06	
1:03:33	16:13:09	-9.25	0.00	-0.07	0.70	-7.48	-4.05	
1:04:03	16:13:39	-9.25	0.00	-0.05	0.00	-8.18	-3.33	
1:04:33	16:14:09	-9.25	0.00	-0.02	0.00	-8.18	-4.01	
1:05:03	16:14:39	-9.25	0.00	-0.04	0.00	-8.18	-3.98	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
1:05:33	16:15:09	-9.25	0.00	-0.05	0.00	-8.18	-3.94	
1:06:03	16:15:39	-9.25	0.00	-0.05	0.00	-8.18	-3.94	
1:06:33	16:16:09	-9.25	0.00	-0.03	0.00	-8.18	-3.93	
1:07:03	16:16:39	-9.25	0.00	-0.04	0.00	-8.18	-3.92	
1:07:33	16:17:09	-9.25	0.00	-0.04	0.00	-8.18	-3.92	AWS PUMP OUT
1:08:03	16:17:39	-9.25	0.00	-0.04	0.00	-8.18	-4.00	
1:08:33	16:18:09	-9.25	0.00	-0.05	0.00	-8.18	-3.99	
1:09:03	16:18:39	-9.25	0.00	-0.06	0.00	-8.18	-4.01	
1:09:33	16:19:09	-9.25	0.00	-0.05	0.00	-8.18	-4.03	
1:10:03	16:19:39	-9.25	0.00	-0.05	0.00	-8.18	-4.05	
1:10:33	16:20:09	-9.25	0.00	-0.05	0.00	-8.18	-3.96	
1:11:03	16:20:39	-9.25	0.00	-0.02	0.00	-8.18	-4.01	
1:11:33	16:21:09	-9.25	0.00	-0.07	0.00	-8.18	-4.04	
1:12:03	16:21:39	-9.25	0.00	-0.09	0.00	-8.18	-3.99	
1:12:33	16:22:09	-9.25	0.00	-0.07	0.00	-8.18	-3.99	
1:13:03	16:22:39	-9.25	0.00	-0.09	0.00	-8.18	-4.00	
1:13:33	16:23:09	-9.25	0.00	-0.07	0.00	-8.18	-4.01	
1:14:06	16:23:43	-9.25	0.00	-0.07	0.00	-8.18	-4.01	
1:14:36	16:24:13	-9.25	0.00	-0.07	0.00	-8.18	-4.02	
1:15:13	16:24:49	-9.25	0.00	-0.08	0.00	-8.18	-4.08	
1:15:54	16:25:30	-9.25	0.00	-0.08	0.00	-8.18	-4.04	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
1:16:35	16:26:11	-9.25	0.00	-0.08	0.00	-8.18	-4.10	
1:17:16	16:26:52	-9.25	0.00	-0.06	0.00	-8.18	-4.15	
1:17:57	16:27:33	-9.25	0.00	-0.05	0.00	-8.18	-4.15	
1:18:38	16:28:15	-9.25	0.00	-0.04	0.00	-8.18	-4.10	
1:19:20	16:28:57	-9.25	0.00	-0.08	0.00	-8.18	-4.00	
1:20:01	16:29:38	-9.25	0.00	-0.09	0.00	-8.18	-4.04	
1:20:42	16:30:19	-9.25	0.00	-0.10	0.00	-8.18	-4.04	
1:21:23	16:31:00	-9.25	0.00	-0.09	0.00	-8.18	-4.02	
1:22:04	16:31:41	-9.25	0.00	-0.08	0.00	-8.18	-4.03	
1:22:45	16:32:22	-9.25	0.00	-0.08	0.00	-8.18	-4.06	
1:23:26	16:33:03	-9.25	0.00	-0.07	0.00	-8.18	-4.07	
1:24:07	16:33:44	-9.25	0.00	-0.07	0.00	-8.18	-4.12	
1:24:49	16:34:25	-9.25	0.00	-0.07	0.00	-8.18	-4.11	
1:25:30	16:35:06	-9.25	0.00	-0.08	0.00	-8.18	-4.10	
1:26:11	16:35:48	-9.25	0.00	-0.07	0.00	-8.18	-4.07	AWS PUMP OUT
1:26:52	16:36:29	-9.25	0.00	-0.06	0.00	-8.18	-4.15	BLOWER OFF
1:27:33	16:37:10	-9.25	0.00	-0.06	0.06	-8.12	0.03	
1:28:14	16:37:51	-9.25	0.00	-0.05	0.57	-7.61	0.05	
1:28:58	16:38:35	-9.25	0.00	-0.05	0.87	-7.31	0.03	
1:29:45	16:39:22	-9.25	0.00	-0.05	1.12	-7.06	0.04	
1:30:27	16:40:04	-9.25	0.00	-0.04	1.38	-6.80	0.01	

Figure B-3

TPE at MW-1R

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

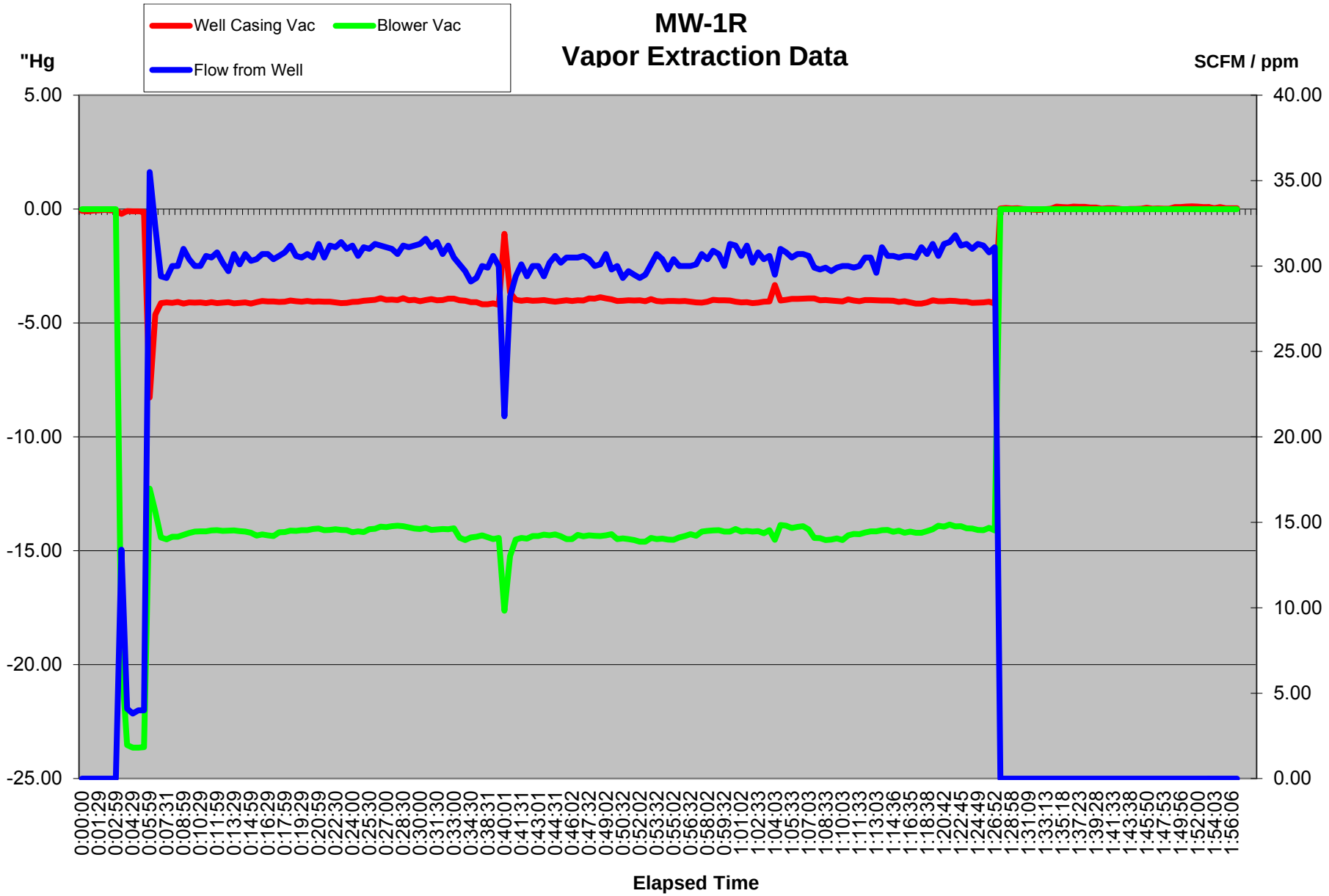
ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
1:31:09	16:40:46	-9.25	0.00	0.00	1.60	-6.58	0.00	
1:31:50	16:41:27	-9.25	0.00	0.00	1.83	-6.35	-0.02	
1:32:32	16:42:09	-9.25	0.00	0.00	2.07	-6.11	-0.03	
1:33:13	16:42:50	-9.25	0.00	0.00	2.24	-5.94	0.00	
1:33:55	16:43:32	-9.25	0.00	0.00	2.40	-5.78	0.02	
1:34:37	16:44:14	-9.25	0.00	0.00	2.55	-5.63	0.11	
1:35:18	16:44:55	-9.25	0.00	0.00	2.80	-5.38	0.09	
1:36:00	16:45:37	-9.25	0.00	0.00	2.96	-5.22	0.08	
1:36:42	16:46:18	-9.25	0.00	0.00	3.20	-4.98	0.11	
1:37:23	16:47:00	-9.25	0.00	0.00	3.46	-4.72	0.10	
1:38:05	16:47:42	-9.25	0.00	0.00	3.73	-4.45	0.10	
1:38:47	16:48:23	-9.25	0.00	0.00	3.98	-4.20	0.07	
1:39:28	16:49:05	-9.25	0.00	0.00	4.22	-3.96	0.07	
1:40:10	16:49:47	-9.25	0.00	0.00	4.47	-3.71	0.02	
1:40:52	16:50:28	-9.25	0.00	0.00	4.73	-3.45	0.04	
1:41:33	16:51:10	-9.25	0.00	0.00	5.02	-3.16	0.04	
1:42:15	16:51:52	-9.25	0.00	0.00	5.23	-2.95	0.02	
1:42:56	16:52:33	-9.25	0.00	0.00	5.54	-2.64	-0.01	
1:43:38	16:53:15	-9.25	0.00	0.00	5.74	-2.44	0.01	
1:44:22	16:53:59	-9.25	0.00	0.00	5.97	-2.21	0.01	
1:45:09	16:54:46	-9.25	0.00	0.00	6.17	-2.01	0.02	

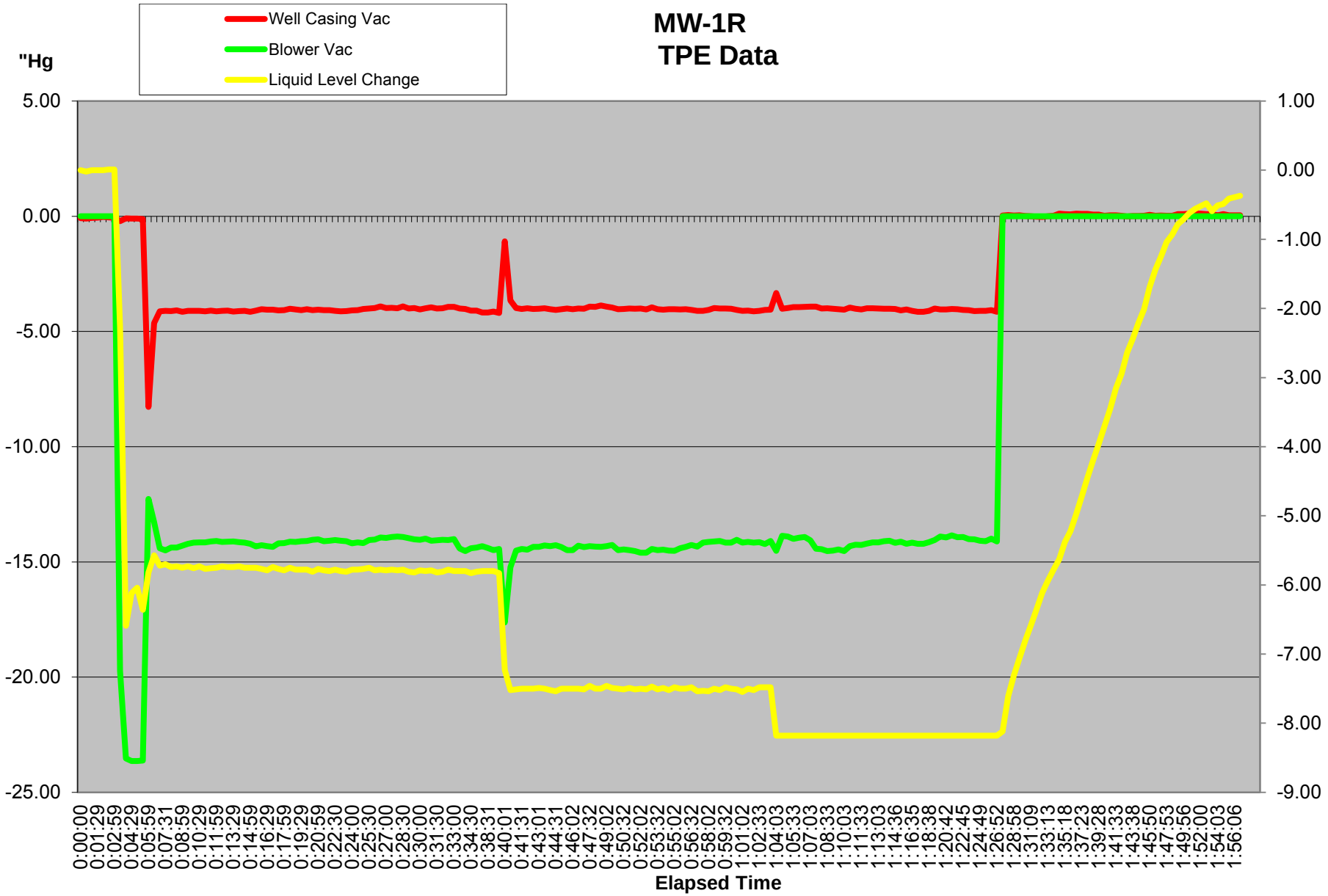
Figure B-3

TPE at MW-1R

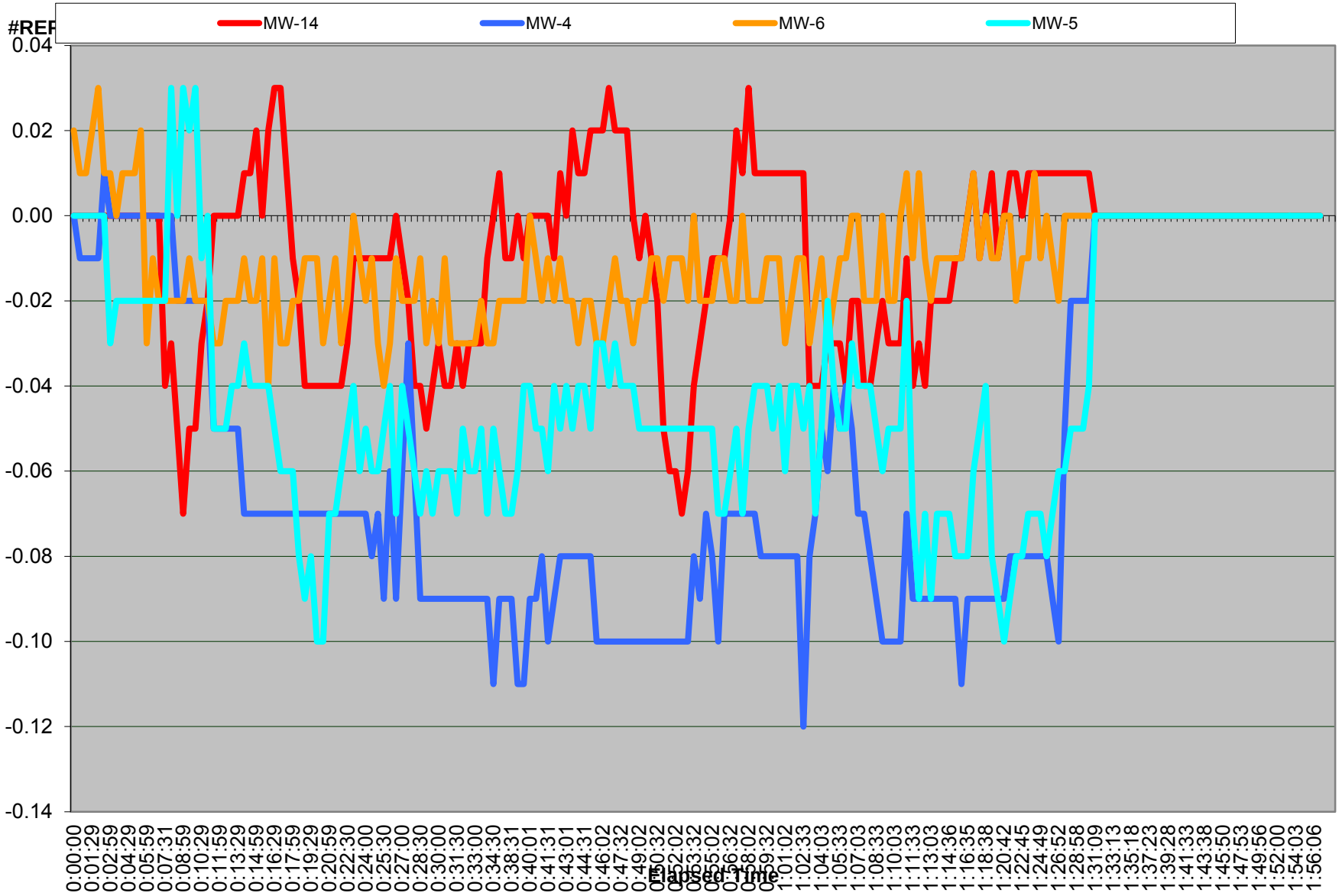
United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

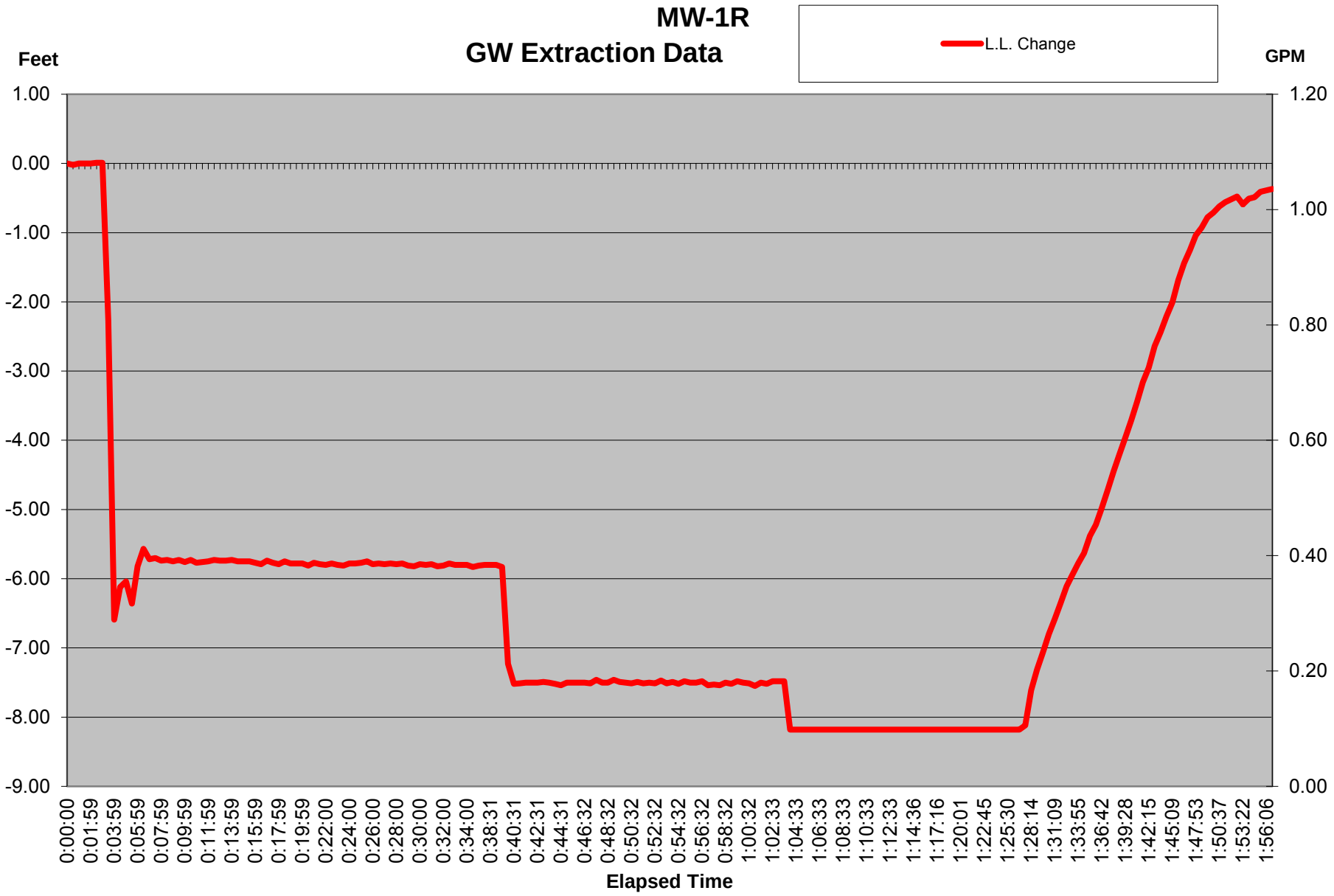
ELAPSED TIME hh/mm/ss	Time	RADIO 5			RADIO 6 (Extraction Well)			Comments
		MW-5			MW-1R			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	
1:45:50	16:55:27	-9.25	0.00	0.00	6.49	-1.69	0.06	
1:46:31	16:56:08	-9.25	0.00	0.00	6.74	-1.44	0.02	
1:47:12	16:56:49	-9.25	0.00	0.00	6.93	-1.25	0.03	
1:47:53	16:57:30	-9.25	0.00	0.00	7.14	-1.04	0.02	
1:48:34	16:58:11	-9.25	0.00	0.00	7.25	-0.93	0.02	
1:49:15	16:58:52	-9.25	0.00	0.00	7.40	-0.78	0.09	
1:49:56	16:59:33	-9.25	0.00	0.00	7.47	-0.71	0.09	
1:50:37	17:00:14	-9.25	0.00	0.00	7.56	-0.62	0.11	
1:51:18	17:00:55	-9.25	0.00	0.00	7.62	-0.56	0.12	
1:52:00	17:01:36	-9.25	0.00	0.00	7.66	-0.52	0.11	
1:52:41	17:02:17	-9.25	0.00	0.00	7.70	-0.48	0.09	
1:53:22	17:02:58	-9.25	0.00	0.00	7.59	-0.59	0.09	
1:54:03	17:03:39	-9.25	0.00	0.00	7.67	-0.51	0.04	
1:54:44	17:04:20	-9.25	0.00	0.00	7.69	-0.49	0.09	
1:55:25	17:05:01	-9.25	0.00	0.00	7.77	-0.41	0.04	
1:56:06	17:05:43	-9.25	0.00	0.00	7.79	-0.39	0.04	
1:56:47	17:06:24	-9.25	0.00	0.00	7.81	-0.37	0.04	


MW-1R
Vapor Extraction Data
Well Casing Vac
Blower Vac
Flow from Well
"Hg
SCFM / ppm
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0:00:00
0:01:29
0:02:59
0:04:29
0:05:59
0:07:31
0:08:59
0:10:29
0:11:59
0:13:29
0:14:59
0:16:29
0:17:59
0:19:29
0:20:59
0:22:30
0:24:00
0:25:30
0:27:00
0:28:30
0:30:00
0:31:30
0:33:00
0:34:30
0:38:31
0:40:01
0:41:31
0:43:01
0:44:31
0:46:02
0:47:32
0:49:02
0:50:32
0:52:02
0:53:32
0:55:02
0:56:32
0:58:02
0:59:32
1:01:02
1:02:33
1:04:03
1:05:33
1:07:03
1:08:33
1:10:03
1:11:33
1:13:03
1:14:36
1:16:35
1:18:38
1:20:42
1:22:45
1:24:49
1:26:52
1:28:58
1:31:09
1:33:13
1:35:18
1:37:23
1:39:28
1:41:33
1:43:38
1:45:50
1:47:53
1:49:56
1:52:00
1:54:03
1:56:06
Elapsed Time


MW-1R
TPE Data
Well Casing Vac
Blower Vac
Liquid Level Change
"Hg
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
-8.00
-9.00
0:00:00
0:01:29
0:02:59
0:04:29
0:05:59
0:07:31
0:08:59
0:10:29
0:11:59
0:13:29
0:14:59
0:16:29
0:17:59
0:19:29
0:20:59
0:22:30
0:24:00
0:25:30
0:27:00
0:28:30
0:30:00
0:31:30
0:33:00
0:34:30
0:38:31
0:40:01
0:41:31
0:43:01
0:44:31
0:46:02
0:47:32
0:49:02
0:50:32
0:52:02
0:53:32
0:55:02
0:56:32
0:58:02
0:59:32
1:01:02
1:02:33
1:04:03
1:05:33
1:07:03
1:08:33
1:10:03
1:11:33
1:13:03
1:14:36
1:16:35
1:18:38
1:20:42
1:22:45
1:24:49
1:26:52
1:28:58
1:31:09
1:33:13
1:35:18
1:37:23
1:39:28
1:41:33
1:43:38
1:45:50
1:47:53
1:49:56
1:52:00
1:54:03
1:56:06
Elapsed Time

Satellite Well Vacuum Response




MW-1R
GW Extraction Data
L.L. Change
Feet
GPM
1.00
0.00
-1.00
-2.00
-3.00
-4.00
-5.00
-6.00
-7.00
-8.00
-9.00
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0:00:00
0:01:59
0:03:59
0:05:59
0:07:59
0:09:59
0:11:59
0:13:59
0:15:59
0:17:59
0:19:59
0:22:00
0:24:00
0:26:00
0:28:00
0:30:00
0:32:00
0:34:00
0:38:31
0:40:31
0:42:31
0:44:31
0:46:32
0:48:32
0:50:32
0:52:32
0:54:32
0:56:32
0:58:32
1:00:32
1:02:33
1:04:33
1:06:33
1:08:33
1:10:33
1:12:33
1:14:36
1:17:16
1:20:01
1:22:45
1:25:30
1:28:14
1:31:09
1:33:55
1:36:42
1:39:28
1:42:15
1:45:09
1:47:53
1:50:37
1:53:22
1:56:06
Elapsed Time

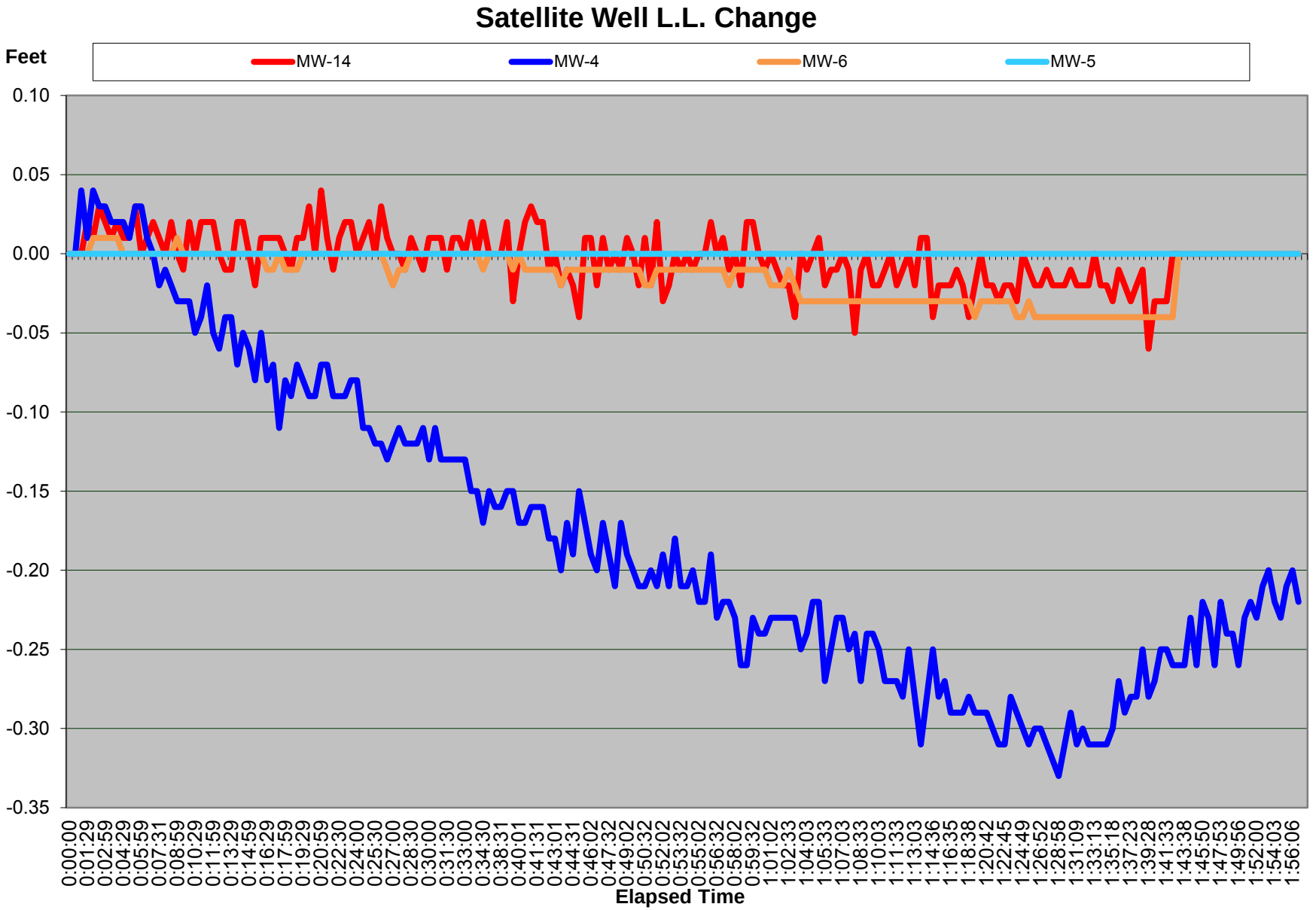

Satellite Well L.L. Change
Feet
MW-14
MW-4
MW-6
MW-5
0.10
0.05
0.00
-0.05
-0.10
-0.15
-0.20
-0.25
-0.30
-0.35
0:00:00
0:01:29
0:02:59
0:04:29
0:05:59
0:07:31
0:08:59
0:10:29
0:11:59
0:13:29
0:14:59
0:16:29
0:17:59
0:19:29
0:20:59
0:22:30
0:24:00
0:25:30
0:27:00
0:28:30
0:30:00
0:31:30
0:33:00
0:34:30
0:38:31
0:40:01
0:41:31
0:43:01
0:44:31
0:46:02
0:47:32
0:49:02
0:50:32
0:52:02
0:53:32
0:55:02
0:56:32
0:58:02
0:59:32
1:01:02
1:02:33
1:04:03
1:05:33
1:07:03
1:08:33
1:10:03
1:11:33
1:13:03
1:14:36
1:16:35
1:18:38
1:20:42
1:22:45
1:24:49
1:26:52
1:28:58
1:31:09
1:33:13
1:35:18
1:37:23
1:39:28
1:41:33
1:43:38
1:45:50
1:47:53
1:49:56
1:52:00
1:54:03
1:56:06
Elapsed Time

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:00:00	10:19:51	0.00	0.00	39.50	-22.50	
0:00:15	10:20:06	0.00	0.00	40.00	-2.86	
0:00:45	10:20:36	0.00	0.00	39.80	0.85	
0:01:15	10:21:07	0.00	0.00	40.00	0.85	
0:01:45	10:21:36	0.00	0.00	39.80	0.85	START PUMP TEST
0:02:15	10:22:06	0.00	0.00	40.00	0.85	
0:02:45	10:22:36	0.00	0.00	39.80	0.85	
0:03:15	10:23:06	0.00	0.00	39.70	0.85	
0:03:45	10:23:36	0.00	0.00	40.10	1.10	
0:04:15	10:24:06	0.00	0.00	40.00	1.10	
0:04:45	10:24:36	0.00	0.00	39.50	1.10	
0:05:15	10:25:06	0.00	0.00	40.00	1.10	
0:05:45	10:25:36	0.00	0.00	40.00	1.10	
0:06:15	10:26:06	0.00	0.00	40.00	1.10	
0:06:45	10:26:36	0.00	0.00	39.70	1.19	
0:07:15	10:27:06	0.00	0.00	40.00	1.24	
0:07:45	10:27:36	0.00	0.00	39.70	1.24	
0:08:15	10:28:06	0.00	0.00	40.00	1.24	
0:08:49	10:28:40	0.00	0.00	39.90	1.24	
0:09:24	10:29:15	0.00	0.00	40.00	1.24	
0:10:03	10:29:54	0.00	0.00	40.00	1.24	
0:10:39	10:30:30	0.00	0.00	39.80	1.24	
0:11:15	10:31:06	0.00	0.00	40.10	1.24	
0:11:53	10:31:44	0.00	0.00	39.70	1.24	
0:12:29	10:32:20	0.00	0.00	39.80	1.28	
0:13:00	10:32:51	0.00	0.00	39.50	1.28	
0:13:30	10:33:21	0.00	0.00	40.00	1.28	
0:14:00	10:33:51	0.00	0.00	39.70	1.32	
0:14:34	10:34:25	0.00	0.00	39.70	1.32	
0:15:05	10:34:56	0.00	0.00	39.70	1.32	
0:15:41	10:35:32	0.00	0.00	40.00	1.32	
0:16:17	10:36:08	0.00	0.00	40.10	1.32	
0:16:52	10:36:43	0.00	0.00	40.10	1.35	
0:17:28	10:37:19	0.00	0.00	40.00	1.35	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:18:03	10:37:54	0.00	0.00	40.00	1.35	
0:18:39	10:38:30	0.00	0.00	39.70	1.35	
0:19:15	10:39:06	0.00	0.00	40.20	1.35	
0:19:50	10:39:41	0.00	0.00	40.10	1.35	
0:20:21	10:40:13	0.00	0.00	40.10	1.35	
0:20:51	10:40:43	0.00	0.00	40.20	1.35	
0:21:21	10:41:13	0.00	0.00	40.20	1.35	
0:21:51	10:41:43	0.00	0.00	40.30	1.35	
0:22:27	10:42:18	0.00	0.00	40.10	1.35	
0:22:58	10:42:49	0.00	0.00	40.20	1.35	
0:23:28	10:43:19	0.00	0.00	40.40	1.19	
0:23:58	10:43:49	0.00	0.00	40.30	1.24	
0:24:28	10:44:19	0.00	0.00	40.20	1.24	
0:25:06	10:44:57	0.00	0.00	40.20	1.24	
0:25:41	10:45:33	0.00	0.00	40.20	1.24	
0:26:17	10:46:08	0.00	0.00	40.40	1.24	
0:26:53	10:46:44	0.00	0.00	40.20	1.24	
0:27:28	10:47:19	0.00	0.00	40.30	1.24	
0:28:04	10:47:55	0.00	0.00	40.30	1.24	
0:28:39	10:48:30	0.00	0.00	40.40	1.32	
0:29:10	10:49:01	0.00	0.00	40.40	1.32	
0:29:40	10:49:31	0.00	0.00	40.30	1.32	
0:30:10	10:50:01	0.00	0.00	40.30	1.32	
0:30:40	10:50:31	0.00	0.00	40.10	1.32	
0:31:11	10:51:02	0.00	0.00	40.30	1.32	
0:31:41	10:51:32	0.00	0.00	40.40	1.35	
0:32:11	10:52:02	0.00	0.00	40.50	1.35	
0:32:41	10:52:32	0.00	0.00	40.20	1.35	
0:33:16	10:53:07	0.00	0.00	40.50	1.35	
0:33:47	10:53:39	0.00	0.00	40.30	1.35	
0:34:17	10:54:09	0.00	0.00	40.30	1.35	
0:34:47	10:54:39	0.00	0.00	40.30	1.35	
0:35:17	10:55:09	0.00	0.00	40.50	1.37	
0:35:53	10:55:44	0.00	0.00	40.40	1.37	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:36:28	10:56:19	0.00	0.00	40.50	1.37	
0:37:04	10:56:55	0.00	0.00	40.40	1.37	
0:37:39	10:57:30	0.00	0.00	40.00	1.37	
0:38:11	10:58:02	0.00	0.00	40.50	1.37	
0:39:03	10:58:54	0.00	0.00	40.50	1.39	
0:39:33	10:59:24	0.00	0.00	40.60	1.39	
0:40:03	10:59:54	0.00	0.00	40.60	1.39	
0:40:37	11:00:28	0.00	0.00	40.60	1.39	
0:41:07	11:00:58	0.00	0.00	40.80	1.24	
0:41:40	11:01:31	0.00	0.00	40.70	1.24	
0:42:10	11:02:01	0.00	0.00	40.70	1.24	
0:42:40	11:02:31	0.00	0.00	40.80	1.24	
0:43:14	11:03:05	0.00	0.00	40.70	1.24	
0:43:50	11:03:41	0.00	0.00	40.80	1.24	
0:44:25	11:04:16	0.00	0.00	40.80	1.24	
0:45:01	11:04:52	0.00	0.00	40.40	1.24	
0:45:36	11:05:27	0.00	0.00	40.20	1.24	
0:46:12	11:06:03	0.00	0.00	40.60	1.24	
0:46:48	11:06:39	0.00	0.00	40.90	1.24	
0:47:23	11:07:14	0.00	0.00	40.80	1.24	
0:47:59	11:07:50	0.00	0.00	41.00	1.24	
0:48:34	11:08:25	0.00	0.00	40.80	1.24	
0:49:10	11:09:01	0.00	0.00	40.40	1.24	
0:49:46	11:09:37	0.00	0.00	40.50	1.28	
0:50:17	11:10:08	0.00	0.00	40.80	1.35	
0:50:47	11:10:38	0.00	0.00	41.00	1.35	
0:51:17	11:11:08	0.00	0.00	41.00	1.39	
0:51:51	11:11:42	0.00	0.00	40.70	1.39	
0:52:22	11:12:13	0.00	0.00	40.60	1.39	
0:52:57	11:12:49	0.00	0.00	41.10	1.24	
0:53:29	11:13:20	0.00	0.00	41.00	1.24	
0:53:59	11:13:50	0.00	0.00	41.40	1.24	
0:54:35	11:14:26	0.00	0.00	40.50	1.24	
0:55:05	11:14:56	0.00	0.00	40.70	1.24	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:55:35	11:15:26	0.00	0.00	40.60	1.24	
0:56:05	11:15:56	0.00	0.00	41.30	1.24	
0:56:35	11:16:26	0.00	0.00	41.00	1.24	
0:57:05	11:16:56	0.00	0.00	41.00	1.24	
0:57:35	11:17:26	0.00	0.00	40.90	1.24	
0:58:10	11:18:02	0.00	0.00	41.10	1.24	
0:58:46	11:18:37	0.00	0.00	41.30	1.24	
0:59:22	11:19:13	0.00	0.00	41.30	1.24	
0:59:57	11:19:48	0.00	0.00	41.30	1.24	
1:00:33	11:20:24	0.00	0.00	41.00	1.24	
1:01:08	11:20:59	0.00	0.00	41.40	1.24	
1:01:44	11:21:35	0.00	0.00	41.30	1.24	
1:02:19	11:22:10	0.00	0.00	41.20	1.24	
1:02:55	11:22:46	0.00	0.00	41.30	1.24	
1:03:30	11:23:21	0.00	0.00	41.40	1.24	
1:04:06	11:23:57	0.00	0.00	41.30	1.24	
1:04:41	11:24:33	0.00	0.00	41.50	1.24	
1:05:17	11:25:08	0.00	0.00	40.90	1.24	
1:05:53	11:25:44	0.00	0.00	41.50	1.24	
1:06:24	11:26:15	0.00	0.00	41.50	1.24	
1:06:54	11:26:45	0.00	0.00	41.60	1.24	
1:07:24	11:27:15	0.00	0.00	41.50	1.24	
1:07:54	11:27:45	0.00	0.00	41.20	2.44	
1:08:29	11:28:20	0.00	0.00	41.70	2.44	
1:09:06	11:28:57	0.00	0.00	41.30	2.44	
1:09:45	11:29:37	0.00	0.00	41.70	2.44	
1:10:23	11:30:14	0.00	0.00	41.40	2.44	
1:10:54	11:30:45	0.00	0.00	41.20	2.44	
1:11:24	11:31:15	0.00	0.00	41.60	2.44	
1:11:54	11:31:45	0.00	0.00	41.80	2.44	
1:12:24	11:32:15	0.00	0.00	41.60	2.44	
1:13:01	11:32:52	0.00	0.00	41.90	2.44	
1:13:34	11:33:26	0.00	0.00	41.90	2.44	
1:14:05	11:33:57	0.00	0.00	41.90	2.44	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:14:36	11:34:27	0.00	0.00	41.90	2.44	
1:15:06	11:34:57	0.00	0.00	41.70	2.44	
1:15:36	11:35:27	0.00	0.00	41.60	1.24	
1:16:11	11:36:02	0.00	0.00	41.90	1.24	
1:16:46	11:36:38	0.00	0.00	41.90	1.24	
1:17:17	11:37:09	-2.79	31.90	50.60	1.24	VEGE TEST - FIND MAX VAC 808 BLOWER
1:17:47	11:37:39	-3.39	11.10	68.20	1.24	
1:18:17	11:38:09	-2.77	7.20	78.50	1.24	MAX VAC 808= 90"WC
1:18:47	11:38:39	-2.80	9.50	81.90	1.24	VEGE TEST STEP 1 @ 40"WC
1:19:24	11:39:16	-2.74	7.90	89.30	1.24	
1:19:54	11:39:45	-2.79	8.80	95.30	1.24	
1:20:24	11:40:15	-2.71	7.60	100.40	9.59	
1:20:54	11:40:45	-2.73	7.90	100.80	9.59	
1:21:28	11:41:19	-2.65	7.80	107.10	9.59	
1:21:58	11:41:49	-2.60	7.90	109.80	8.37	
1:22:28	11:42:19	-2.67	7.90	111.30	2.35	
1:22:58	11:42:49	-2.54	7.00	113.90	2.35	
1:23:28	11:43:19	-2.49	7.30	116.60	2.35	
1:23:58	11:43:49	-2.58	8.40	118.60	2.35	
1:25:11	11:45:02	-2.56	7.80	122.40	2.35	
1:25:47	11:45:38	-2.63	8.40	125.00	2.29	
1:26:22	11:46:13	-2.59	7.10	126.90	2.29	
1:26:58	11:46:49	-2.59	6.30	128.80	2.29	
1:27:33	11:47:24	-2.57	6.60	130.50	2.26	
1:28:04	11:47:56	-2.60	7.80	131.70	2.26	
1:28:34	11:48:25	-2.60	6.50	132.60	1.35	
1:29:04	11:48:55	-2.51	7.20	133.70	1.37	
1:29:34	11:49:25	-2.52	6.50	133.90	1.39	
1:30:05	11:49:56	-2.48	6.10	135.00	0.33	
1:30:35	11:50:26	-2.51	6.20	135.80	-1.17	
1:31:05	11:50:56	-2.52	5.70	136.90	-1.17	
1:31:35	11:51:26	-2.52	6.10	137.60	-1.17	
1:32:06	11:51:57	-2.55	6.60	138.80	-1.17	
1:32:36	11:52:27	-2.54	5.70	139.70	-1.17	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:33:06	11:52:57	-2.56	7.30	140.00	-1.17	
1:33:40	11:53:31	-2.52	6.10	140.80	-1.17	
1:34:11	11:54:02	-2.49	6.40	141.60	-1.17	
1:34:47	11:54:38	-2.49	5.90	142.00	-1.17	
1:35:23	11:55:14	-2.46	6.60	141.80	-1.17	
1:35:54	11:55:45	-2.52	7.10	142.50	-1.17	
1:36:24	11:56:15	-2.42	5.80	143.00	-1.17	
1:36:54	11:56:45	-2.43	6.60	143.10	-1.17	
1:37:28	11:57:19	-2.47	6.70	143.40	-1.17	
1:37:58	11:57:49	-2.47	5.70	144.00	-1.17	
1:38:28	11:58:19	-2.47	5.80	144.70	-1.17	
1:38:58	11:58:50	-2.51	5.90	145.40	-1.17	
1:39:28	11:59:20	-2.52	6.00	146.00	-1.17	
1:39:59	11:59:50	-2.48	6.60	146.50	-1.17	
1:40:43	12:00:34	-2.53	6.00	146.70	-1.17	
1:41:19	12:01:10	-2.41	6.10	146.90	-1.17	
1:41:54	12:01:45	-2.36	5.20	147.00	-2.01	
1:45:28	12:05:19	-2.52	6.00	148.90	-2.01	
1:46:03	12:05:54	-2.52	7.50	149.30	-2.01	
1:46:39	12:06:30	-2.49	6.60	149.80	-2.01	
1:47:10	12:07:01	-2.42	6.00	149.80	-2.01	
1:47:40	12:07:31	-2.44	6.00	149.50	-2.01	
1:48:11	12:08:02	-2.40	5.90	149.60	-2.01	
1:48:41	12:08:32	-2.38	5.90	149.50	-2.01	
1:49:14	12:09:05	-2.41	6.50	149.50	-2.01	
1:49:49	12:09:40	-2.34	6.60	149.70	-2.01	
1:50:25	12:10:16	-2.47	6.70	150.20	-2.01	
1:51:00	12:10:51	-2.44	5.70	150.60	-2.01	
1:51:36	12:11:27	-2.39	6.10	150.90	-2.01	
1:52:11	12:12:03	-2.46	7.30	151.30	-2.01	
1:52:48	12:12:39	-2.43	5.10	151.60	-1.27	
1:53:23	12:13:14	-2.45	6.00	151.70	-1.27	
1:53:58	12:13:49	-2.32	6.00	151.60	-1.27	
1:54:34	12:14:25	-2.32	6.60	151.40	-1.27	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:55:10	12:15:01	-2.34	6.10	151.40	-1.27	
1:55:58	12:15:49	-2.42	6.70	151.30	-1.27	
1:56:28	12:16:19	-2.44	6.50	151.70	-1.27	
1:56:58	12:16:49	-2.45	6.00	152.00	-1.27	
1:57:32	12:17:23	-2.45	6.50	152.20	-1.27	
1:58:08	12:17:59	-2.43	6.00	152.50	-1.27	
1:58:45	12:18:36	-2.45	7.20	152.70	-1.27	
1:59:21	12:19:12	-2.41	5.70	153.10	-1.27	
1:59:58	12:19:49	-2.45	6.10	153.10	-1.27	
2:00:34	12:20:25	-2.40	6.50	152.80	-1.27	
2:01:11	12:21:02	-2.35	5.40	152.80	-1.27	
2:01:47	12:21:39	-2.38	5.90	152.70	-1.27	
2:02:24	12:22:15	-2.41	6.20	152.80	-1.27	
2:03:01	12:22:52	-2.40	6.40	153.10	-1.27	
2:03:37	12:23:28	-2.45	5.80	153.40	-1.27	
2:04:07	12:23:58	-2.41	6.00	153.60	-1.27	
2:04:39	12:24:30	-2.37	6.00	153.60	-1.27	
2:05:10	12:25:01	-2.44	6.00	153.70	-1.27	
2:05:41	12:25:33	-2.36	6.70	154.50	-1.27	
2:06:11	12:26:03	-2.37	6.00	153.70	-1.27	
2:06:41	12:26:33	-2.36	5.90	153.70	-1.27	
2:07:11	12:27:03	-2.38	6.20	153.60	-1.27	
2:07:47	12:27:38	-2.39	5.70	153.60	-1.27	
2:08:18	12:28:09	-2.32	5.70	153.60	-1.27	
2:08:48	12:28:39	-2.41	6.00	153.60	-1.27	
2:09:18	12:29:09	-2.38	6.00	153.80	-1.27	
2:09:54	12:29:45	-2.41	7.20	154.10	-1.27	
2:10:43	12:30:34	-2.47	5.90	154.40	-1.27	
2:11:23	12:31:14	-2.42	6.00	154.70	-1.27	
2:11:58	12:31:49	-4.96	19.40	154.70	-1.27	VEGE TEST STEP 2 @ 80" WC
2:12:29	12:32:20	-6.35	7.60	163.00	-1.27	
2:12:59	12:32:50	-6.46	7.90	170.00	-1.27	
2:13:29	12:33:20	-6.40	7.70	173.90	-1.27	
2:13:59	12:33:50	-6.46	8.30	177.20	-1.27	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
2:14:34	12:34:26	-6.60	8.50	179.90	-1.27	
2:15:11	12:35:02	-6.42	8.40	183.50	-1.27	
2:15:46	12:35:37	-6.52	7.90	187.30	-1.27	
2:16:22	12:36:13	-6.40	9.00	189.80	-1.27	
2:16:57	12:36:48	-6.50	7.30	192.80	-1.27	
2:17:33	12:37:24	-6.30	6.60	195.30	-1.27	
2:18:04	12:37:55	-6.41	8.10	197.50	-1.27	
2:18:34	12:38:25	-6.37	8.60	199.70	-1.27	
2:19:04	12:38:55	-6.32	8.40	200.20	-1.27	
2:19:38	12:39:29	-6.35	8.50	201.60	-1.27	
2:20:08	12:39:59	-6.19	8.60	204.10	-1.27	
2:20:39	12:40:30	-6.35	8.70	205.20	-1.27	
2:21:14	12:41:05	-6.32	8.70	207.10	-1.27	
2:21:50	12:41:41	-6.38	7.20	208.80	-1.27	
2:22:25	12:42:17	-6.37	7.60	210.70	-1.27	
2:23:01	12:42:52	-6.37	7.80	212.30	-0.04	
2:23:37	12:43:28	-6.35	7.80	214.10	-0.04	
2:24:12	12:44:03	-6.34	7.90	215.70	-0.04	
2:24:48	12:44:39	-6.35	7.90	217.00	0.34	
2:25:23	12:45:14	-6.13	6.90	217.90	0.34	
2:26:00	12:45:51	-6.22	8.70	219.00	0.48	
2:26:42	12:46:33	-6.27	7.20	219.90	0.48	
2:27:19	12:47:10	-6.26	8.70	221.00	0.48	
2:27:54	12:47:45	-6.22	7.80	222.40	0.59	
2:28:30	12:48:21	-6.20	8.30	223.50	0.69	
2:29:05	12:48:56	-6.30	7.20	224.70	0.78	
2:29:41	12:49:32	-6.41	8.70	225.80	0.78	
2:30:16	12:50:08	-6.36	8.50	227.00	-1.27	
2:30:52	12:50:43	-6.27	7.70	227.90	-1.27	
2:31:28	12:51:19	-6.25	8.90	228.50	-1.27	
2:32:03	12:51:54	-5.93	9.00	229.30	-1.27	
2:32:39	12:52:30	-6.27	8.60	229.80	-1.27	
2:33:14	12:53:05	-6.21	7.60	230.30	-1.27	
2:33:45	12:53:36	-6.04	8.60	230.90	-1.27	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
2:34:15	12:54:06	-6.30	8.60	231.50	-1.27	
2:34:45	12:54:36	-6.19	7.10	231.70	-1.27	
2:35:15	12:55:06	-6.19	7.20	232.60	-1.27	
2:35:46	12:55:37	-6.24	8.50	233.90	-1.27	
2:36:16	12:56:07	-6.32	9.20	234.80	-1.27	
2:36:46	12:56:37	-6.34	7.90	235.20	-1.27	
2:37:16	12:57:07	-6.16	9.00	235.70	-1.27	
2:37:47	12:57:38	-6.26	7.00	235.90	-1.27	
2:38:17	12:58:08	-6.16	7.80	236.40	-1.27	
2:38:47	12:58:38	-6.15	7.80	236.40	-1.27	
2:39:17	12:59:08	-6.22	8.40	236.90	-1.27	
2:39:47	12:59:38	-6.16	8.40	237.20	-1.27	
2:40:24	13:00:15	-6.22	6.60	237.40	-1.27	
2:41:00	13:00:51	-6.27	7.20	238.00	-1.27	
2:41:37	13:01:28	-6.38	7.30	238.50	-1.27	
2:42:18	13:02:09	-6.43	7.20	239.10	-1.27	
2:42:59	13:02:50	-6.16	7.30	239.80	-1.27	
2:43:35	13:03:26	-6.10	8.60	240.40	-1.27	
2:44:06	13:03:57	-6.22	7.90	240.40	-1.27	
2:44:36	13:04:27	-6.19	7.10	240.70	-1.27	
2:45:06	13:04:57	-6.20	7.20	240.80	-1.27	
2:45:40	13:05:31	-6.13	6.70	241.00	-1.27	
2:46:10	13:06:01	-6.28	7.30	241.00	-1.27	
2:46:40	13:06:31	-6.30	8.60	241.20	-1.27	
2:47:11	13:07:02	-6.38	8.00	241.60	-1.27	
2:47:41	13:07:32	-6.28	7.30	242.10	-1.27	
2:48:11	13:08:02	-6.11	8.40	242.30	-1.27	
2:48:45	13:08:36	-6.29	7.30	243.00	-1.27	
2:49:15	13:09:06	-6.26	7.80	243.20	-1.27	
2:49:45	13:09:36	-6.14	7.20	243.80	-1.27	
2:50:15	13:10:06	-6.32	6.10	243.80	-0.70	
2:50:45	13:10:36	-6.38	8.50	243.80	-0.70	
2:51:15	13:11:06	-6.36	6.60	244.10	-0.70	
2:51:45	13:11:36	-6.10	7.20	244.00	-0.70	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments Click to add a comment
		IN HG	SCFM	DEG F	Feet	
2:52:16	13:12:07	-6.16	6.80	244.10	-0.70	
2:52:46	13:12:37	-6.26	7.50	244.30	-0.70	
2:53:16	13:13:07	-6.37	7.20	244.30	-0.70	
2:53:50	13:13:42	-6.25	7.80	244.60	-0.70	
2:54:20	13:14:12	-6.42	7.80	245.00	-0.70	
2:54:50	13:14:42	-6.46	7.30	245.70	-0.70	
2:55:26	13:15:17	-6.49	7.90	245.80	-0.70	
2:56:02	13:15:53	-6.41	7.30	246.30	-0.70	
2:56:41	13:16:32	-6.13	6.50	246.50	-0.35	
2:57:13	13:17:04	-6.40	7.20	246.40	-0.35	
2:57:43	13:17:34	-6.32	7.10	246.50	-0.35	
2:58:18	13:18:09	-6.43	6.60	246.30	-0.35	
2:58:48	13:18:39	-6.34	7.90	246.30	-0.35	
2:59:18	13:19:09	-6.29	9.00	246.70	-0.35	
2:59:53	13:19:44	-6.25	7.30	247.00	-0.35	
3:00:29	13:20:20	-6.52	7.20	247.10	-0.35	
3:01:00	13:20:51	-6.24	8.00	247.60	-0.35	
3:01:31	13:21:22	-6.39	7.20	247.90	-0.35	
3:02:00	13:21:51	-6.45	7.20	248.30	-0.35	blower off - switch to high vac blower
3:02:30	13:22:21	0.00	0.00	248.10	-0.35	
3:03:05	13:22:56	0.00	0.00	234.10	-0.35	
3:03:40	13:23:31	-4.41	6.60	192.20	-0.35	vege test step 3 - high vac
3:04:11	13:24:02	-20.16	12.70	151.20	-0.35	
3:04:41	13:24:32	-21.54	10.40	146.50	-0.35	
3:05:11	13:25:02	-21.72	10.10	144.80	-0.35	
3:05:46	13:25:37	-21.78	10.20	144.40	-0.35	
3:06:30	13:26:22	-21.87	9.90	142.00	-0.35	
3:07:00	13:26:52	-21.90	10.00	137.50	-0.35	
3:07:30	13:27:22	-21.86	10.30	135.30	-0.35	
3:08:00	13:27:52	-21.82	10.30	133.30	-0.35	
3:08:30	13:28:22	-21.75	10.40	131.30	-0.35	
3:09:00	13:28:52	-21.83	10.40	129.60	-0.35	
3:09:31	13:29:22	-21.78	10.50	128.40	-0.35	
3:10:01	13:29:52	-21.82	10.40	127.10	-0.35	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:10:31	13:30:22	-21.83	10.40	126.00	-0.35	
3:11:01	13:30:52	-21.85	10.30	125.30	-0.35	
3:11:31	13:31:22	-21.89	10.40	124.80	-0.35	
3:12:01	13:31:52	-21.89	10.40	124.00	-0.35	
3:12:31	13:32:22	-21.94	10.30	123.30	-0.35	
3:13:01	13:32:52	-21.93	10.40	123.00	-0.35	
3:13:33	13:33:24	-21.95	10.00	122.50	-0.35	
3:14:03	13:33:54	-21.93	10.40	122.10	-0.35	
3:14:33	13:34:24	-21.96	10.30	121.70	-0.35	
3:15:03	13:34:54	-21.97	10.20	121.60	-0.35	
3:15:33	13:35:24	-21.96	10.10	121.30	-0.35	
3:16:03	13:35:54	-21.94	10.30	121.00	-0.35	
3:16:33	13:36:24	-21.91	10.30	120.60	-0.35	
3:17:03	13:36:54	-21.92	10.40	120.50	-0.35	
3:17:33	13:37:24	-21.89	10.30	120.20	-0.35	
3:18:03	13:37:54	-21.94	10.30	120.00	-0.35	
3:18:33	13:38:24	-21.83	10.30	120.10	-0.35	
3:19:03	13:38:54	-21.97	10.40	120.00	-0.35	
3:19:33	13:39:24	-21.98	10.10	119.60	-0.35	
3:20:03	13:39:54	-22.00	10.10	119.80	-0.35	
3:20:33	13:40:24	-22.00	10.40	119.80	-0.35	
3:21:03	13:40:54	-21.98	10.30	119.70	-0.35	
3:21:33	13:41:24	-22.00	10.20	119.70	-0.35	
3:22:03	13:41:54	-21.99	10.30	119.80	-0.35	
3:22:33	13:42:24	-21.96	10.10	120.00	-0.35	
3:23:03	13:42:54	-21.98	10.20	120.00	-0.35	
3:23:33	13:43:24	-21.94	10.30	120.00	-0.35	
3:24:03	13:43:54	-21.83	10.40	120.20	-1.96	
3:24:33	13:44:24	-22.02	10.10	120.20	-1.96	
3:25:03	13:44:54	-22.00	10.10	120.30	-1.96	
3:25:33	13:45:24	-22.00	10.30	120.30	-1.96	
3:26:03	13:45:54	-22.01	10.40	120.50	-1.96	
3:26:33	13:46:24	-22.02	10.10	120.60	-1.96	
3:27:03	13:46:54	-22.02	10.40	120.70	-1.96	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:27:33	13:47:24	-22.03	10.30	120.80	-1.96	
3:28:03	13:47:54	-22.02	10.40	120.90	-1.96	
3:28:33	13:48:24	-22.00	10.40	121.00	-1.96	
3:29:03	13:48:54	-21.91	10.20	121.30	-1.96	
3:29:33	13:49:24	-21.95	10.30	121.70	-1.16	
3:30:03	13:49:54	-21.94	10.20	121.60	-1.16	
3:30:33	13:50:24	-21.93	10.10	121.70	-1.16	
3:31:03	13:50:54	-21.96	10.20	122.10	-1.16	
3:31:33	13:51:24	-21.99	10.40	122.40	-0.64	
3:32:03	13:51:54	-22.00	10.20	122.60	-0.64	
3:32:33	13:52:24	-22.00	10.20	122.70	-0.64	
3:33:03	13:52:54	-22.02	10.40	122.70	-0.64	
3:33:33	13:53:24	-22.02	10.10	122.80	-0.64	
3:34:03	13:53:54	-21.99	10.20	123.20	-0.64	
3:34:33	13:54:24	-22.01	10.20	123.20	-0.64	
3:35:03	13:54:54	-21.98	10.30	123.40	-0.64	
3:35:33	13:55:24	-21.82	10.40	123.80	-0.64	
3:36:03	13:55:54	-21.93	10.20	124.10	-0.64	
3:36:33	13:56:24	-21.91	10.10	124.20	-0.64	
3:37:03	13:56:54	-21.93	10.30	124.40	-0.64	
3:37:33	13:57:24	-21.94	10.10	124.60	-0.64	
3:38:03	13:57:54	-21.97	10.10	124.40	-0.64	
3:38:33	13:58:24	-21.97	10.30	124.90	-0.64	
3:39:03	13:58:54	-21.97	10.40	125.10	-0.64	
3:39:33	13:59:24	-22.00	10.10	125.20	-0.64	
3:40:03	13:59:54	-22.01	10.40	125.40	-0.64	
3:40:33	14:00:24	-21.94	10.30	125.60	-0.64	
3:41:03	14:00:54	-22.01	10.40	125.90	-0.64	
3:41:33	14:01:24	-21.97	10.10	125.50	-0.64	
3:42:03	14:01:54	-21.95	10.40	126.20	-0.64	
3:42:33	14:02:24	-21.89	10.30	126.40	-0.64	
3:43:03	14:02:54	-21.87	10.40	126.80	-0.64	
3:43:33	14:03:24	-21.86	10.20	127.10	-0.64	
3:44:03	14:03:54	-21.85	10.50	127.10	-0.64	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
3:44:33	14:04:24	-21.93	10.30	127.30	-0.64	
3:45:03	14:04:54	-21.94	10.30	127.40	-0.64	
3:45:33	14:05:24	-21.85	10.30	127.50	-0.64	
3:46:03	14:05:54	-21.96	10.30	127.60	-0.64	
3:46:33	14:06:24	-21.96	10.40	127.60	-0.64	
3:47:03	14:06:54	-21.99	10.50	127.90	-0.64	
3:47:33	14:07:24	-21.97	10.40	128.20	-0.64	
3:48:03	14:07:54	-21.97	10.30	128.20	-0.64	
3:48:33	14:08:24	-21.93	10.20	128.40	-0.64	
3:49:03	14:08:54	-21.86	10.40	128.70	-0.64	
3:49:33	14:09:24	-21.89	10.30	129.00	-0.64	
3:50:03	14:09:54	-21.88	10.50	129.20	-0.64	
3:50:33	14:10:24	-21.80	10.30	129.50	-0.64	
3:51:03	14:10:54	-21.93	10.40	129.50	-0.64	
3:51:33	14:11:24	-21.98	10.40	129.60	-0.64	
3:52:03	14:11:54	-21.97	10.40	129.50	-0.64	
3:52:33	14:12:24	-21.98	10.40	129.70	-0.64	
3:53:03	14:12:54	-21.99	10.40	129.80	-0.64	
3:53:33	14:13:24	-22.00	10.40	129.80	-0.64	
3:54:03	14:13:54	-21.95	10.30	130.10	-0.64	
3:54:33	14:14:24	-21.98	10.40	130.10	-1.96	
3:55:03	14:14:54	-21.95	10.20	130.10	-1.96	
3:55:33	14:15:24	-21.94	10.10	130.30	-1.96	
3:56:03	14:15:54	-21.89	10.30	130.40	-1.96	
3:56:33	14:16:24	-21.91	10.30	130.80	-1.96	
3:57:03	14:16:54	-21.91	10.30	131.00	-1.96	
3:57:33	14:17:24	-21.83	10.40	131.00	-1.96	
3:58:03	14:17:54	-21.96	10.40	131.10	-1.96	
3:58:33	14:18:24	-21.99	10.30	130.60	-1.96	
3:59:03	14:18:54	-22.00	10.30	131.10	-1.96	
3:59:33	14:19:24	-21.98	10.20	131.20	-1.96	
4:00:03	14:19:54	-22.03	10.20	131.30	-1.96	
4:00:33	14:20:24	-22.02	10.20	131.70	-1.96	
4:01:03	14:20:54	-21.96	10.30	131.70	-1.96	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
4:01:33	14:21:24	-21.98	10.20	131.90	-1.96	
4:02:03	14:21:54	-21.95	10.40	132.10	-1.96	
4:02:33	14:22:24	-21.92	10.40	132.30	-1.96	
4:03:03	14:22:54	-21.92	10.20	132.60	-1.96	
4:03:33	14:23:24	-21.94	10.30	132.80	-1.96	
4:04:03	14:23:54	-22.00	10.40	132.80	-1.96	
4:04:33	14:24:24	-21.90	10.40	132.60	-1.96	
4:05:03	14:24:54	-21.80	10.00	132.70	-1.96	
4:05:33	14:25:24	-21.94	10.00	132.30	-1.96	
4:06:03	14:25:54	-22.03	10.40	132.50	-1.96	
4:06:33	14:26:24	0.00	0.00	131.10	-1.96	pump and blower off
4:07:03	14:26:54	0.00	0.00	121.40	-1.96	
4:07:33	14:27:24	0.00	0.00	120.40	-1.96	
4:08:03	14:27:54	0.00	0.00	119.50	-1.96	
4:08:33	14:28:24	0.00	0.00	118.70	-1.96	
4:09:03	14:28:54	0.00	0.00	117.90	-1.96	
4:09:33	14:29:24	0.00	0.00	117.20	-1.96	
4:10:07	14:29:58	0.00	0.00	116.60	-1.96	
4:10:33	14:30:24	0.00	0.00	115.90	-1.96	
4:11:03	14:30:54	0.00	0.00	115.30	-1.96	
4:11:33	14:31:24	0.00	0.00	114.70	-1.96	
4:12:03	14:31:54	0.00	0.00	114.10	-1.96	
4:12:33	14:32:24	0.00	0.00	113.60	-1.96	
4:13:03	14:32:54	0.00	0.00	113.00	-1.96	
4:13:33	14:33:24	0.00	0.00	112.50	-1.96	
4:14:03	14:33:54	0.00	0.00	112.00	-1.96	
4:14:33	14:34:24	0.00	0.00	111.30	-1.96	
4:15:03	14:34:54	0.00	0.00	110.90	-1.96	
4:15:33	14:35:24	0.00	0.00	110.60	-1.96	
4:16:03	14:35:54	0.00	0.00	110.00	-1.96	
4:16:33	14:36:24	0.00	0.00	109.50	-1.96	
4:17:03	14:36:54	0.00	0.00	109.10	-1.96	
4:17:33	14:37:24	0.00	0.00	108.60	-1.96	
4:18:03	14:37:54	0.00	0.00	108.10	-1.96	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
4:18:33	14:38:24	0.00	0.00	107.50	-1.96	
4:19:03	14:38:54	0.00	0.00	107.10	-1.96	
4:19:33	14:39:24	0.00	0.00	106.70	-1.96	
4:20:03	14:39:54	0.00	0.00	106.30	-1.96	
4:20:33	14:40:24	0.00	0.00	105.80	-1.96	
4:21:03	14:40:54	0.00	0.00	105.20	-1.96	
4:21:33	14:41:24	0.00	0.00	104.90	-1.96	
4:22:03	14:41:54	0.00	0.00	104.50	-1.96	
4:22:34	14:42:25	0.00	0.00	103.90	-1.96	
4:23:03	14:42:54	0.00	0.00	103.60	-1.96	
4:23:33	14:43:24	0.00	0.00	103.10	-1.96	
4:24:03	14:43:54	0.00	0.00	102.70	-1.96	
4:24:33	14:44:24	0.00	0.00	102.30	-1.96	
4:25:03	14:44:54	0.00	0.00	101.90	-1.96	
4:25:33	14:45:24	0.00	0.00	101.40	-1.96	
4:26:03	14:45:54	0.00	0.00	101.00	-1.96	
4:26:33	14:46:24	0.00	0.00	100.70	-1.96	
4:27:03	14:46:54	0.00	0.00	100.20	-1.96	
4:27:33	14:47:24	0.00	0.00	99.90	-1.96	
4:28:03	14:47:54	0.00	0.00	99.40	-1.96	
4:28:33	14:48:24	0.00	0.00	99.00	-1.96	
4:29:03	14:48:54	0.00	0.00	98.60	-1.96	
4:29:40	14:49:31	0.00	0.00	98.30	-1.96	
4:30:10	14:50:01	0.00	0.00	97.80	-1.96	
4:30:40	14:50:31	0.00	0.00	97.20	-1.96	
4:31:10	14:51:01	0.00	0.00	96.90	-1.96	
4:31:40	14:51:31	0.00	0.00	96.60	-1.96	
4:32:10	14:52:01	0.00	0.00	96.40	-1.96	
4:32:40	14:52:31	0.00	0.00	95.90	-1.96	
4:33:10	14:53:01	0.00	0.00	95.60	-1.96	
4:33:40	14:53:31	0.00	0.00	95.30	-1.96	
4:34:10	14:54:01	0.00	0.00	94.90	-1.96	
4:34:40	14:54:31	0.00	0.00	94.70	-1.96	
4:35:10	14:55:01	0.00	0.00	94.20	-1.96	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
4:35:40	14:55:31	0.00	0.00	93.90	-1.96	
4:36:10	14:56:01	0.00	0.00	93.40	-1.96	
4:36:40	14:56:31	0.00	0.00	93.20	-1.96	
4:37:10	14:57:01	0.00	0.00	92.80	-1.96	
4:37:40	14:57:31	0.00	0.00	92.60	-1.96	
4:38:10	14:58:01	0.00	0.00	92.20	-1.96	
4:38:40	14:58:31	0.00	0.00	91.90	-1.96	
4:39:10	14:59:01	0.00	0.00	91.60	-1.96	
4:39:40	14:59:31	0.00	0.00	91.20	-1.96	
4:40:10	15:00:01	0.00	0.00	90.90	-1.96	
4:40:40	15:00:31	0.00	0.00	90.60	-1.96	
4:41:10	15:01:01	0.00	0.00	90.30	-1.96	
4:41:40	15:01:31	0.00	0.00	90.10	-1.96	
4:42:10	15:02:01	0.00	0.00	89.80	-1.96	
4:42:40	15:02:31	0.00	0.00	89.40	-1.96	
4:43:10	15:03:01	0.00	0.00	89.00	-1.96	
4:43:40	15:03:31	0.00	0.00	88.30	-1.96	
4:44:10	15:04:01	0.00	0.00	88.60	-1.96	
4:44:40	15:04:31	0.00	0.00	88.10	-1.96	
4:45:10	15:05:01	0.00	0.00	88.00	-1.96	
4:45:40	15:05:31	0.00	0.00	87.50	-1.96	
4:46:10	15:06:01	0.00	0.00	87.50	-1.96	
4:46:40	15:06:31	0.00	0.00	87.20	-1.96	
4:47:10	15:07:01	0.00	0.00	86.80	-1.96	
4:47:40	15:07:31	0.00	0.00	86.50	-1.96	
4:48:10	15:08:01	0.00	0.00	86.30	-1.96	
4:48:40	15:08:31	0.00	0.00	86.10	-1.96	
4:49:10	15:09:01	0.00	0.00	85.80	-1.96	
4:49:40	15:09:31	0.00	0.00	85.40	-1.96	
4:50:10	15:10:01	0.00	0.00	85.40	-1.96	
4:50:40	15:10:31	0.00	0.00	85.00	-1.96	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:00:00	10:19:51	11.24	0.00	0.00	8.96	0.00	-0.01	12.03	0.00	0.01	7.73	0.00	0.00	
0:00:15	10:20:06	11.24	0.00	-0.03	8.96	0.00	0.00	12.04	0.01	0.01	7.73	0.00	0.00	
0:00:45	10:20:36	11.24	0.00	-0.03	8.93	-0.03	-0.01	12.06	0.03	0.00	7.73	0.00	0.00	
0:01:15	10:21:07	11.24	0.00	-0.01	8.96	0.00	0.00	12.06	0.03	0.02	7.73	0.00	0.00	
0:01:45	10:21:36	11.24	0.00	-0.01	8.97	0.01	0.00	12.04	0.01	0.01	7.73	0.00	0.00	START PUMP TEST
0:02:15	10:22:06	11.24	0.00	-0.02	8.95	-0.01	0.00	12.06	0.03	0.00	7.73	0.00	0.00	
0:02:45	10:22:36	11.24	0.00	-0.02	8.97	0.01	-0.01	12.04	0.01	0.02	7.73	0.00	0.00	
0:03:15	10:23:06	11.24	0.00	-0.02	8.97	0.01	0.00	12.04	0.01	-0.01	7.73	0.00	0.00	
0:03:45	10:23:36	11.24	0.00	-0.02	8.97	0.01	0.00	12.06	0.03	0.01	7.73	0.00	0.00	
0:04:15	10:24:06	11.24	0.00	-0.03	8.97	0.01	0.01	12.05	0.02	0.00	7.73	0.00	0.00	
0:04:45	10:24:36	11.24	0.00	-0.02	8.96	0.00	-0.01	12.04	0.01	0.01	7.73	0.00	0.00	
0:05:15	10:25:06	11.24	0.00	-0.01	8.98	0.02	0.00	12.04	0.01	0.01	7.72	-0.01	0.00	
0:05:45	10:25:36	11.24	0.00	-0.03	8.97	0.01	0.00	12.04	0.01	0.01	7.72	-0.01	0.00	
0:06:15	10:26:06	11.24	0.00	-0.02	8.95	-0.01	-0.02	12.05	0.02	0.01	7.72	-0.01	0.00	
0:06:45	10:26:36	11.24	0.00	-0.02	8.96	0.00	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:07:15	10:27:06	11.24	0.00	-0.02	8.97	0.01	-0.01	12.03	0.00	0.00	7.72	-0.01	0.00	
0:07:45	10:27:36	11.24	0.00	-0.02	8.96	0.00	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:08:15	10:28:06	11.24	0.00	-0.02	8.98	0.02	0.00	12.06	0.03	0.00	7.72	-0.01	0.00	
0:08:49	10:28:40	11.24	0.00	-0.03	8.97	0.01	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:09:24	10:29:15	11.24	0.00	-0.03	8.94	-0.02	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:10:03	10:29:54	11.24	0.00	-0.03	8.95	-0.01	0.00	12.05	0.02	0.01	7.72	-0.01	0.00	
0:10:39	10:30:30	11.24	0.00	-0.01	8.96	0.00	-0.01	12.04	0.01	0.00	7.72	-0.01	0.00	
0:11:15	10:31:06	11.24	0.00	-0.01	9.00	0.04	-0.01	12.04	0.01	0.02	7.72	-0.01	0.00	
0:11:53	10:31:44	11.24	0.00	-0.01	8.99	0.03	-0.01	12.03	0.00	0.01	7.72	-0.01	0.00	
0:12:29	10:32:20	11.24	0.00	-0.01	8.99	0.03	-0.01	12.06	0.03	0.00	7.72	-0.01	0.00	
0:13:00	10:32:51	11.24	0.00	-0.01	9.01	0.05	0.00	12.04	0.01	0.00	7.72	-0.01	0.00	
0:13:30	10:33:21	11.24	0.00	-0.01	8.99	0.03	0.00	12.05	0.02	0.01	7.72	-0.01	0.00	
0:14:00	10:33:51	11.24	0.00	-0.01	9.01	0.05	-0.01	12.03	0.00	0.00	7.72	-0.01	0.00	
0:14:34	10:34:25	11.24	0.00	-0.01	8.99	0.03	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:15:05	10:34:56	11.24	0.00	-0.01	8.98	0.02	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:15:41	10:35:32	11.24	0.00	-0.01	8.99	0.03	0.00	12.04	0.01	0.00	7.72	-0.01	0.00	
0:16:17	10:36:08	11.24	0.00	-0.01	8.98	0.02	-0.01	12.06	0.03	0.00	7.72	-0.01	0.00	
0:16:52	10:36:43	11.24	0.00	-0.01	8.98	0.02	0.00	12.05	0.02	0.01	7.72	-0.01	0.00	
0:17:28	10:37:19	11.24	0.00	-0.01	9.00	0.04	0.00	12.05	0.02	-0.01	7.72	-0.01	0.00	
0:18:03	10:37:54	11.24	0.00	-0.01	8.99	0.03	-0.01	12.05	0.02	0.00	7.72	-0.01	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:18:39	10:38:30	11.24	0.00	-0.01	8.97	0.01	-0.01	12.05	0.02	-0.01	7.72	-0.01	0.00	
0:19:15	10:39:06	11.24	0.00	-0.01	8.97	0.01	-0.01	12.05	0.02	0.00	7.72	-0.01	0.00	
0:19:50	10:39:41	11.24	0.00	-0.01	8.98	0.02	0.00	12.04	0.01	0.00	7.72	-0.01	0.00	
0:20:21	10:40:13	11.24	0.00	-0.01	8.98	0.02	-0.01	12.06	0.03	0.00	7.72	-0.01	0.00	
0:20:51	10:40:43	11.24	0.00	-0.01	9.00	0.04	0.00	12.05	0.02	0.00	7.72	-0.01	0.00	
0:21:21	10:41:13	11.24	0.00	-0.01	9.00	0.04	-0.01	12.06	0.03	0.00	7.72	-0.01	0.00	
0:21:51	10:41:43	11.24	0.00	-0.01	8.98	0.02	-0.01	12.04	0.01	0.02	7.72	-0.01	0.00	
0:22:27	10:42:18	11.24	0.00	-0.01	8.96	0.00	-0.01	12.05	0.02	0.01	7.72	-0.01	0.00	
0:22:58	10:42:49	11.24	0.00	-0.03	8.98	0.02	-0.02	12.06	0.03	0.00	7.72	-0.01	0.00	
0:23:28	10:43:19	11.24	0.00	-0.04	8.97	0.01	-0.01	12.06	0.03	0.00	7.72	-0.01	0.00	
0:23:58	10:43:49	11.24	0.00	-0.01	8.98	0.02	-0.01	12.06	0.03	0.01	7.72	-0.01	0.00	
0:24:28	10:44:19	11.24	0.00	-0.02	8.95	-0.01	-0.02	12.03	0.00	0.00	7.72	-0.01	0.00	
0:25:06	10:44:57	11.24	0.00	-0.02	8.97	0.01	-0.02	12.05	0.02	0.01	7.72	-0.01	0.00	
0:25:41	10:45:33	11.24	0.00	-0.02	8.99	0.03	-0.01	12.06	0.03	0.01	7.72	-0.01	0.00	
0:26:17	10:46:08	11.24	0.00	-0.02	8.99	0.03	-0.02	12.05	0.02	0.00	7.72	-0.01	0.00	
0:26:53	10:46:44	11.24	0.00	-0.03	8.98	0.02	-0.01	12.04	0.01	0.01	7.72	-0.01	0.00	
0:27:28	10:47:19	11.24	0.00	-0.02	8.97	0.01	-0.02	12.05	0.02	0.01	7.72	-0.01	0.00	
0:28:04	10:47:55	11.24	0.00	-0.02	8.97	0.01	-0.01	12.05	0.02	0.00	7.72	-0.01	0.00	
0:28:39	10:48:30	11.24	0.00	-0.02	8.99	0.03	-0.01	12.05	0.02	-0.01	7.72	-0.01	0.00	
0:29:10	10:49:01	11.24	0.00	-0.02	8.98	0.02	-0.02	12.06	0.03	0.00	7.72	-0.01	0.00	
0:29:40	10:49:31	11.24	0.00	-0.03	8.99	0.03	-0.01	12.04	0.01	0.00	7.72	-0.01	0.00	
0:30:10	10:50:01	11.24	0.00	-0.03	9.00	0.04	-0.01	12.07	0.04	0.00	7.72	-0.01	0.00	
0:30:40	10:50:31	11.24	0.00	-0.03	9.00	0.04	0.00	12.05	0.02	0.00	7.72	-0.01	0.00	
0:31:11	10:51:02	11.24	0.00	-0.03	9.00	0.04	-0.01	12.04	0.01	0.01	7.72	-0.01	0.00	
0:31:41	10:51:32	11.24	0.00	-0.02	8.99	0.03	-0.02	12.05	0.02	-0.01	7.71	-0.02	0.00	
0:32:11	10:52:02	11.24	0.00	-0.02	8.99	0.03	0.00	12.06	0.03	0.00	7.72	-0.01	0.00	
0:32:41	10:52:32	11.24	0.00	-0.02	8.99	0.03	-0.01	12.03	0.00	-0.01	7.72	-0.01	0.00	
0:33:16	10:53:07	11.24	0.00	-0.02	8.98	0.02	-0.01	12.06	0.03	-0.01	7.72	-0.01	0.00	
0:33:47	10:53:39	11.24	0.00	-0.02	8.99	0.03	-0.01	12.06	0.03	0.00	7.71	-0.02	0.00	
0:34:17	10:54:09	11.24	0.00	-0.02	8.98	0.02	0.00	12.05	0.02	0.00	7.71	-0.02	0.00	
0:34:47	10:54:39	11.24	0.00	-0.01	9.00	0.04	-0.01	12.05	0.02	0.01	7.71	-0.02	0.00	
0:35:17	10:55:09	11.24	0.00	0.00	8.99	0.03	-0.01	12.05	0.02	0.00	7.71	-0.02	0.00	
0:35:53	10:55:44	11.24	0.00	0.00	9.00	0.04	-0.01	12.05	0.02	0.01	7.71	-0.02	0.00	
0:36:28	10:56:19	11.24	0.00	0.00	8.95	-0.01	-0.01	12.05	0.02	0.00	7.71	-0.02	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:37:04	10:56:55	11.24	0.00	0.00	8.98	0.02	0.00	12.03	0.00	0.00	7.71	-0.02	0.00	
0:37:39	10:57:30	11.24	0.00	0.00	8.99	0.03	-0.01	12.03	0.00	0.00	7.71	-0.02	0.00	
0:38:11	10:58:02	11.24	0.00	0.00	9.00	0.04	0.00	12.05	0.02	0.01	7.71	-0.02	0.00	
0:39:03	10:58:54	11.24	0.00	0.00	8.99	0.03	0.00	12.05	0.02	0.00	7.71	-0.02	0.00	
0:39:33	10:59:24	11.24	0.00	-0.01	8.98	0.02	0.00	12.04	0.01	-0.01	7.71	-0.02	0.00	
0:40:03	10:59:54	11.24	0.00	-0.01	9.02	0.06	-0.01	12.06	0.03	-0.01	7.71	-0.02	0.00	
0:40:37	11:00:28	11.24	0.00	-0.02	8.99	0.03	-0.01	12.06	0.03	0.01	7.71	-0.02	0.00	
0:41:07	11:00:58	11.24	0.00	0.02	8.99	0.03	-0.01	12.07	0.04	-0.01	7.70	-0.03	0.00	
0:41:40	11:01:31	11.24	0.00	0.01	8.99	0.03	0.00	12.06	0.03	0.01	7.70	-0.03	0.00	
0:42:10	11:02:01	11.24	0.00	-0.01	9.00	0.04	0.01	12.04	0.01	0.00	7.70	-0.03	0.00	
0:42:40	11:02:31	11.24	0.00	-0.01	9.00	0.04	-0.01	12.08	0.05	-0.01	7.70	-0.03	0.00	
0:43:14	11:03:05	11.24	0.00	-0.03	8.99	0.03	0.00	12.06	0.03	0.00	7.71	-0.02	0.00	
0:43:50	11:03:41	11.24	0.00	-0.02	8.98	0.02	-0.02	12.05	0.02	0.00	7.70	-0.03	0.00	
0:44:25	11:04:16	11.24	0.00	-0.02	9.00	0.04	0.00	12.05	0.02	0.00	7.70	-0.03	0.00	
0:45:01	11:04:52	11.24	0.00	-0.01	8.98	0.02	0.01	12.03	0.00	0.01	7.71	-0.02	0.00	
0:45:36	11:05:28	11.24	0.00	-0.02	8.99	0.03	0.00	12.04	0.01	0.01	7.71	-0.02	0.00	
0:46:12	11:06:03	11.24	0.00	-0.02	9.01	0.05	-0.01	12.05	0.02	0.01	7.71	-0.02	0.00	
0:46:48	11:06:39	11.24	0.00	-0.02	8.97	0.01	-0.01	12.05	0.02	0.00	7.71	-0.02	0.00	
0:47:23	11:07:14	11.24	0.00	-0.02	9.00	0.04	0.00	12.04	0.01	0.01	7.70	-0.03	0.00	
0:47:59	11:07:50	11.24	0.00	-0.03	8.99	0.03	0.00	12.03	0.00	-0.01	7.71	-0.02	0.00	
0:48:34	11:08:26	11.24	0.00	-0.03	8.99	0.03	-0.01	12.04	0.01	0.01	7.70	-0.03	0.00	
0:49:10	11:09:01	11.24	0.00	-0.03	8.99	0.03	0.00	12.04	0.01	0.00	7.70	-0.03	0.00	
0:49:46	11:09:37	11.24	0.00	-0.03	8.98	0.02	0.01	12.03	0.00	0.01	7.70	-0.03	0.00	
0:50:17	11:10:08	11.24	0.00	-0.03	9.00	0.04	0.00	12.04	0.01	0.01	7.70	-0.03	0.00	
0:50:47	11:10:38	11.24	0.00	0.00	8.99	0.03	0.02	12.07	0.04	0.00	7.70	-0.03	0.00	
0:51:17	11:11:08	11.24	0.00	0.00	9.01	0.05	0.00	12.04	0.01	0.01	7.71	-0.02	0.00	
0:51:51	11:11:42	11.24	0.00	0.00	9.01	0.05	-0.01	12.06	0.03	0.00	7.71	-0.02	0.00	
0:52:22	11:12:13	11.24	0.00	0.00	9.00	0.04	0.00	12.08	0.05	0.00	7.70	-0.03	0.00	
0:52:57	11:12:49	11.24	0.00	0.01	8.98	0.02	0.01	12.07	0.04	0.01	7.71	-0.02	0.00	
0:53:29	11:13:20	11.24	0.00	0.01	9.00	0.04	0.02	12.06	0.03	0.01	7.71	-0.02	0.00	
0:53:59	11:13:50	11.24	0.00	0.00	8.95	-0.01	0.00	12.05	0.02	0.01	7.70	-0.03	0.00	
0:54:35	11:14:26	11.24	0.00	0.00	8.99	0.03	0.02	12.05	0.02	0.01	7.70	-0.03	0.00	
0:55:05	11:14:56	11.24	0.00	0.01	8.97	0.01	0.00	12.04	0.01	0.01	7.71	-0.02	0.00	
0:55:35	11:15:26	11.24	0.00	0.01	8.99	0.03	-0.01	12.07	0.04	0.01	7.71	-0.02	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:56:05	11:15:56	11.24	0.00	0.00	8.99	0.03	0.01	12.07	0.04	0.00	7.71	-0.02	0.00	
0:56:35	11:16:26	11.24	0.00	0.00	8.96	0.00	-0.01	12.04	0.01	0.00	7.70	-0.03	0.00	
0:57:05	11:16:56	11.24	0.00	0.02	8.97	0.01	-0.01	12.06	0.03	0.00	7.70	-0.03	0.00	
0:57:35	11:17:26	11.24	0.00	0.02	9.02	0.06	0.00	12.06	0.03	0.01	7.70	-0.03	0.00	
0:58:10	11:18:02	11.24	0.00	0.02	9.00	0.04	-0.01	12.06	0.03	0.00	7.71	-0.02	0.00	
0:58:46	11:18:37	11.24	0.00	0.02	9.00	0.04	0.00	12.08	0.05	0.00	7.70	-0.03	0.00	
0:59:22	11:19:13	11.24	0.00	0.02	8.98	0.02	0.00	12.03	0.00	0.01	7.71	-0.02	0.00	
0:59:57	11:19:48	11.24	0.00	0.02	8.98	0.02	-0.01	12.06	0.03	0.00	7.71	-0.02	0.00	
1:00:33	11:20:24	11.13	-0.11	0.03	8.98	0.02	0.00	12.05	0.02	0.00	7.71	-0.02	0.00	
1:01:08	11:20:59	11.13	-0.11	0.03	9.00	0.04	-0.01	12.03	0.00	0.00	7.71	-0.02	0.00	
1:01:44	11:21:35	11.13	-0.11	0.04	8.98	0.02	0.00	12.06	0.03	0.00	7.70	-0.03	0.00	
1:02:19	11:22:10	11.13	-0.11	0.02	8.98	0.02	-0.01	12.05	0.02	0.00	7.71	-0.02	0.00	
1:02:55	11:22:46	11.13	-0.11	0.03	8.98	0.02	0.00	12.04	0.01	0.00	7.71	-0.02	0.00	
1:03:30	11:23:21	11.13	-0.11	0.03	8.98	0.02	-0.01	12.05	0.02	0.01	7.71	-0.02	0.00	
1:04:06	11:23:57	11.13	-0.11	0.04	8.97	0.01	-0.01	12.06	0.03	-0.01	7.71	-0.02	0.00	
1:04:41	11:24:33	11.13	-0.11	0.01	8.97	0.01	0.00	12.05	0.02	0.00	7.71	-0.02	0.00	
1:05:17	11:25:08	11.13	-0.11	0.03	8.99	0.03	0.01	12.06	0.03	0.00	7.70	-0.03	0.00	
1:05:53	11:25:44	11.13	-0.11	0.01	8.98	0.02	0.01	12.07	0.04	0.00	7.70	-0.03	0.00	
1:06:24	11:26:15	11.13	-0.11	0.01	9.00	0.04	0.01	12.03	0.00	0.00	7.70	-0.03	0.00	
1:06:54	11:26:45	11.13	-0.11	0.02	8.95	-0.01	-0.01	12.03	0.00	0.00	7.70	-0.03	0.00	
1:07:24	11:27:15	11.13	-0.11	0.00	9.01	0.05	0.01	12.06	0.03	0.01	7.71	-0.02	0.00	
1:07:54	11:27:45	11.13	-0.11	-0.02	8.98	0.02	0.00	12.05	0.02	0.00	7.71	-0.02	0.00	
1:08:29	11:28:20	11.13	-0.11	0.01	9.00	0.04	0.00	12.06	0.03	0.00	7.71	-0.02	0.00	
1:09:06	11:28:57	11.13	-0.11	0.00	9.00	0.04	0.00	12.05	0.02	0.00	7.71	-0.02	0.00	
1:09:45	11:29:37	11.13	-0.11	-0.01	9.00	0.04	0.00	12.04	0.01	0.00	7.71	-0.02	0.00	
1:10:23	11:30:14	11.13	-0.11	-0.01	9.01	0.05	0.01	12.05	0.02	0.01	7.70	-0.03	0.00	
1:10:54	11:30:45	11.13	-0.11	0.00	8.99	0.03	0.00	12.06	0.03	0.01	7.70	-0.03	0.00	
1:11:24	11:31:15	11.13	-0.11	0.01	9.00	0.04	-0.01	12.05	0.02	0.00	7.70	-0.03	0.00	
1:11:54	11:31:45	11.13	-0.11	0.01	9.01	0.05	0.01	12.08	0.05	0.00	7.70	-0.03	0.00	
1:12:24	11:32:15	11.13	-0.11	-0.01	9.00	0.04	0.00	12.08	0.05	-0.01	7.70	-0.03	0.00	
1:13:01	11:32:52	11.13	-0.11	0.01	8.98	0.02	0.01	12.07	0.04	0.00	7.70	-0.03	0.00	
1:13:34	11:33:26	11.13	-0.11	0.00	9.03	0.07	0.00	12.06	0.03	0.00	7.70	-0.03	0.00	
1:14:05	11:33:57	11.13	-0.11	0.00	8.99	0.03	0.00	12.07	0.04	0.01	7.69	-0.04	0.00	
1:14:36	11:34:27	11.13	-0.11	0.00	9.02	0.06	-0.01	12.06	0.03	0.01	7.69	-0.04	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:15:06	11:34:57	11.13	-0.11	-0.01	9.00	0.04	-0.01	12.07	0.04	0.00	7.69	-0.04	0.00	
1:15:36	11:35:27	11.13	-0.11	0.01	9.02	0.06	0.00	12.07	0.04	-0.01	7.69	-0.04	0.02	
1:16:11	11:36:02	11.13	-0.11	0.01	9.00	0.04	0.00	12.06	0.03	0.01	7.69	-0.04	0.01	
1:16:46	11:36:38	11.13	-0.11	-0.01	8.98	0.02	0.00	12.09	0.06	0.00	7.69	-0.04	0.01	
1:17:17	11:37:09	11.13	-0.11	-0.01	8.98	0.02	0.00	12.06	0.03	0.01	7.69	-0.04	0.02	VEGE TEST - FIND MAX VAC 808 BLOWER
1:17:47	11:37:39	11.13	-0.11	0.00	8.98	0.02	0.00	12.07	0.04	0.00	7.69	-0.04	0.00	
1:18:17	11:38:09	11.13	-0.11	0.00	8.99	0.03	-0.01	12.06	0.03	0.00	7.69	-0.04	0.00	MAX VAC 808= 90"WC
1:18:47	11:38:39	11.13	-0.11	-0.01	8.98	0.02	0.00	12.08	0.05	0.00	7.69	-0.04	0.00	VEGE TEST STEP 1 @ 40"WC
1:19:24	11:39:16	11.13	-0.11	0.00	8.99	0.03	-0.01	12.07	0.04	0.01	7.69	-0.04	0.00	
1:19:54	11:39:45	11.13	-0.11	0.02	9.05	0.09	0.01	12.05	0.02	0.00	7.66	-0.07	0.00	
1:20:24	11:40:15	11.13	-0.11	0.00	8.97	0.01	0.01	12.05	0.02	0.00	7.66	-0.07	0.00	
1:20:54	11:40:45	11.13	-0.11	0.00	9.01	0.05	0.02	12.06	0.03	0.02	7.66	-0.07	0.00	
1:21:28	11:41:19	11.13	-0.11	-0.01	9.00	0.04	0.01	12.08	0.05	0.01	7.67	-0.06	0.00	
1:21:58	11:41:49	11.13	-0.11	-0.01	9.02	0.06	-0.02	12.06	0.03	0.01	7.67	-0.06	0.00	
1:22:28	11:42:19	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.08	0.05	0.00	7.67	-0.06	0.00	
1:22:58	11:42:49	11.13	-0.11	-0.03	9.02	0.06	0.01	12.04	0.01	0.00	7.67	-0.06	0.00	
1:23:28	11:43:19	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.07	0.04	0.00	7.67	-0.06	0.00	
1:23:58	11:43:49	11.13	-0.11	-0.02	8.98	0.02	0.00	12.07	0.04	0.01	7.67	-0.06	0.00	
1:25:11	11:45:02	11.13	-0.11	-0.02	9.00	0.04	0.00	12.06	0.03	0.01	7.67	-0.06	0.00	
1:25:47	11:45:38	11.13	-0.11	-0.02	9.00	0.04	0.02	12.08	0.05	0.00	7.69	-0.04	0.00	
1:26:22	11:46:13	11.13	-0.11	-0.02	9.01	0.05	0.01	12.04	0.01	0.00	7.69	-0.04	0.00	
1:26:58	11:46:49	11.13	-0.11	-0.02	8.99	0.03	0.02	12.05	0.02	0.01	7.69	-0.04	0.00	
1:27:33	11:47:24	11.13	-0.11	-0.02	8.98	0.02	0.02	12.04	0.01	0.01	7.69	-0.04	0.00	
1:28:04	11:47:56	11.13	-0.11	-0.02	9.01	0.05	0.00	12.08	0.05	0.01	7.69	-0.04	0.00	
1:28:34	11:48:26	11.13	-0.11	-0.02	9.01	0.05	0.01	12.06	0.03	0.00	7.69	-0.04	0.00	
1:29:04	11:48:56	11.13	-0.11	-0.02	8.97	0.01	0.01	12.06	0.03	0.00	7.69	-0.04	0.00	
1:29:34	11:49:25	11.13	-0.11	-0.02	8.99	0.03	0.02	12.07	0.04	0.01	7.69	-0.04	-0.01	
1:30:05	11:49:56	11.13	-0.11	-0.02	9.02	0.06	0.01	12.08	0.05	0.01	7.69	-0.04	0.00	
1:30:35	11:50:26	11.13	-0.11	0.04	9.01	0.05	0.01	12.05	0.02	0.01	7.69	-0.04	0.00	
1:31:05	11:50:56	11.13	-0.11	0.03	9.00	0.04	0.01	12.08	0.05	-0.01	7.69	-0.04	-0.01	
1:31:35	11:51:26	11.13	-0.11	0.01	9.00	0.04	0.00	12.06	0.03	0.01	7.69	-0.04	0.00	
1:32:06	11:51:57	11.13	-0.11	0.00	9.01	0.05	0.01	12.07	0.04	-0.01	7.69	-0.04	0.01	
1:32:36	11:52:27	11.13	-0.11	0.00	9.00	0.04	0.01	12.07	0.04	0.00	7.69	-0.04	0.00	
1:33:06	11:52:57	11.13	-0.11	0.01	8.99	0.03	0.01	12.05	0.02	0.01	7.69	-0.04	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:33:40	11:53:31	11.13	-0.11	-0.02	8.98	0.02	0.01	12.07	0.04	0.02	7.69	-0.04	-0.01	
1:34:11	11:54:02	11.13	-0.11	-0.02	9.01	0.05	0.01	12.07	0.04	0.00	7.69	-0.04	0.00	
1:34:47	11:54:38	11.13	-0.11	-0.02	9.03	0.07	0.01	12.06	0.03	0.00	7.69	-0.04	0.00	
1:35:23	11:55:14	11.13	-0.11	-0.01	9.01	0.05	0.01	12.08	0.05	0.00	7.69	-0.04	-0.01	
1:35:54	11:55:45	11.13	-0.11	-0.01	9.01	0.05	0.03	12.04	0.01	0.00	7.69	-0.04	0.00	
1:36:24	11:56:15	11.13	-0.11	-0.04	9.00	0.04	0.01	12.07	0.04	0.00	7.69	-0.04	0.00	
1:36:54	11:56:45	11.13	-0.11	-0.04	8.98	0.02	0.01	12.06	0.03	0.01	7.69	-0.04	0.00	
1:37:28	11:57:19	11.13	-0.11	-0.02	8.99	0.03	0.02	12.06	0.03	0.01	7.69	-0.04	0.01	
1:37:58	11:57:49	11.13	-0.11	-0.04	8.99	0.03	0.01	12.05	0.02	0.01	7.69	-0.04	0.00	
1:38:28	11:58:19	11.13	-0.11	-0.03	8.99	0.03	0.00	12.03	0.00	0.01	7.69	-0.04	0.00	
1:38:58	11:58:50	11.13	-0.11	-0.04	9.00	0.04	0.01	12.08	0.05	0.00	7.69	-0.04	0.00	
1:39:28	11:59:20	11.13	-0.11	-0.04	8.98	0.02	0.00	12.06	0.03	0.00	7.69	-0.04	0.00	
1:39:59	11:59:50	11.13	-0.11	-0.03	9.00	0.04	0.01	12.06	0.03	0.01	7.69	-0.04	0.00	
1:40:43	12:00:34	11.13	-0.11	-0.04	8.99	0.03	0.00	12.07	0.04	0.00	7.69	-0.04	0.00	
1:41:19	12:01:10	11.13	-0.11	-0.05	8.98	0.02	-0.01	12.08	0.05	0.01	7.69	-0.04	-0.02	
1:41:54	12:01:45	11.13	-0.11	-0.04	9.02	0.06	0.01	12.10	0.07	0.00	7.69	-0.04	-0.01	
1:45:28	12:05:19	11.13	-0.11	-0.02	9.03	0.07	-0.01	12.07	0.04	0.00	7.69	-0.04	0.00	
1:46:03	12:05:54	11.13	-0.11	0.01	8.99	0.03	-0.01	12.08	0.05	-0.01	7.69	-0.04	0.00	
1:46:39	12:06:30	11.13	-0.11	0.00	9.01	0.05	-0.01	12.08	0.05	-0.01	7.69	-0.04	-0.01	
1:47:10	12:07:01	11.13	-0.11	0.01	8.99	0.03	-0.01	12.06	0.03	0.00	7.69	-0.04	-0.02	
1:47:40	12:07:31	11.13	-0.11	0.00	9.00	0.04	0.00	12.06	0.03	0.00	7.69	-0.04	-0.01	
1:48:11	12:08:02	11.13	-0.11	0.00	9.00	0.04	0.00	12.06	0.03	0.00	7.69	-0.04	-0.01	
1:48:41	12:08:32	11.13	-0.11	0.02	9.02	0.06	-0.01	12.07	0.04	0.00	7.69	-0.04	0.00	
1:49:14	12:09:05	11.13	-0.11	0.01	9.01	0.05	-0.02	12.08	0.05	0.00	7.69	-0.04	0.00	
1:49:49	12:09:40	11.13	-0.11	0.03	9.00	0.04	-0.01	12.04	0.01	0.00	7.69	-0.04	-0.01	
1:50:25	12:10:16	11.13	-0.11	0.04	8.98	0.02	-0.01	12.07	0.04	-0.01	7.69	-0.04	-0.01	
1:51:00	12:10:51	11.13	-0.11	0.02	9.01	0.05	-0.02	12.07	0.04	0.01	7.69	-0.04	0.00	
1:51:36	12:11:27	11.13	-0.11	0.02	9.03	0.07	-0.02	12.08	0.05	0.00	7.69	-0.04	0.00	
1:52:11	12:12:03	11.13	-0.11	0.04	9.00	0.04	-0.03	12.07	0.04	0.01	7.69	-0.04	0.00	
1:52:48	12:12:39	11.13	-0.11	0.03	9.01	0.05	-0.01	12.07	0.04	0.01	7.69	-0.04	0.00	
1:53:23	12:13:14	11.13	-0.11	0.03	9.01	0.05	-0.02	12.08	0.05	-0.01	7.69	-0.04	-0.02	
1:53:58	12:13:49	11.13	-0.11	0.03	9.00	0.04	-0.01	12.07	0.04	0.01	7.69	-0.04	-0.01	
1:54:34	12:14:25	11.13	-0.11	0.03	8.97	0.01	-0.01	12.08	0.05	0.00	7.69	-0.04	-0.01	
1:55:10	12:15:01	11.13	-0.11	0.05	9.02	0.06	-0.01	12.09	0.06	0.01	7.69	-0.04	-0.02	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:55:58	12:15:49	11.13	-0.11	0.03	9.03	0.07	-0.02	12.08	0.05	-0.01	7.69	-0.04	-0.01	
1:56:28	12:16:19	11.13	-0.11	0.04	8.99	0.03	0.00	12.07	0.04	0.00	7.69	-0.04	0.00	
1:56:58	12:16:49	11.13	-0.11	0.03	9.02	0.06	-0.02	12.06	0.03	0.00	7.69	-0.04	-0.01	
1:57:32	12:17:23	11.13	-0.11	0.02	9.00	0.04	-0.01	12.09	0.06	-0.01	7.69	-0.04	0.00	
1:58:08	12:17:59	11.13	-0.11	0.03	8.99	0.03	-0.01	12.06	0.03	0.00	7.69	-0.04	0.01	
1:58:45	12:18:36	11.13	-0.11	0.04	8.98	0.02	-0.01	12.08	0.05	0.00	7.69	-0.04	-0.01	
1:59:21	12:19:12	11.13	-0.11	0.01	9.02	0.06	-0.01	12.09	0.06	0.00	7.69	-0.04	0.01	
1:59:58	12:19:49	11.13	-0.11	0.03	8.99	0.03	-0.01	12.07	0.04	0.01	7.69	-0.04	0.00	
2:00:34	12:20:25	11.13	-0.11	0.03	9.00	0.04	-0.01	12.08	0.05	0.00	7.69	-0.04	0.00	
2:01:11	12:21:02	11.13	-0.11	0.02	9.01	0.05	-0.01	12.08	0.05	0.00	7.69	-0.04	0.00	
2:01:47	12:21:39	11.13	-0.11	0.03	8.99	0.03	-0.01	12.06	0.03	0.00	7.69	-0.04	-0.01	
2:02:24	12:22:15	11.13	-0.11	0.02	9.02	0.06	-0.01	12.08	0.05	-0.01	7.69	-0.04	-0.02	
2:03:01	12:22:52	11.13	-0.11	0.04	9.00	0.04	-0.01	12.09	0.06	0.00	7.69	-0.04	0.00	
2:03:37	12:23:28	11.13	-0.11	-0.01	9.01	0.05	-0.02	12.05	0.02	0.01	7.69	-0.04	-0.02	
2:04:07	12:23:58	11.13	-0.11	-0.01	8.97	0.01	-0.02	12.10	0.07	0.01	7.69	-0.04	0.00	
2:04:39	12:24:30	11.13	-0.11	0.01	9.03	0.07	-0.01	12.10	0.07	0.01	7.69	-0.04	-0.01	
2:05:10	12:25:01	11.13	-0.11	0.03	8.98	0.02	-0.01	12.10	0.07	0.01	7.69	-0.04	-0.01	
2:05:41	12:25:33	11.13	-0.11	0.03	8.99	0.03	-0.01	12.07	0.04	0.00	7.69	-0.04	0.01	
2:06:11	12:26:03	11.13	-0.11	0.00	9.01	0.05	-0.02	12.07	0.04	0.00	7.69	-0.04	0.00	
2:06:41	12:26:33	11.13	-0.11	0.02	9.00	0.04	-0.01	12.08	0.05	0.00	7.69	-0.04	0.00	
2:07:11	12:27:03	11.13	-0.11	0.00	9.00	0.04	-0.01	12.06	0.03	0.00	7.69	-0.04	-0.01	
2:07:47	12:27:38	11.13	-0.11	-0.01	9.02	0.06	0.00	12.07	0.04	-0.01	7.69	-0.04	0.00	
2:08:18	12:28:09	11.13	-0.11	0.01	9.02	0.06	-0.01	12.08	0.05	0.01	7.69	-0.04	0.00	
2:08:48	12:28:39	11.13	-0.11	0.01	9.03	0.07	0.00	12.05	0.02	0.00	7.69	-0.04	-0.01	
2:09:18	12:29:09	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.05	0.02	0.00	7.69	-0.04	0.00	
2:09:54	12:29:45	11.13	-0.11	0.01	9.02	0.06	-0.01	12.06	0.03	-0.01	7.69	-0.04	0.00	
2:10:43	12:30:34	11.13	-0.11	-0.01	9.00	0.04	0.01	12.06	0.03	0.00	7.69	-0.04	-0.01	
2:11:23	12:31:14	11.13	-0.11	-0.01	8.98	0.02	0.01	12.07	0.04	0.00	7.68	-0.05	-0.02	
2:11:58	12:31:49	11.13	-0.11	0.00	9.01	0.05	-0.01	12.09	0.06	-0.01	7.69	-0.04	-0.01	VEGE TEST STEP 2 @ 80" WC
2:12:29	12:32:20	11.13	-0.11	-0.01	9.00	0.04	-0.01	12.08	0.05	-0.01	7.69	-0.04	-0.01	
2:12:59	12:32:50	11.13	-0.11	-0.01	9.00	0.04	-0.01	12.08	0.05	0.00	7.69	-0.04	-0.01	
2:13:29	12:33:20	11.13	-0.11	0.00	9.05	0.09	-0.01	12.07	0.04	0.00	7.68	-0.05	0.00	
2:13:59	12:33:50	11.13	-0.11	0.00	9.02	0.06	-0.01	12.06	0.03	0.00	7.68	-0.05	0.01	
2:14:34	12:34:26	11.13	-0.11	0.00	9.01	0.05	0.00	12.10	0.07	0.00	7.68	-0.05	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
2:15:11	12:35:02	11.13	-0.11	0.00	9.00	0.04	0.00	12.09	0.06	0.00	7.68	-0.05	-0.01	
2:15:46	12:35:37	11.13	-0.11	-0.01	9.00	0.04	0.00	12.09	0.06	0.01	7.69	-0.04	0.00	
2:16:22	12:36:13	11.13	-0.11	-0.02	9.00	0.04	0.01	12.06	0.03	0.00	7.68	-0.05	-0.01	
2:16:57	12:36:48	11.13	-0.11	0.00	9.03	0.07	0.00	12.05	0.02	0.01	7.68	-0.05	0.01	
2:17:33	12:37:24	11.13	-0.11	-0.01	9.02	0.06	0.00	12.06	0.03	-0.01	7.68	-0.05	0.01	
2:18:04	12:37:55	11.13	-0.11	-0.02	9.02	0.06	0.00	12.05	0.02	0.00	7.68	-0.05	-0.01	
2:18:34	12:38:25	11.13	-0.11	-0.02	9.02	0.06	0.02	12.06	0.03	0.00	7.68	-0.05	0.01	
2:19:04	12:38:55	11.13	-0.11	-0.02	9.01	0.05	0.00	12.06	0.03	-0.01	7.68	-0.05	0.00	
2:19:38	12:39:29	11.13	-0.11	-0.02	9.01	0.05	0.00	12.09	0.06	0.00	7.68	-0.05	-0.02	
2:20:08	12:39:59	11.13	-0.11	-0.02	9.00	0.04	0.01	12.08	0.05	0.01	7.68	-0.05	0.00	
2:20:39	12:40:30	11.13	-0.11	-0.02	9.04	0.08	0.00	12.07	0.04	0.00	7.68	-0.05	0.00	
2:21:14	12:41:05	11.13	-0.11	-0.02	9.00	0.04	0.00	12.07	0.04	-0.01	7.68	-0.05	0.00	
2:21:50	12:41:41	11.13	-0.11	-0.02	9.00	0.04	0.01	12.07	0.04	0.00	7.68	-0.05	0.00	
2:22:25	12:42:17	11.13	-0.11	-0.02	9.03	0.07	0.01	12.08	0.05	0.00	7.68	-0.05	0.00	
2:23:01	12:42:52	11.13	-0.11	-0.01	8.99	0.03	0.02	12.08	0.05	0.00	7.68	-0.05	-0.01	
2:23:37	12:43:28	11.13	-0.11	-0.01	9.03	0.07	0.01	12.11	0.08	0.00	7.68	-0.05	0.00	
2:24:12	12:44:03	11.13	-0.11	-0.01	9.00	0.04	0.01	12.06	0.03	0.00	7.68	-0.05	0.00	
2:24:48	12:44:39	11.13	-0.11	-0.01	9.02	0.06	0.01	12.06	0.03	0.01	7.68	-0.05	0.00	
2:25:23	12:45:14	11.13	-0.11	-0.01	9.00	0.04	0.00	12.08	0.05	0.00	7.68	-0.05	0.00	
2:26:00	12:45:51	11.13	-0.11	-0.01	9.01	0.05	0.02	12.08	0.05	0.00	7.68	-0.05	0.00	
2:26:42	12:46:33	11.13	-0.11	-0.01	8.98	0.02	0.01	12.06	0.03	0.01	7.68	-0.05	0.00	
2:27:19	12:47:10	11.13	-0.11	-0.01	9.01	0.05	0.01	12.10	0.07	0.01	7.68	-0.05	0.00	
2:27:54	12:47:45	11.13	-0.11	-0.01	9.01	0.05	0.01	12.05	0.02	-0.01	7.68	-0.05	-0.01	
2:28:30	12:48:21	11.13	-0.11	0.00	9.01	0.05	0.02	12.07	0.04	0.00	7.68	-0.05	0.00	
2:29:05	12:48:56	11.13	-0.11	0.00	9.02	0.06	0.01	12.09	0.06	0.01	7.68	-0.05	0.01	
2:29:41	12:49:32	11.13	-0.11	0.00	9.02	0.06	0.01	12.07	0.04	0.01	7.68	-0.05	0.00	
2:30:16	12:50:08	11.13	-0.11	-0.02	8.99	0.03	0.01	12.07	0.04	-0.01	7.68	-0.05	0.00	
2:30:52	12:50:43	11.13	-0.11	-0.02	8.96	0.00	0.01	12.09	0.06	0.00	7.68	-0.05	0.00	
2:31:28	12:51:19	11.13	-0.11	-0.02	9.01	0.05	0.01	12.05	0.02	0.01	7.68	-0.05	0.00	
2:32:03	12:51:54	11.13	-0.11	0.00	9.04	0.08	0.01	12.07	0.04	0.02	7.68	-0.05	0.00	
2:32:39	12:52:30	11.13	-0.11	0.00	9.02	0.06	0.00	12.09	0.06	0.00	7.68	-0.05	0.00	
2:33:14	12:53:05	11.13	-0.11	-0.03	9.00	0.04	0.01	12.08	0.05	0.00	7.68	-0.05	0.00	
2:33:45	12:53:36	11.13	-0.11	-0.04	9.02	0.06	0.02	12.11	0.08	0.00	7.68	-0.05	0.00	
2:34:15	12:54:06	11.13	-0.11	-0.03	9.02	0.06	0.01	12.08	0.05	0.00	7.68	-0.05	-0.01	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
2:34:45	12:54:36	11.13	-0.11	-0.03	9.01	0.05	0.01	12.09	0.06	0.00	7.68	-0.05	0.00	
2:35:15	12:55:06	11.13	-0.11	-0.03	9.01	0.05	0.01	12.09	0.06	0.00	7.68	-0.05	0.00	
2:35:46	12:55:37	11.13	-0.11	-0.04	9.02	0.06	0.01	12.09	0.06	0.01	7.68	-0.05	-0.01	
2:36:16	12:56:07	11.13	-0.11	-0.03	9.02	0.06	0.01	12.07	0.04	0.00	7.68	-0.05	0.00	
2:36:46	12:56:37	11.13	-0.11	-0.04	8.99	0.03	0.01	12.09	0.06	0.01	7.68	-0.05	-0.01	
2:37:16	12:57:07	11.13	-0.11	-0.03	9.00	0.04	0.01	12.10	0.07	0.00	7.68	-0.05	0.01	
2:37:47	12:57:38	11.13	-0.11	-0.03	9.02	0.06	0.00	12.06	0.03	0.00	7.68	-0.05	0.00	
2:38:17	12:58:08	11.13	-0.11	-0.04	9.02	0.06	0.00	12.09	0.06	0.00	7.68	-0.05	0.00	
2:38:47	12:58:38	11.13	-0.11	-0.03	9.03	0.07	0.01	12.09	0.06	-0.01	7.68	-0.05	0.00	
2:39:17	12:59:08	11.13	-0.11	-0.05	9.03	0.07	0.00	12.11	0.08	0.00	7.68	-0.05	0.00	
2:39:47	12:59:38	11.13	-0.11	-0.03	9.03	0.07	-0.01	12.08	0.05	-0.01	7.68	-0.05	0.04	
2:40:24	13:00:15	11.13	-0.11	-0.05	8.99	0.03	0.00	12.09	0.06	-0.01	7.68	-0.05	0.00	
2:41:00	13:00:51	11.13	-0.11	-0.04	8.99	0.03	-0.01	12.10	0.07	0.02	7.68	-0.05	-0.01	
2:41:37	13:01:28	11.13	-0.11	-0.04	9.00	0.04	-0.01	12.10	0.07	0.00	7.68	-0.05	-0.01	
2:42:18	13:02:09	11.13	-0.11	-0.04	9.02	0.06	-0.02	12.06	0.03	0.00	7.68	-0.05	-0.01	
2:42:59	13:02:50	11.13	-0.11	-0.05	9.02	0.06	-0.01	12.08	0.05	0.01	7.68	-0.05	0.00	
2:43:35	13:03:26	11.13	-0.11	-0.04	9.02	0.06	-0.02	12.10	0.07	0.00	7.68	-0.05	0.00	
2:44:06	13:03:57	11.13	-0.11	-0.03	9.03	0.07	-0.01	12.06	0.03	0.00	7.68	-0.05	0.00	
2:44:36	13:04:27	11.13	-0.11	-0.04	9.04	0.08	-0.01	12.09	0.06	0.00	7.68	-0.05	0.00	
2:45:06	13:04:57	11.13	-0.11	-0.05	9.00	0.04	-0.01	12.11	0.08	0.01	7.68	-0.05	0.00	
2:45:40	13:05:31	11.13	-0.11	-0.04	9.00	0.04	-0.02	12.06	0.03	0.01	7.68	-0.05	0.00	
2:46:10	13:06:01	11.13	-0.11	-0.04	9.00	0.04	-0.02	12.09	0.06	0.00	7.68	-0.05	-0.01	
2:46:40	13:06:31	11.13	-0.11	-0.03	9.04	0.08	-0.02	12.10	0.07	0.01	7.68	-0.05	0.00	
2:47:11	13:07:02	11.13	-0.11	-0.04	9.01	0.05	-0.02	12.10	0.07	-0.01	7.68	-0.05	-0.01	
2:47:41	13:07:32	11.13	-0.11	-0.05	9.03	0.07	-0.01	12.09	0.06	-0.01	7.68	-0.05	0.00	
2:48:11	13:08:02	11.13	-0.11	-0.04	8.99	0.03	-0.01	12.09	0.06	0.00	7.68	-0.05	0.00	
2:48:45	13:08:36	11.13	-0.11	-0.04	9.02	0.06	-0.02	12.08	0.05	0.01	7.68	-0.05	0.00	
2:49:15	13:09:06	11.13	-0.11	-0.05	9.02	0.06	-0.02	12.06	0.03	0.00	7.68	-0.05	0.00	
2:49:45	13:09:36	11.13	-0.11	-0.06	9.04	0.08	-0.02	12.09	0.06	0.00	7.68	-0.05	-0.01	
2:50:15	13:10:06	11.13	-0.11	-0.03	9.03	0.07	-0.03	12.09	0.06	0.00	7.68	-0.05	-0.01	
2:50:45	13:10:36	11.13	-0.11	-0.05	9.03	0.07	-0.02	12.09	0.06	0.00	7.68	-0.05	0.00	
2:51:15	13:11:06	11.13	-0.11	-0.04	9.04	0.08	-0.01	12.09	0.06	0.01	7.68	-0.05	0.00	
2:51:45	13:11:36	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.11	0.08	0.00	7.68	-0.05	0.00	
2:52:16	13:12:07	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.07	0.04	0.00	7.68	-0.05	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
2:52:46	13:12:37	11.13	-0.11	-0.04	8.98	0.02	-0.02	12.10	0.07	0.01	7.68	-0.05	0.00	
2:53:16	13:13:07	11.13	-0.11	-0.04	9.02	0.06	-0.02	12.07	0.04	0.00	7.68	-0.05	-0.01	
2:53:51	13:13:42	11.13	-0.11	-0.04	9.02	0.06	-0.02	12.07	0.04	0.00	7.68	-0.05	0.00	
2:54:20	13:14:12	11.13	-0.11	-0.02	9.05	0.09	-0.03	12.07	0.04	0.00	7.68	-0.05	-0.01	
2:54:50	13:14:42	11.13	-0.11	-0.01	9.01	0.05	-0.02	12.06	0.03	0.00	7.68	-0.05	-0.01	
2:55:26	13:15:17	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.09	0.06	-0.01	7.68	-0.05	0.00	
2:56:02	13:15:53	11.13	-0.11	-0.01	9.01	0.05	-0.04	12.09	0.06	0.00	7.68	-0.05	0.00	
2:56:41	13:16:32	11.13	-0.11	0.00	9.04	0.08	-0.04	12.10	0.07	0.00	7.68	-0.05	0.00	
2:57:13	13:17:05	11.13	-0.11	0.01	9.02	0.06	-0.02	12.09	0.06	-0.01	7.68	-0.05	-0.01	
2:57:43	13:17:34	11.13	-0.11	0.00	9.02	0.06	-0.02	12.08	0.05	-0.01	7.68	-0.05	-0.01	
2:58:18	13:18:09	11.13	-0.11	0.00	9.03	0.07	-0.03	12.09	0.06	0.01	7.68	-0.05	-0.01	
2:58:48	13:18:39	11.13	-0.11	-0.01	9.01	0.05	-0.03	12.09	0.06	0.00	7.68	-0.05	0.00	
2:59:18	13:19:09	11.13	-0.11	0.00	9.01	0.05	-0.02	12.10	0.07	0.01	7.68	-0.05	0.00	
2:59:53	13:19:44	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.08	0.05	-0.01	7.68	-0.05	0.01	
3:00:29	13:20:20	11.13	-0.11	0.00	9.01	0.05	-0.03	12.07	0.04	0.00	7.68	-0.05	-0.01	
3:01:00	13:20:51	11.13	-0.11	0.00	9.01	0.05	-0.03	12.08	0.05	0.01	7.68	-0.05	0.00	
3:01:31	13:21:22	11.13	-0.11	0.00	9.00	0.04	-0.02	12.08	0.05	0.00	7.68	-0.05	-0.01	
3:02:00	13:21:51	11.13	-0.11	-0.01	9.00	0.04	-0.03	12.08	0.05	0.00	7.68	-0.05	-0.01	blower off - switch to high vac blower
3:02:30	13:22:21	11.13	-0.11	0.00	9.02	0.06	-0.02	12.10	0.07	0.00	7.68	-0.05	-0.01	
3:03:05	13:22:56	11.13	-0.11	-0.01	9.01	0.05	-0.04	12.08	0.05	0.00	7.68	-0.05	0.00	
3:03:40	13:23:31	11.13	-0.11	0.00	9.02	0.06	-0.03	12.10	0.07	0.00	7.68	-0.05	-0.01	vege test step 3 - high vac
3:04:11	13:24:02	11.13	-0.11	-0.01	9.00	0.04	-0.03	12.09	0.06	0.01	7.68	-0.05	0.01	
3:04:41	13:24:32	11.13	-0.11	-0.01	9.00	0.04	-0.03	12.09	0.06	0.00	7.68	-0.05	-0.01	
3:05:11	13:25:03	11.13	-0.11	0.02	9.03	0.07	-0.03	12.09	0.06	0.00	7.68	-0.05	0.00	
3:05:46	13:25:37	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.06	0.03	0.00	7.68	-0.05	-0.01	
3:06:30	13:26:22	11.13	-0.11	-0.03	9.02	0.06	-0.02	12.08	0.05	-0.01	7.68	-0.05	-0.01	
3:07:00	13:26:52	11.13	-0.11	-0.01	9.02	0.06	-0.02	12.10	0.07	-0.01	7.68	-0.05	-0.01	
3:07:30	13:27:22	11.13	-0.11	-0.03	8.99	0.03	-0.03	12.07	0.04	-0.01	7.68	-0.05	0.00	
3:08:00	13:27:52	11.13	-0.11	-0.01	9.03	0.07	-0.03	12.08	0.05	0.01	7.68	-0.05	-0.01	
3:08:31	13:28:22	11.13	-0.11	0.01	9.01	0.05	-0.03	12.08	0.05	-0.01	7.68	-0.05	0.00	
3:09:01	13:28:52	11.13	-0.11	0.00	9.03	0.07	-0.03	12.08	0.05	0.01	7.68	-0.05	-0.01	
3:09:31	13:29:22	11.13	-0.11	-0.01	9.01	0.05	-0.03	12.11	0.08	-0.01	7.68	-0.05	-0.01	
3:10:01	13:29:52	11.13	-0.11	0.00	9.01	0.05	-0.03	12.09	0.06	0.00	7.68	-0.05	-0.01	
3:10:31	13:30:22	11.13	-0.11	0.00	9.00	0.04	-0.03	12.08	0.05	0.00	7.68	-0.05	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:11:01	13:30:52	11.13	-0.11	0.00	9.01	0.05	-0.03	12.08	0.05	0.00	7.68	-0.05	0.00	
3:11:31	13:31:22	11.13	-0.11	-0.01	9.03	0.07	-0.02	12.10	0.07	0.01	7.68	-0.05	0.00	
3:12:01	13:31:52	11.13	-0.11	0.00	9.01	0.05	-0.02	12.09	0.06	0.00	7.68	-0.05	0.00	
3:12:31	13:32:22	11.13	-0.11	-0.02	9.00	0.04	-0.01	12.09	0.06	0.00	7.68	-0.05	-0.01	
3:13:01	13:32:52	11.13	-0.11	0.01	9.02	0.06	-0.03	12.09	0.06	-0.01	7.68	-0.05	0.00	
3:13:33	13:33:24	11.13	-0.11	-0.02	9.03	0.07	-0.03	12.11	0.08	0.01	7.68	-0.05	-0.01	
3:14:03	13:33:54	11.13	-0.11	-0.01	8.99	0.03	-0.02	12.09	0.06	0.01	7.68	-0.05	-0.01	
3:14:33	13:34:24	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.08	0.05	0.00	7.68	-0.05	0.00	
3:15:03	13:34:54	11.13	-0.11	-0.01	9.01	0.05	-0.02	12.08	0.05	0.01	7.68	-0.05	-0.01	
3:15:33	13:35:24	11.13	-0.11	0.00	9.01	0.05	-0.03	12.10	0.07	0.01	7.68	-0.05	0.00	
3:16:03	13:35:54	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.10	0.07	0.01	7.68	-0.05	0.00	
3:16:33	13:36:24	11.13	-0.11	0.00	9.01	0.05	-0.03	12.09	0.06	0.00	7.68	-0.05	0.00	
3:17:03	13:36:54	11.13	-0.11	-0.01	9.03	0.07	-0.02	12.08	0.05	-0.01	7.68	-0.05	-0.01	
3:17:33	13:37:24	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.10	0.07	0.00	7.68	-0.05	-0.01	
3:18:03	13:37:54	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.11	0.08	-0.01	7.68	-0.05	0.00	
3:18:33	13:38:24	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.10	0.07	0.00	7.68	-0.05	0.00	
3:19:03	13:38:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.08	0.05	-0.01	7.68	-0.05	0.00	
3:19:33	13:39:24	11.13	-0.11	-0.03	9.02	0.06	-0.02	12.08	0.05	0.00	7.68	-0.05	0.00	
3:20:03	13:39:54	11.13	-0.11	-0.03	9.00	0.04	-0.01	12.08	0.05	0.00	7.68	-0.05	0.01	
3:20:33	13:40:24	11.13	-0.11	-0.03	9.02	0.06	-0.02	12.11	0.08	0.01	7.68	-0.05	0.00	
3:21:03	13:40:54	11.13	-0.11	-0.03	9.00	0.04	-0.03	12.10	0.07	0.00	7.68	-0.05	0.00	
3:21:33	13:41:24	11.13	-0.11	-0.02	9.00	0.04	-0.02	12.12	0.09	0.00	7.67	-0.06	0.01	
3:22:03	13:41:54	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.08	0.05	0.00	7.67	-0.06	-0.01	
3:22:33	13:42:24	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.07	0.04	-0.01	7.66	-0.07	-0.02	
3:23:03	13:42:54	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.11	0.08	0.00	7.66	-0.07	-0.02	
3:23:33	13:43:24	11.13	-0.11	-0.02	9.05	0.09	-0.02	12.07	0.04	0.00	7.68	-0.05	-0.04	
3:24:03	13:43:54	11.13	-0.11	-0.02	9.01	0.05	-0.02	12.09	0.06	0.01	7.67	-0.06	-0.01	
3:24:33	13:44:24	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.07	0.04	0.00	7.67	-0.06	0.00	
3:25:03	13:44:54	11.13	-0.11	-0.02	9.01	0.05	-0.03	12.09	0.06	0.00	7.67	-0.06	0.00	
3:25:33	13:45:24	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.08	0.05	0.01	7.66	-0.07	-0.01	
3:26:03	13:45:54	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.11	0.08	0.00	7.66	-0.07	-0.01	
3:26:33	13:46:24	11.13	-0.11	-0.02	9.01	0.05	-0.02	12.10	0.07	0.00	7.66	-0.07	0.01	
3:27:03	13:46:54	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.08	0.05	0.00	7.65	-0.08	0.00	
3:27:33	13:47:24	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.08	0.05	0.00	7.65	-0.08	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:28:03	13:47:54	11.13	-0.11	-0.02	9.01	0.05	-0.02	12.10	0.07	-0.01	7.65	-0.08	0.00	
3:28:33	13:48:24	11.13	-0.11	-0.02	9.04	0.08	-0.03	12.10	0.07	0.00	7.66	-0.07	-0.01	
3:29:03	13:48:54	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.09	0.06	0.01	7.65	-0.08	0.00	
3:29:33	13:49:24	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.09	0.06	0.00	7.66	-0.07	0.00	
3:30:03	13:49:54	11.13	-0.11	-0.02	9.03	0.07	-0.01	12.09	0.06	0.01	7.65	-0.08	-0.01	
3:30:33	13:50:24	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.09	0.06	-0.01	7.65	-0.08	-0.01	
3:31:03	13:50:54	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.09	0.06	0.00	7.65	-0.08	-0.02	
3:31:33	13:51:24	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.10	0.07	0.01	7.65	-0.08	0.00	
3:32:03	13:51:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.08	0.05	0.00	7.65	-0.08	0.00	
3:32:33	13:52:24	11.13	-0.11	-0.02	9.00	0.04	-0.01	12.10	0.07	-0.01	7.65	-0.08	-0.01	
3:33:03	13:52:54	11.13	-0.11	-0.02	9.00	0.04	-0.02	12.08	0.05	-0.01	7.65	-0.08	0.00	
3:33:33	13:53:24	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.10	0.07	-0.01	7.66	-0.07	-0.01	
3:34:03	13:53:54	11.13	-0.11	-0.02	9.03	0.07	-0.03	12.08	0.05	0.01	7.65	-0.08	0.00	
3:34:33	13:54:24	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.09	0.06	0.00	7.65	-0.08	0.00	
3:35:03	13:54:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.07	0.04	0.01	7.65	-0.08	-0.01	
3:35:33	13:55:24	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.11	0.08	0.00	7.65	-0.08	-0.02	
3:36:03	13:55:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.10	0.07	0.00	7.65	-0.08	0.00	
3:36:33	13:56:24	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.09	0.06	0.01	7.65	-0.08	-0.02	
3:37:03	13:56:54	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.10	0.07	-0.01	7.66	-0.07	0.00	
3:37:33	13:57:24	11.13	-0.11	-0.02	9.00	0.04	-0.03	12.12	0.09	0.00	7.65	-0.08	0.00	
3:38:03	13:57:54	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.10	0.07	0.00	7.65	-0.08	-0.01	
3:38:33	13:58:24	11.13	-0.11	-0.02	9.02	0.06	-0.02	12.08	0.05	0.01	7.65	-0.08	0.00	
3:39:03	13:58:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.12	0.09	0.01	7.65	-0.08	-0.01	
3:39:33	13:59:24	11.13	-0.11	-0.02	9.01	0.05	-0.03	12.07	0.04	0.00	7.65	-0.08	-0.02	
3:40:03	13:59:54	11.13	-0.11	-0.02	9.03	0.07	-0.03	12.10	0.07	-0.01	7.65	-0.08	-0.01	
3:40:33	14:00:24	11.13	-0.11	-0.02	9.04	0.08	-0.02	12.09	0.06	0.00	7.65	-0.08	0.00	
3:41:03	14:00:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.10	0.07	0.01	7.66	-0.07	0.00	
3:41:33	14:01:24	11.13	-0.11	-0.02	8.98	0.02	-0.02	12.10	0.07	0.00	7.65	-0.08	-0.01	
3:42:03	14:01:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.09	0.06	0.00	7.65	-0.08	-0.01	
3:42:33	14:02:24	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.09	0.06	0.00	7.65	-0.08	-0.01	
3:43:03	14:02:54	11.13	-0.11	-0.02	9.03	0.07	-0.02	12.11	0.08	0.01	7.65	-0.08	0.00	
3:43:33	14:03:24	11.13	-0.11	-0.02	9.00	0.04	-0.03	12.10	0.07	0.00	7.65	-0.08	0.00	
3:44:03	14:03:54	11.13	-0.11	-0.02	9.03	0.07	-0.03	12.09	0.06	0.00	7.65	-0.08	0.00	
3:44:33	14:04:24	11.13	-0.11	-0.02	9.03	0.07	-0.03	12.07	0.04	0.00	7.65	-0.08	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
3:45:03	14:04:54	11.13	-0.11	-0.02	9.04	0.08	-0.02	12.09	0.06	-0.01	7.65	-0.08	0.00	
3:45:33	14:05:24	11.13	-0.11	-0.02	9.04	0.08	-0.03	12.09	0.06	-0.01	7.65	-0.08	0.00	
3:46:03	14:05:54	11.13	-0.11	-0.02	9.03	0.07	-0.03	12.10	0.07	0.01	7.65	-0.08	0.00	
3:46:33	14:06:24	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.09	0.06	0.00	7.65	-0.08	0.00	
3:47:03	14:06:54	11.13	-0.11	-0.02	9.04	0.08	-0.02	12.08	0.05	-0.01	7.65	-0.08	0.00	
3:47:33	14:07:24	11.13	-0.11	-0.02	9.01	0.05	-0.02	12.10	0.07	0.00	7.65	-0.08	0.00	
3:48:03	14:07:54	11.13	-0.11	-0.02	9.04	0.08	-0.02	12.11	0.08	0.01	7.65	-0.08	-0.01	
3:48:33	14:08:24	11.13	-0.11	-0.03	9.02	0.06	-0.02	12.11	0.08	-0.01	7.65	-0.08	0.00	
3:49:03	14:08:54	11.13	-0.11	-0.03	9.01	0.05	-0.01	12.10	0.07	-0.01	7.65	-0.08	0.00	
3:49:33	14:09:24	11.13	-0.11	-0.03	9.02	0.06	-0.01	12.09	0.06	0.00	7.65	-0.08	0.00	
3:50:03	14:09:54	11.13	-0.11	-0.03	9.01	0.05	-0.01	12.10	0.07	0.00	7.65	-0.08	0.01	
3:50:33	14:10:24	11.13	-0.11	-0.03	9.05	0.09	-0.01	12.09	0.06	0.00	7.65	-0.08	-0.01	
3:51:03	14:10:54	11.13	-0.11	-0.03	9.05	0.09	-0.02	12.10	0.07	0.00	7.65	-0.08	0.01	
3:51:33	14:11:24	11.13	-0.11	-0.03	9.04	0.08	-0.02	12.09	0.06	0.00	7.65	-0.08	-0.02	
3:52:03	14:11:54	11.13	-0.11	-0.03	9.05	0.09	-0.02	12.09	0.06	-0.01	7.65	-0.08	0.00	
3:52:33	14:12:24	11.13	-0.11	-0.03	9.04	0.08	-0.02	12.10	0.07	0.00	7.65	-0.08	0.00	
3:53:03	14:12:54	11.13	-0.11	-0.03	9.04	0.08	-0.02	12.11	0.08	-0.01	7.65	-0.08	-0.01	
3:53:33	14:13:24	11.13	-0.11	-0.03	9.02	0.06	-0.02	12.09	0.06	0.00	7.65	-0.08	-0.01	
3:54:03	14:13:54	11.13	-0.11	-0.01	9.01	0.05	-0.04	12.12	0.09	0.00	7.65	-0.08	0.00	
3:54:33	14:14:24	11.13	-0.11	-0.01	9.02	0.06	-0.02	12.09	0.06	0.00	7.65	-0.08	0.00	
3:55:03	14:14:54	11.13	-0.11	-0.02	9.02	0.06	-0.01	12.11	0.08	0.00	7.65	-0.08	0.01	
3:55:33	14:15:24	11.13	-0.11	-0.01	9.05	0.09	-0.01	12.10	0.07	0.01	7.65	-0.08	-0.01	
3:56:03	14:15:54	11.13	-0.11	0.00	9.02	0.06	-0.02	12.09	0.06	0.00	7.65	-0.08	-0.01	
3:56:33	14:16:24	11.13	-0.11	-0.02	9.02	0.06	0.00	12.09	0.06	0.01	7.65	-0.08	-0.01	
3:57:03	14:16:54	11.13	-0.11	-0.01	9.03	0.07	0.00	12.10	0.07	0.00	7.65	-0.08	0.00	
3:57:33	14:17:24	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	
3:58:03	14:17:54	11.13	-0.11	-0.01	9.03	0.07	-0.02	12.10	0.07	0.01	7.65	-0.08	0.00	
3:58:33	14:18:24	11.13	-0.11	-0.01	9.05	0.09	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	
3:59:03	14:18:54	11.13	-0.11	-0.02	9.05	0.09	-0.01	12.09	0.06	0.00	7.65	-0.08	0.00	
3:59:33	14:19:24	11.13	-0.11	-0.02	9.05	0.09	-0.01	12.09	0.06	-0.01	7.65	-0.08	0.00	
4:00:03	14:19:54	11.13	-0.11	-0.02	9.05	0.09	0.00	12.12	0.09	-0.01	7.65	-0.08	-0.01	
4:00:33	14:20:24	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.10	0.07	0.00	7.65	-0.08	0.01	
4:01:03	14:20:54	11.13	-0.11	-0.03	9.02	0.06	0.01	12.11	0.08	0.01	7.65	-0.08	0.01	
4:01:33	14:21:24	11.13	-0.11	0.00	9.01	0.05	-0.02	12.12	0.09	0.00	7.65	-0.08	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
4:02:03	14:21:54	11.13	-0.11	-0.02	9.00	0.04	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	
4:02:33	14:22:24	11.13	-0.11	-0.02	9.03	0.07	0.00	12.11	0.08	0.00	7.65	-0.08	0.00	
4:03:03	14:22:54	11.13	-0.11	-0.03	9.04	0.08	-0.02	12.10	0.07	-0.01	7.65	-0.08	0.01	
4:03:33	14:23:24	11.13	-0.11	-0.02	9.01	0.05	0.00	12.10	0.07	-0.01	7.65	-0.08	0.02	
4:04:03	14:23:54	11.13	-0.11	-0.04	9.03	0.07	-0.02	12.10	0.07	0.00	7.65	-0.08	0.00	
4:04:33	14:24:24	11.13	-0.11	-0.04	9.05	0.09	-0.02	12.11	0.08	0.01	7.65	-0.08	-0.01	
4:05:03	14:24:54	11.13	-0.11	-0.03	9.03	0.07	0.00	12.09	0.06	0.00	7.65	-0.08	0.00	
4:05:33	14:25:24	11.13	-0.11	-0.02	8.99	0.03	-0.02	12.10	0.07	0.00	7.65	-0.08	-0.01	
4:06:03	14:25:54	11.13	-0.11	-0.04	9.04	0.08	-0.01	12.11	0.08	0.01	7.65	-0.08	0.00	
4:06:33	14:26:24	11.13	-0.11	-0.04	9.04	0.08	-0.01	12.11	0.08	0.01	7.65	-0.08	0.00	pump and blower off
4:07:03	14:26:54	11.13	-0.11	-0.03	9.03	0.07	-0.01	12.09	0.06	0.00	7.65	-0.08	0.00	
4:07:33	14:27:24	11.13	-0.11	-0.02	9.03	0.07	-0.01	12.09	0.06	0.00	7.65	-0.08	-0.01	
4:08:03	14:27:54	11.13	-0.11	-0.03	9.02	0.06	-0.01	12.12	0.09	0.00	7.65	-0.08	-0.01	
4:08:33	14:28:24	11.13	-0.11	-0.02	8.98	0.02	-0.02	12.10	0.07	0.00	7.65	-0.08	-0.01	
4:09:03	14:28:54	11.13	-0.11	-0.03	9.01	0.05	-0.02	12.10	0.07	0.00	7.65	-0.08	0.00	
4:09:33	14:29:24	11.13	-0.11	-0.01	9.02	0.06	-0.02	12.12	0.09	0.00	7.65	-0.08	0.00	
4:10:07	14:29:58	11.13	-0.11	-0.01	9.02	0.06	-0.02	12.11	0.08	0.00	7.65	-0.08	-0.01	
4:10:33	14:30:24	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.09	0.06	0.00	7.65	-0.08	-0.01	
4:11:03	14:30:54	11.13	-0.11	-0.01	9.04	0.08	-0.01	12.12	0.09	0.00	7.65	-0.08	0.00	
4:11:33	14:31:24	11.13	-0.11	-0.01	9.03	0.07	-0.01	12.10	0.07	0.00	7.65	-0.08	-0.01	
4:12:03	14:31:54	11.13	-0.11	-0.02	9.02	0.06	-0.03	12.11	0.08	-0.01	7.65	-0.08	-0.01	
4:12:33	14:32:24	11.13	-0.11	-0.01	9.04	0.08	-0.02	12.10	0.07	-0.01	7.65	-0.08	0.00	
4:13:03	14:32:54	11.13	-0.11	-0.01	9.05	0.09	-0.01	12.11	0.08	0.00	7.65	-0.08	0.00	
4:13:33	14:33:24	11.13	-0.11	-0.01	9.03	0.07	-0.02	12.10	0.07	-0.01	7.65	-0.08	0.00	
4:14:03	14:33:54	11.13	-0.11	0.00	8.99	0.03	-0.01	12.10	0.07	0.00	7.65	-0.08	-0.01	
4:14:33	14:34:24	11.13	-0.11	-0.01	9.01	0.05	-0.01	12.12	0.09	0.01	7.65	-0.08	-0.01	
4:15:03	14:34:54	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	
4:15:33	14:35:24	11.13	-0.11	-0.03	9.02	0.06	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	
4:16:03	14:35:54	11.13	-0.11	-0.03	9.04	0.08	-0.02	12.11	0.08	0.01	7.65	-0.08	0.00	
4:16:33	14:36:24	11.13	-0.11	-0.01	9.04	0.08	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	
4:17:03	14:36:54	11.13	-0.11	0.00	9.04	0.08	-0.01	12.10	0.07	0.01	7.65	-0.08	0.00	
4:17:33	14:37:24	11.13	-0.11	-0.01	9.03	0.07	-0.01	12.11	0.08	0.00	7.65	-0.08	0.00	
4:18:03	14:37:54	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.12	0.09	-0.01	7.65	-0.08	0.01	
4:18:33	14:38:24	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.00	7.65	-0.08	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
4:19:03	14:38:54	11.13	-0.11	-0.02	9.05	0.09	-0.01	12.10	0.07	-0.01	7.65	-0.08	-0.01	
4:19:33	14:39:24	11.13	-0.11	-0.03	9.03	0.07	-0.01	12.10	0.07	-0.01	7.65	-0.08	-0.01	
4:20:03	14:39:54	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.10	0.07	0.01	7.64	-0.09	0.00	
4:20:33	14:40:24	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.11	0.08	0.00	7.65	-0.08	-0.01	
4:21:03	14:40:54	11.13	-0.11	-0.03	9.06	0.10	-0.01	12.10	0.07	0.00	7.64	-0.09	0.00	
4:21:33	14:41:24	11.13	-0.11	-0.02	9.04	0.08	-0.03	12.10	0.07	-0.01	7.64	-0.09	0.00	
4:22:03	14:41:54	11.13	-0.11	-0.02	9.05	0.09	-0.01	12.11	0.08	-0.01	7.65	-0.08	-0.02	
4:22:34	14:42:25	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.00	7.64	-0.09	-0.02	
4:23:03	14:42:54	11.13	-0.11	-0.03	9.03	0.07	-0.01	12.10	0.07	0.01	7.64	-0.09	0.00	
4:23:33	14:43:24	11.13	-0.11	-0.02	9.06	0.10	-0.01	12.10	0.07	0.00	7.64	-0.09	0.00	
4:24:03	14:43:54	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.00	7.64	-0.09	-0.01	
4:24:33	14:44:24	11.13	-0.11	-0.01	9.04	0.08	-0.01	12.09	0.06	0.00	7.64	-0.09	0.00	
4:25:03	14:44:54	11.13	-0.11	-0.02	9.03	0.07	-0.01	12.10	0.07	0.00	7.64	-0.09	-0.02	
4:25:33	14:45:24	11.13	-0.11	-0.02	9.01	0.05	0.00	12.11	0.08	0.00	7.64	-0.09	-0.01	
4:26:03	14:45:54	11.13	-0.11	-0.02	9.00	0.04	-0.02	12.12	0.09	-0.01	7.64	-0.09	-0.01	
4:26:33	14:46:24	11.13	-0.11	-0.03	9.04	0.08	0.01	12.09	0.06	0.00	7.64	-0.09	0.00	
4:27:03	14:46:54	11.13	-0.11	-0.01	9.04	0.08	-0.01	12.12	0.09	0.01	7.64	-0.09	0.00	
4:27:33	14:47:24	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	-0.01	7.64	-0.09	-0.01	
4:28:03	14:47:54	11.13	-0.11	0.00	9.01	0.05	0.00	12.11	0.08	0.00	7.64	-0.09	-0.01	
4:28:33	14:48:24	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.01	7.64	-0.09	0.00	
4:29:03	14:48:54	11.13	-0.11	-0.03	9.02	0.06	-0.01	12.10	0.07	0.00	7.64	-0.09	0.00	
4:29:40	14:49:31	11.13	-0.11	-0.01	9.02	0.06	-0.02	12.09	0.06	0.00	7.64	-0.09	-0.01	
4:30:10	14:50:01	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.12	0.09	0.01	7.64	-0.09	0.00	
4:30:40	14:50:31	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.10	0.07	0.00	7.64	-0.09	-0.01	
4:31:10	14:51:01	11.13	-0.11	-0.01	9.03	0.07	0.00	12.11	0.08	-0.01	7.64	-0.09	-0.01	
4:31:40	14:51:31	11.13	-0.11	-0.01	9.03	0.07	-0.01	12.09	0.06	0.00	7.64	-0.09	-0.01	
4:32:10	14:52:01	11.13	-0.11	-0.02	9.05	0.09	-0.02	12.11	0.08	0.01	7.64	-0.09	-0.01	
4:32:40	14:52:31	11.13	-0.11	-0.01	9.05	0.09	-0.01	12.10	0.07	0.00	7.64	-0.09	0.00	
4:33:10	14:53:01	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.11	0.08	0.01	7.64	-0.09	0.00	
4:33:40	14:53:31	11.13	-0.11	-0.02	9.05	0.09	-0.01	12.12	0.09	0.00	7.64	-0.09	0.00	
4:34:10	14:54:01	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.10	0.07	0.00	7.64	-0.09	-0.01	
4:34:40	14:54:31	11.13	-0.11	-0.02	9.05	0.09	-0.01	12.10	0.07	0.00	7.64	-0.09	0.00	
4:35:10	14:55:01	11.13	-0.11	-0.02	9.01	0.05	-0.01	12.11	0.08	0.01	7.64	-0.09	-0.01	
4:35:40	14:55:31	11.13	-0.11	-0.01	9.02	0.06	-0.01	12.09	0.06	-0.01	7.64	-0.09	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
4:36:10	14:56:01	11.13	-0.11	-0.02	9.05	0.09	0.00	12.09	0.06	0.01	7.64	-0.09	0.00	
4:36:40	14:56:31	11.13	-0.11	-0.02	9.02	0.06	0.00	12.10	0.07	0.01	7.64	-0.09	-0.01	
4:37:10	14:57:01	11.13	-0.11	0.00	9.03	0.07	-0.01	12.11	0.08	0.00	7.64	-0.09	0.00	
4:37:40	14:57:31	11.13	-0.11	-0.01	9.05	0.09	0.00	12.11	0.08	0.01	7.64	-0.09	0.00	
4:38:10	14:58:01	11.13	-0.11	0.00	9.03	0.07	0.00	12.12	0.09	0.01	7.64	-0.09	0.01	
4:38:40	14:58:31	11.13	-0.11	-0.01	9.03	0.07	0.00	12.10	0.07	0.00	7.64	-0.09	0.00	
4:39:10	14:59:01	11.13	-0.11	-0.02	9.04	0.08	-0.01	12.12	0.09	-0.01	7.64	-0.09	-0.01	
4:39:40	14:59:31	11.13	-0.11	-0.01	9.03	0.07	-0.01	12.12	0.09	0.00	7.64	-0.09	-0.01	
4:40:10	15:00:01	11.13	-0.11	0.00	9.06	0.10	0.00	12.13	0.10	0.00	7.64	-0.09	0.00	
4:40:40	15:00:31	11.13	-0.11	-0.01	9.03	0.07	0.00	12.11	0.08	0.00	7.64	-0.09	0.00	
4:41:10	15:01:01	11.13	-0.11	-0.01	9.02	0.06	0.00	12.12	0.09	0.00	7.64	-0.09	0.00	
4:41:40	15:01:31	11.13	-0.11	0.00	9.05	0.09	-0.01	12.11	0.08	0.00	7.64	-0.09	0.00	
4:42:10	15:02:01	11.13	-0.11	-0.01	9.04	0.08	-0.01	12.11	0.08	0.00	7.64	-0.09	-0.01	
4:42:40	15:02:31	11.13	-0.11	-0.01	9.05	0.09	0.00	12.11	0.08	0.01	7.64	-0.09	0.00	
4:43:10	15:03:01	11.13	-0.11	-0.02	9.02	0.06	0.00	12.10	0.07	0.01	7.64	-0.09	-0.01	
4:43:40	15:03:31	11.13	-0.11	0.00	9.03	0.07	0.00	12.09	0.06	0.00	7.64	-0.09	0.00	
4:44:10	15:04:01	11.13	-0.11	0.00	9.04	0.08	-0.01	12.11	0.08	0.00	7.64	-0.09	-0.01	
4:44:40	15:04:31	11.13	-0.11	-0.01	9.04	0.08	0.00	12.09	0.06	0.01	7.64	-0.09	0.00	
4:45:10	15:05:01	11.13	-0.11	0.00	9.02	0.06	-0.01	12.10	0.07	0.00	7.64	-0.09	-0.01	
4:45:40	15:05:31	11.13	-0.11	-0.01	9.02	0.06	0.00	12.12	0.09	0.01	7.64	-0.09	0.00	
4:46:10	15:06:01	11.13	-0.11	0.00	9.04	0.08	-0.01	12.12	0.09	0.00	7.64	-0.09	0.00	
4:46:40	15:06:31	11.13	-0.11	-0.01	9.05	0.09	0.01	12.11	0.08	0.00	7.64	-0.09	-0.01	
4:47:10	15:07:01	11.13	-0.11	-0.01	9.02	0.06	0.00	12.12	0.09	0.00	7.64	-0.09	0.00	
4:47:40	15:07:31	11.13	-0.11	0.00	9.04	0.08	0.00	12.10	0.07	0.01	7.64	-0.09	0.00	
4:48:10	15:08:01	11.13	-0.11	0.01	9.01	0.05	0.01	12.10	0.07	0.00	7.64	-0.09	-0.01	
4:48:40	15:08:31	11.13	-0.11	-0.01	9.04	0.08	-0.01	12.11	0.08	0.01	7.64	-0.09	0.00	
4:49:10	15:09:01	11.13	-0.11	0.02	9.02	0.06	0.00	12.11	0.08	0.01	7.64	-0.09	-0.01	
4:49:40	15:09:31	11.13	-0.11	0.02	9.06	0.10	-0.01	12.11	0.08	0.00	7.64	-0.09	0.00	
4:50:10	15:10:01	11.13	-0.11	0.01	9.06	0.10	-0.01	12.10	0.07	0.01	7.64	-0.09	-0.01	
4:50:40	15:10:31	11.13	-0.11	0.03	9.06	0.10	-0.01	12.10	0.07	-0.01	7.64	-0.09	-0.02	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑ #REF!	#REF! #REF!	#REF! #REF!	Comments Click to add a comment
0:00:00	10:19:51	4.20	0.00	0.00	0.00	
0:00:15	10:20:06	4.21	0.01	0.00	0.00	
0:00:45	10:20:36	4.21	0.01	0.00	0.00	
0:01:15	10:21:07	4.20	0.00	0.00	0.00	
0:01:45	10:21:36	4.23	0.03	0.00	0.00	START PUMP TEST
0:02:15	10:22:06	2.73	-1.47	0.00	0.00	
0:02:45	10:22:36	2.13	-2.07	0.00	0.00	
0:03:15	10:23:06	1.17	-3.03	0.00	0.00	
0:03:45	10:23:36	0.21	-3.99	0.00	0.00	
0:04:15	10:24:06	0.17	-4.03	0.00	0.00	
0:04:45	10:24:36	0.16	-4.04	0.00	0.00	
0:05:15	10:25:06	0.14	-4.06	0.00	0.00	
0:05:45	10:25:36	0.19	-4.01	0.00	0.00	
0:06:15	10:26:06	0.17	-4.03	0.00	0.00	
0:06:45	10:26:36	0.18	-4.02	0.00	0.00	
0:07:15	10:27:06	0.17	-4.03	0.00	0.00	
0:07:45	10:27:36	0.16	-4.04	0.00	0.00	
0:08:15	10:28:06	0.17	-4.03	0.00	0.00	
0:08:49	10:28:40	0.16	-4.04	0.00	0.00	
0:09:24	10:29:15	0.17	-4.03	0.00	0.00	
0:10:03	10:29:54	0.17	-4.03	0.00	0.00	
0:10:39	10:30:30	0.19	-4.01	0.00	0.00	
0:11:15	10:31:06	0.17	-4.03	0.00	0.00	
0:11:53	10:31:44	0.15	-4.05	0.00	0.00	
0:12:29	10:32:20	0.18	-4.02	0.00	0.00	
0:13:00	10:32:51	0.15	-4.05	0.00	0.00	
0:13:30	10:33:21	0.18	-4.02	0.00	0.00	
0:14:00	10:33:51	0.19	-4.01	0.00	0.00	
0:14:34	10:34:25	0.17	-4.03	0.00	0.00	
0:15:05	10:34:56	0.17	-4.03	0.00	0.00	
0:15:41	10:35:32	0.17	-4.03	0.00	0.00	
0:16:17	10:36:08	0.16	-4.04	0.00	0.00	
0:16:52	10:36:43	0.17	-4.03	0.00	0.00	
0:17:28	10:37:19	0.19	-4.01	0.00	0.00	
0:18:03	10:37:54	0.19	-4.01	0.00	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
0:18:39	10:38:30	0.16	-4.04	0.00	0.00	
0:19:15	10:39:06	0.17	-4.03	0.00	0.00	
0:19:50	10:39:41	0.18	-4.02	0.00	0.00	
0:20:21	10:40:13	0.19	-4.01	0.00	0.00	
0:20:51	10:40:43	0.17	-4.03	0.00	0.00	
0:21:21	10:41:13	0.19	-4.01	0.00	0.00	
0:21:51	10:41:43	0.19	-4.01	0.00	0.00	
0:22:27	10:42:18	0.17	-4.03	0.00	0.00	
0:22:58	10:42:49	0.18	-4.02	0.00	0.00	
0:23:28	10:43:19	0.18	-4.02	0.00	0.00	
0:23:58	10:43:49	0.18	-4.02	0.00	0.00	
0:24:28	10:44:19	0.19	-4.01	0.00	0.00	
0:25:06	10:44:57	0.18	-4.02	0.00	0.00	
0:25:41	10:45:33	0.20	-4.00	0.00	0.00	
0:26:17	10:46:08	0.18	-4.02	0.00	0.00	
0:26:53	10:46:44	0.17	-4.03	0.00	0.00	
0:27:28	10:47:19	0.17	-4.03	0.00	0.00	
0:28:04	10:47:55	0.16	-4.04	0.00	0.00	
0:28:39	10:48:30	0.17	-4.03	0.00	0.00	
0:29:10	10:49:01	0.19	-4.01	0.00	0.00	
0:29:40	10:49:31	0.16	-4.04	0.00	0.00	
0:30:10	10:50:01	0.16	-4.04	0.00	0.00	
0:30:40	10:50:31	0.16	-4.04	0.00	0.00	
0:31:11	10:51:02	0.19	-4.01	0.00	0.00	
0:31:41	10:51:32	0.15	-4.05	0.00	0.00	
0:32:11	10:52:02	0.15	-4.05	0.00	0.00	
0:32:41	10:52:32	0.17	-4.03	0.00	0.00	
0:33:16	10:53:07	0.17	-4.03	0.00	0.00	
0:33:47	10:53:39	0.16	-4.04	0.00	0.00	
0:34:17	10:54:09	0.17	-4.03	0.00	0.00	
0:34:47	10:54:39	0.17	-4.03	0.00	0.00	
0:35:17	10:55:09	0.18	-4.02	0.00	0.00	
0:35:53	10:55:44	0.17	-4.03	0.00	0.00	
0:36:28	10:56:19	0.16	-4.04	0.00	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑ #REF!	#REF! #REF!	#REF! #REF!	Comments Click to add a comment
0:37:04	10:56:55	0.16	-4.04	0.00	0.00	
0:37:39	10:57:30	0.18	-4.02	0.00	0.00	
0:38:11	10:58:02	0.19	-4.01	0.00	0.00	
0:39:03	10:58:54	0.15	-4.05	0.00	0.00	
0:39:33	10:59:24	0.17	-4.03	0.00	0.00	
0:40:03	10:59:54	0.18	-4.02	0.00	0.00	
0:40:37	11:00:28	0.17	-4.03	0.00	0.00	
0:41:07	11:00:58	0.19	-4.01	0.00	0.00	
0:41:40	11:01:31	0.17	-4.03	0.00	0.00	
0:42:10	11:02:01	0.17	-4.03	0.00	0.00	
0:42:40	11:02:31	0.15	-4.05	0.00	0.00	
0:43:14	11:03:05	0.17	-4.03	0.00	0.00	
0:43:50	11:03:41	0.16	-4.04	0.00	0.00	
0:44:25	11:04:16	0.17	-4.03	0.00	0.00	
0:45:01	11:04:52	0.17	-4.03	0.00	0.00	
0:45:36	11:05:28	0.17	-4.03	0.00	0.00	
0:46:12	11:06:03	0.17	-4.03	0.00	0.00	
0:46:48	11:06:39	0.19	-4.01	0.00	0.00	
0:47:23	11:07:14	0.15	-4.05	0.00	0.00	
0:47:59	11:07:50	0.18	-4.02	0.00	0.00	
0:48:34	11:08:26	0.17	-4.03	0.00	0.00	
0:49:10	11:09:01	0.17	-4.03	0.00	0.00	
0:49:46	11:09:37	0.15	-4.05	0.00	0.00	
0:50:17	11:10:08	0.17	-4.03	0.00	0.00	
0:50:47	11:10:38	0.18	-4.02	0.00	0.00	
0:51:17	11:11:08	0.16	-4.04	0.00	0.00	
0:51:51	11:11:42	0.17	-4.03	0.00	0.00	
0:52:22	11:12:13	0.20	-4.00	0.00	0.00	
0:52:57	11:12:49	0.19	-4.01	0.00	0.00	
0:53:29	11:13:20	0.17	-4.03	0.00	0.00	
0:53:59	11:13:50	0.19	-4.01	0.00	0.00	
0:54:35	11:14:26	0.18	-4.02	0.00	0.00	
0:55:05	11:14:56	0.17	-4.03	0.00	0.00	
0:55:35	11:15:26	0.16	-4.04	0.00	0.00	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
0:56:05	11:15:56	0.18	-4.02	0.00	0.00	
0:56:35	11:16:26	0.17	-4.03	0.00	0.00	
0:57:05	11:16:56	0.16	-4.04	0.00	0.00	
0:57:35	11:17:26	0.18	-4.02	0.00	0.00	
0:58:10	11:18:02	0.18	-4.02	0.00	0.00	
0:58:46	11:18:37	0.17	-4.03	0.00	0.00	
0:59:22	11:19:13	0.16	-4.04	0.00	0.00	
0:59:57	11:19:48	0.20	-4.00	0.00	0.00	
1:00:33	11:20:24	0.21	-3.99	0.00	0.00	
1:01:08	11:20:59	0.16	-4.04	0.00	0.00	
1:01:44	11:21:35	0.17	-4.03	0.00	0.00	
1:02:19	11:22:10	0.16	-4.04	0.00	0.00	
1:02:55	11:22:46	0.18	-4.02	0.00	0.00	
1:03:30	11:23:21	0.19	-4.01	0.00	0.00	
1:04:06	11:23:57	0.17	-4.03	0.00	0.00	
1:04:41	11:24:33	0.16	-4.04	0.00	0.00	
1:05:17	11:25:08	0.17	-4.03	0.00	0.00	
1:05:53	11:25:44	0.20	-4.00	0.00	0.00	
1:06:24	11:26:15	0.17	-4.03	0.00	0.00	
1:06:54	11:26:45	0.18	-4.02	0.00	0.00	
1:07:24	11:27:15	0.19	-4.01	0.00	0.00	
1:07:54	11:27:45	0.17	-4.03	0.00	0.00	
1:08:29	11:28:20	0.17	-4.03	0.00	0.00	
1:09:06	11:28:57	0.19	-4.01	0.00	0.00	
1:09:45	11:29:37	0.17	-4.03	0.00	0.00	
1:10:23	11:30:14	0.18	-4.02	0.00	0.00	
1:10:54	11:30:45	0.19	-4.01	0.00	0.00	
1:11:24	11:31:15	0.17	-4.03	0.00	0.00	
1:11:54	11:31:45	0.16	-4.04	0.00	0.00	
1:12:24	11:32:15	0.15	-4.05	0.00	0.00	
1:13:01	11:32:52	0.18	-4.02	0.00	0.00	
1:13:34	11:33:26	0.17	-4.03	0.00	-0.05	
1:14:05	11:33:57	0.19	-4.01	0.00	-0.02	
1:14:36	11:34:27	0.18	-4.02	0.00	-0.05	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
1:15:06	11:34:57	0.18	-4.02	0.00	-0.05	
1:15:36	11:35:27	0.17	-4.03	0.00	-0.06	
1:16:11	11:36:02	0.16	-4.04	0.00	-0.06	
1:16:46	11:36:38	0.17	-4.03	0.00	-0.06	
1:17:17	11:37:09	0.18	-4.02	0.00	-0.94	VEGE TEST - FIND MAX VAC 808 BLOWER
1:17:47	11:37:39	0.50	-3.70	0.00	-6.52	
1:18:17	11:38:09	0.18	-4.02	0.00	-2.73	MAX VAC 808= 90"WC
1:18:47	11:38:39	0.20	-4.00	0.00	-2.73	VEGE TEST STEP 1 @ 40"WC
1:19:24	11:39:16	0.21	-3.99	0.00	-2.65	
1:19:54	11:39:45	0.17	-4.03	0.00	-2.66	
1:20:24	11:40:15	0.18	-4.02	0.00	-2.64	
1:20:54	11:40:45	0.19	-4.01	0.00	-2.62	
1:21:28	11:41:19	0.20	-4.00	0.00	-2.56	
1:21:58	11:41:49	0.23	-3.97	0.00	-2.50	
1:22:28	11:42:19	0.17	-4.03	0.00	-2.50	
1:22:58	11:42:49	0.19	-4.01	0.00	-2.52	
1:23:28	11:43:19	0.19	-4.01	0.00	-2.48	
1:23:58	11:43:49	0.20	-4.00	0.00	-2.48	
1:25:11	11:45:02	0.20	-4.00	0.00	-2.51	
1:25:47	11:45:38	0.20	-4.00	0.00	-2.49	
1:26:22	11:46:13	0.18	-4.02	0.00	-2.58	
1:26:58	11:46:49	0.18	-4.02	0.00	-2.57	
1:27:33	11:47:24	0.21	-3.99	0.00	-2.59	
1:28:04	11:47:56	0.20	-4.00	0.00	-2.48	
1:28:34	11:48:26	0.19	-4.01	0.00	-2.46	
1:29:04	11:48:56	0.19	-4.01	0.00	-2.45	
1:29:34	11:49:25	0.19	-4.01	0.00	-2.49	
1:30:05	11:49:56	0.19	-4.01	0.00	-2.47	
1:30:35	11:50:26	0.19	-4.01	0.00	-2.46	
1:31:05	11:50:56	0.21	-3.99	0.00	-2.51	
1:31:35	11:51:26	0.21	-3.99	0.00	-2.53	
1:32:06	11:51:57	0.19	-4.01	0.00	-2.56	
1:32:36	11:52:27	0.21	-3.99	0.00	-2.63	
1:33:06	11:52:57	0.18	-4.02	0.00	-2.60	

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ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
1:33:40	11:53:31	0.18	-4.02	0.00	-2.61	
1:34:11	11:54:02	0.19	-4.01	0.00	-2.56	
1:34:47	11:54:38	0.21	-3.99	0.00	-2.52	
1:35:23	11:55:14	0.20	-4.00	0.00	-2.52	
1:35:54	11:55:45	0.18	-4.02	0.00	-2.51	
1:36:24	11:56:15	0.20	-4.00	0.00	-2.52	
1:36:54	11:56:45	0.17	-4.03	0.00	-2.49	
1:37:28	11:57:19	0.17	-4.03	0.00	-2.52	
1:37:58	11:57:49	0.21	-3.99	0.00	-2.48	
1:38:28	11:58:19	0.19	-4.01	0.00	-2.50	
1:38:58	11:58:50	0.17	-4.03	0.00	-2.52	
1:39:28	11:59:20	0.17	-4.03	0.00	-2.52	
1:39:59	11:59:50	0.19	-4.01	0.00	-2.52	
1:40:43	12:00:34	0.14	-4.06	0.00	-2.52	
1:41:19	12:01:10	0.17	-4.03	0.00	-2.48	
1:41:54	12:01:45	0.16	-4.04	0.00	-2.49	
1:45:28	12:05:19	0.18	-4.02	0.00	-2.52	
1:46:03	12:05:55	0.18	-4.02	0.00	-2.50	
1:46:39	12:06:30	0.19	-4.01	0.00	-2.52	
1:47:10	12:07:01	0.17	-4.03	0.00	-2.46	
1:47:40	12:07:31	0.19	-4.01	0.00	-2.48	
1:48:11	12:08:02	0.19	-4.01	0.00	-2.48	
1:48:41	12:08:32	0.17	-4.03	0.00	-2.50	
1:49:14	12:09:05	0.20	-4.00	0.00	-2.49	
1:49:49	12:09:40	0.21	-3.99	0.00	-2.53	
1:50:25	12:10:16	0.19	-4.01	0.00	-2.57	
1:51:00	12:10:51	0.19	-4.01	0.00	-2.51	
1:51:36	12:11:27	0.19	-4.01	0.00	-2.48	
1:52:11	12:12:03	0.19	-4.01	0.00	-2.51	
1:52:48	12:12:39	0.15	-4.05	0.00	-2.50	
1:53:23	12:13:14	0.19	-4.01	0.00	-2.42	
1:53:58	12:13:49	0.17	-4.03	0.00	-2.38	
1:54:34	12:14:25	0.21	-3.99	0.00	-2.31	
1:55:10	12:15:01	0.18	-4.02	0.00	-2.33	

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Kwik Fill #M-061
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ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
1:55:58	12:15:49	0.17	-4.03	0.00	-2.34	
1:56:28	12:16:19	0.18	-4.02	0.00	-2.35	
1:56:58	12:16:49	0.17	-4.03	0.00	-2.38	
1:57:32	12:17:23	0.18	-4.02	0.00	-2.37	
1:58:08	12:17:59	0.17	-4.03	0.00	-2.41	
1:58:45	12:18:36	0.20	-4.00	0.00	-2.39	
1:59:21	12:19:12	0.19	-4.01	0.00	-2.35	
1:59:58	12:19:49	0.19	-4.01	0.00	-2.30	
2:00:34	12:20:25	0.19	-4.01	0.00	-2.32	
2:01:11	12:21:02	0.19	-4.01	0.00	-2.32	
2:01:47	12:21:39	0.17	-4.03	0.00	-2.30	
2:02:24	12:22:15	0.17	-4.03	0.00	-2.35	
2:03:01	12:22:52	0.18	-4.02	0.00	-2.36	
2:03:37	12:23:28	0.18	-4.02	0.00	-2.39	
2:04:07	12:23:58	0.20	-4.00	0.00	-2.40	
2:04:39	12:24:30	0.24	-3.96	0.00	-2.40	
2:05:10	12:25:01	0.21	-3.99	0.00	-2.42	
2:05:41	12:25:33	0.19	-4.01	0.00	-2.39	
2:06:11	12:26:03	0.18	-4.02	0.00	-2.36	
2:06:41	12:26:33	0.19	-4.01	0.00	-2.39	
2:07:11	12:27:03	0.19	-4.01	0.00	-2.38	
2:07:47	12:27:38	0.16	-4.04	0.00	-2.41	
2:08:18	12:28:09	0.18	-4.02	0.00	-2.38	
2:08:48	12:28:39	0.22	-3.98	0.00	-2.41	
2:09:18	12:29:09	0.18	-4.02	0.00	-2.41	
2:09:54	12:29:45	0.20	-4.00	0.00	-2.43	
2:10:43	12:30:34	0.17	-4.03	0.00	-2.43	
2:11:23	12:31:14	0.17	-4.03	0.00	-2.46	
2:11:58	12:31:49	0.00	-4.20	0.00	-5.10	VEGE TEST STEP 2 @ 80" WC
2:12:29	12:32:20	0.20	-4.00	0.00	-6.70	
2:12:59	12:32:50	0.21	-3.99	0.00	-6.59	
2:13:29	12:33:20	0.24	-3.96	0.00	-6.56	
2:13:59	12:33:50	0.21	-3.99	0.00	-6.56	
2:14:34	12:34:26	0.14	-4.06	0.00	-6.58	

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ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
2:15:11	12:35:02	0.20	-4.00	0.00	-6.56	
2:15:46	12:35:37	0.19	-4.01	0.00	-6.59	
2:16:22	12:36:13	0.19	-4.01	0.00	-6.58	
2:16:57	12:36:48	0.21	-3.99	0.00	-6.58	
2:17:33	12:37:24	0.24	-3.96	0.00	-6.54	
2:18:04	12:37:55	0.22	-3.98	0.00	-6.39	
2:18:34	12:38:25	0.22	-3.98	0.00	-6.43	
2:19:04	12:38:55	0.22	-3.98	0.00	-6.43	
2:19:38	12:39:29	0.19	-4.01	0.00	-6.38	
2:20:08	12:39:59	0.19	-4.01	0.00	-6.38	
2:20:39	12:40:30	0.20	-4.00	0.00	-6.31	
2:21:14	12:41:05	0.22	-3.98	0.00	-6.37	
2:21:50	12:41:41	0.20	-4.00	0.00	-6.36	
2:22:26	12:42:17	0.21	-3.99	0.00	-6.36	
2:23:01	12:42:52	0.21	-3.99	0.00	-6.36	
2:23:37	12:43:28	0.20	-4.00	0.00	-6.34	
2:24:12	12:44:03	0.19	-4.01	0.00	-6.27	
2:24:48	12:44:39	0.23	-3.97	0.00	-6.15	
2:25:23	12:45:14	0.17	-4.03	0.00	-6.22	
2:26:00	12:45:51	0.18	-4.02	0.00	-6.20	
2:26:42	12:46:33	0.21	-3.99	0.00	-6.18	
2:27:19	12:47:10	0.22	-3.98	0.00	-6.11	
2:27:54	12:47:45	0.23	-3.97	0.00	-6.21	
2:28:30	12:48:21	0.22	-3.98	0.00	-6.20	
2:29:05	12:48:56	0.18	-4.02	0.00	-6.31	
2:29:41	12:49:32	0.21	-3.99	0.00	-6.29	
2:30:17	12:50:08	0.21	-3.99	0.00	-6.29	
2:30:52	12:50:43	0.21	-3.99	0.00	-6.30	
2:31:28	12:51:19	0.21	-3.99	0.00	-6.23	
2:32:03	12:51:54	0.17	-4.03	0.00	-6.32	
2:32:39	12:52:30	0.21	-3.99	0.00	-6.30	
2:33:14	12:53:05	0.20	-4.00	0.00	-6.23	
2:33:45	12:53:36	0.19	-4.01	0.00	-6.28	
2:34:15	12:54:06	0.17	-4.03	0.00	-6.30	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9				Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Click to add a comment
		#REF!		#REF!	#REF!	
2:34:45	12:54:36	0.20	-4.00	0.00	-6.31	
2:35:15	12:55:06	0.19	-4.01	0.00	-6.31	
2:35:46	12:55:37	0.21	-3.99	0.00	-6.30	
2:36:16	12:56:07	0.18	-4.02	0.00	-6.28	
2:36:46	12:56:37	0.19	-4.01	0.00	-6.27	
2:37:16	12:57:07	0.17	-4.03	0.00	-6.29	
2:37:47	12:57:38	0.18	-4.02	0.00	-6.26	
2:38:17	12:58:08	0.16	-4.04	0.00	-6.26	
2:38:47	12:58:38	0.19	-4.01	0.00	-6.14	
2:39:17	12:59:08	0.22	-3.98	0.00	-6.22	
2:39:47	12:59:38	0.19	-4.01	0.00	-6.18	
2:40:24	13:00:15	0.17	-4.03	0.00	-6.24	
2:41:00	13:00:51	0.18	-4.02	0.00	-6.24	
2:41:37	13:01:28	0.19	-4.01	0.00	-6.28	
2:42:18	13:02:09	0.18	-4.02	0.00	-6.22	
2:42:59	13:02:50	0.19	-4.01	0.00	-6.25	
2:43:35	13:03:26	0.23	-3.97	0.00	-6.22	
2:44:06	13:03:57	0.19	-4.01	0.00	-6.21	
2:44:36	13:04:27	0.15	-4.05	0.00	-6.22	
2:45:06	13:04:57	0.19	-4.01	0.00	-6.21	
2:45:40	13:05:31	0.21	-3.99	0.00	-6.16	
2:46:10	13:06:01	0.18	-4.02	0.00	-6.19	
2:46:40	13:06:31	0.17	-4.03	0.00	-6.16	
2:47:11	13:07:02	0.18	-4.02	0.00	-6.23	
2:47:41	13:07:32	0.21	-3.99	0.00	-6.26	
2:48:11	13:08:02	0.20	-4.00	0.00	-6.22	
2:48:45	13:08:36	0.19	-4.01	0.00	-6.27	
2:49:15	13:09:06	0.17	-4.03	0.00	-6.26	
2:49:45	13:09:36	0.20	-4.00	0.00	-6.23	
2:50:15	13:10:06	0.24	-3.96	0.00	-6.12	
2:50:45	13:10:36	0.21	-3.99	0.00	-6.16	
2:51:15	13:11:06	0.21	-3.99	0.00	-6.09	
2:51:45	13:11:36	0.19	-4.01	0.00	-6.17	
2:52:16	13:12:07	0.17	-4.03	0.00	-6.15	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑ #REF!	#REF! #REF!	#REF! #REF!	Comments Click to add a comment
2:52:46	13:12:37	0.17	-4.03	0.00	-6.21	
2:53:16	13:13:07	0.17	-4.03	0.00	-6.21	
2:53:51	13:13:42	0.16	-4.04	0.00	-6.27	
2:54:20	13:14:12	0.19	-4.01	0.00	-6.24	
2:54:50	13:14:42	0.19	-4.01	0.00	-6.23	
2:55:26	13:15:17	0.18	-4.02	0.00	-6.20	
2:56:02	13:15:53	0.20	-4.00	0.00	-6.30	
2:56:41	13:16:32	0.16	-4.04	0.00	-6.24	
2:57:13	13:17:05	0.17	-4.03	0.00	-6.21	
2:57:43	13:17:35	0.19	-4.01	0.00	-6.21	
2:58:18	13:18:09	0.17	-4.03	0.00	-6.19	
2:58:48	13:18:39	0.19	-4.01	0.00	-6.22	
2:59:18	13:19:09	0.16	-4.04	0.00	-6.27	
2:59:53	13:19:44	0.17	-4.03	0.00	-6.27	
3:00:29	13:20:20	0.16	-4.04	0.00	-6.25	
3:01:00	13:20:51	0.20	-4.00	0.00	-6.20	
3:01:31	13:21:22	0.19	-4.01	0.00	-6.26	
3:02:00	13:21:51	0.18	-4.02	0.00	-6.26	blower off - switch to high vac blower
3:02:30	13:22:21	0.97	-3.23	0.00	-5.24	
3:03:05	13:22:56	0.18	-4.02	0.00	-0.04	
3:03:40	13:23:31	0.14	-4.06	0.00	-4.22	vege test step 3 - high vac
3:04:11	13:24:02	0.00	-4.20	0.00	-19.24	
3:04:41	13:24:32	0.26	-3.94	0.00	-20.87	
3:05:11	13:25:03	0.33	-3.87	0.00	-20.98	
3:05:46	13:25:37	0.33	-3.87	0.00	-20.96	
3:06:30	13:26:22	0.41	-3.79	0.00	-21.07	
3:07:00	13:26:52	0.35	-3.85	0.00	-20.94	
3:07:31	13:27:22	0.36	-3.84	0.00	-20.92	
3:08:01	13:27:52	0.35	-3.85	0.00	-20.89	
3:08:31	13:28:22	0.36	-3.84	0.00	-20.93	
3:09:01	13:28:52	0.35	-3.85	0.00	-20.93	
3:09:31	13:29:22	0.36	-3.84	0.00	-20.90	
3:10:01	13:29:52	0.32	-3.88	0.00	-20.86	
3:10:31	13:30:22	0.35	-3.85	0.00	-20.88	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
3:11:01	13:30:52	0.35	-3.85	0.00	-20.92	
3:11:31	13:31:22	0.35	-3.85	0.00	-20.94	
3:12:01	13:31:52	0.35	-3.85	0.00	-20.94	
3:12:31	13:32:22	0.38	-3.82	0.00	-20.99	
3:13:01	13:32:52	0.35	-3.85	0.00	-20.96	
3:13:33	13:33:24	0.38	-3.82	0.00	-21.03	
3:14:03	13:33:54	0.34	-3.86	0.00	-20.97	
3:14:33	13:34:24	0.37	-3.83	0.00	-21.03	
3:15:03	13:34:54	0.35	-3.85	0.00	-20.97	
3:15:33	13:35:24	0.38	-3.82	0.00	-20.97	
3:16:03	13:35:54	0.36	-3.84	0.00	-20.97	
3:16:33	13:36:24	0.36	-3.84	0.00	-20.92	
3:17:03	13:36:54	0.37	-3.83	0.00	-20.93	
3:17:33	13:37:24	0.33	-3.87	0.00	-20.88	
3:18:03	13:37:54	0.37	-3.83	0.00	-20.92	
3:18:33	13:38:24	0.42	-3.78	0.00	-20.89	
3:19:03	13:38:54	0.39	-3.81	0.00	-20.95	
3:19:33	13:39:24	0.39	-3.81	0.00	-20.96	
3:20:03	13:39:54	0.35	-3.85	0.00	-20.97	
3:20:33	13:40:24	0.38	-3.82	0.00	-20.98	
3:21:03	13:40:54	0.37	-3.83	0.00	-20.96	
3:21:33	13:41:24	0.38	-3.82	0.00	-20.96	
3:22:03	13:41:54	0.38	-3.82	0.00	-20.92	
3:22:33	13:42:24	0.34	-3.86	0.00	-20.89	
3:23:03	13:42:54	0.38	-3.82	0.00	-20.91	
3:23:33	13:43:24	0.35	-3.85	0.00	-20.85	
3:24:03	13:43:54	0.33	-3.87	0.00	-20.87	
3:24:33	13:44:24	0.36	-3.84	0.00	-20.95	
3:25:03	13:44:54	0.37	-3.83	0.00	-20.91	
3:25:33	13:45:24	0.39	-3.81	0.00	-20.93	
3:26:03	13:45:54	0.37	-3.83	0.00	-20.91	
3:26:33	13:46:24	0.36	-3.84	0.00	-20.94	
3:27:03	13:46:54	0.38	-3.82	0.00	-20.90	
3:27:33	13:47:24	0.40	-3.80	0.00	-20.91	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
3:28:03	13:47:54	0.38	-3.82	0.00	-20.91	
3:28:33	13:48:24	0.35	-3.85	0.00	-20.86	
3:29:03	13:48:54	0.30	-3.90	0.00	-20.74	
3:29:33	13:49:24	0.33	-3.87	0.00	-20.80	
3:30:03	13:49:54	0.34	-3.86	0.00	-20.81	
3:30:33	13:50:24	0.33	-3.87	0.00	-20.79	
3:31:03	13:50:54	0.32	-3.88	0.00	-20.78	
3:31:33	13:51:24	0.36	-3.84	0.00	-20.84	
3:32:03	13:51:54	0.37	-3.83	0.00	-20.86	
3:32:33	13:52:24	0.35	-3.85	0.00	-20.84	
3:33:03	13:52:54	0.36	-3.84	0.00	-20.84	
3:33:33	13:53:24	0.36	-3.84	0.00	-20.82	
3:34:03	13:53:54	0.33	-3.87	0.00	-20.82	
3:34:33	13:54:24	0.37	-3.83	0.00	-20.84	
3:35:03	13:54:54	0.35	-3.85	0.00	-20.79	
3:35:33	13:55:24	0.37	-3.83	0.00	-20.69	
3:36:03	13:55:54	0.33	-3.87	0.00	-20.72	
3:36:33	13:56:24	0.31	-3.89	0.00	-20.76	
3:37:03	13:56:54	0.34	-3.86	0.00	-20.75	
3:37:33	13:57:24	0.30	-3.90	0.00	-20.76	
3:38:03	13:57:54	0.34	-3.86	0.00	-20.80	
3:38:33	13:58:24	0.35	-3.85	0.00	-20.83	
3:39:03	13:58:54	0.33	-3.87	0.00	-20.80	
3:39:33	13:59:24	0.36	-3.84	0.00	-20.86	
3:40:03	13:59:54	0.35	-3.85	0.00	-20.83	
3:40:33	14:00:24	0.29	-3.91	0.00	-20.81	
3:41:03	14:00:54	0.33	-3.87	0.00	-20.87	
3:41:33	14:01:24	0.33	-3.87	0.00	-20.87	
3:42:03	14:01:54	0.34	-3.86	0.00	-20.77	
3:42:33	14:02:24	0.30	-3.90	0.00	-20.75	
3:43:03	14:02:54	0.30	-3.90	0.00	-20.76	
3:43:33	14:03:24	0.30	-3.90	0.00	-20.72	
3:44:03	14:03:54	0.28	-3.92	0.00	-20.72	
3:44:33	14:04:24	0.35	-3.85	0.00	-20.78	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
3:45:03	14:04:54	0.34	-3.86	0.00	-20.80	
3:45:33	14:05:24	0.34	-3.86	0.00	-20.71	
3:46:03	14:05:54	0.33	-3.87	0.00	-20.82	
3:46:33	14:06:24	0.33	-3.87	0.00	-20.85	
3:47:03	14:06:54	0.34	-3.86	0.00	-20.86	
3:47:33	14:07:24	0.30	-3.90	0.00	-20.86	
3:48:03	14:07:54	0.32	-3.88	0.00	-20.85	
3:48:33	14:08:24	0.31	-3.89	0.00	-20.83	
3:49:03	14:08:54	0.27	-3.93	0.00	-20.70	
3:49:33	14:09:24	0.28	-3.92	0.00	-20.76	
3:50:03	14:09:54	0.32	-3.88	0.00	-20.76	
3:50:33	14:10:24	0.30	-3.90	0.00	-20.82	
3:51:03	14:10:54	0.29	-3.91	0.00	-20.80	
3:51:33	14:11:24	0.30	-3.90	0.00	-20.83	
3:52:03	14:11:54	0.32	-3.88	0.00	-20.86	
3:52:33	14:12:24	0.28	-3.92	0.00	-20.79	
3:53:03	14:12:54	0.32	-3.88	0.00	-20.85	
3:53:33	14:13:24	0.33	-3.87	0.00	-20.86	
3:54:03	14:13:54	0.31	-3.89	0.00	-20.74	
3:54:33	14:14:24	0.33	-3.87	0.00	-20.84	
3:55:03	14:14:54	0.32	-3.88	0.00	-20.83	
3:55:33	14:15:24	0.30	-3.90	0.00	-20.79	
3:56:03	14:15:54	0.26	-3.94	0.00	-20.70	
3:56:33	14:16:24	0.30	-3.90	0.00	-20.76	
3:57:03	14:16:54	0.29	-3.91	0.00	-20.78	
3:57:33	14:17:24	0.31	-3.89	0.00	-20.78	
3:58:03	14:17:54	0.31	-3.89	0.00	-20.77	
3:58:33	14:18:24	0.31	-3.89	0.00	-20.81	
3:59:03	14:18:54	0.31	-3.89	0.00	-20.81	
3:59:33	14:19:24	0.29	-3.91	0.00	-20.79	
4:00:03	14:19:54	0.33	-3.87	0.00	-20.80	
4:00:33	14:20:24	0.34	-3.86	0.00	-20.84	
4:01:03	14:20:54	0.35	-3.85	0.00	-20.72	
4:01:33	14:21:24	0.30	-3.90	0.00	-20.78	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
4:02:03	14:21:54	0.31	-3.89	0.00	-20.74	
4:02:33	14:22:24	0.30	-3.90	0.00	-20.73	
4:03:03	14:22:54	0.28	-3.92	0.00	-20.70	
4:03:33	14:23:24	0.27	-3.93	0.00	-20.72	
4:04:03	14:23:54	0.29	-3.91	0.00	-20.77	
4:04:33	14:24:24	0.35	-3.85	0.00	-20.73	
4:05:03	14:24:54	0.33	-3.87	0.00	-20.68	
4:05:33	14:25:24	0.28	-3.92	0.00	-20.75	
4:06:03	14:25:54	0.32	-3.88	0.00	-20.85	
4:06:33	14:26:24	3.31	-3.88	0.00	-10.70	pump and blower off
4:07:03	14:26:54	0.10	-4.10	0.00	0.01	
4:07:33	14:27:24	0.10	-4.10	0.00	0.03	
4:08:03	14:27:54	0.10	-4.10	0.00	0.03	
4:08:33	14:28:24	0.11	-4.09	0.00	0.02	
4:09:03	14:28:54	0.11	-4.09	0.00	0.03	
4:09:33	14:29:24	0.09	-4.11	0.00	0.03	
4:10:07	14:29:58	0.12	-4.08	0.00	0.03	
4:10:33	14:30:24	0.11	-4.09	0.00	0.04	
4:11:03	14:30:54	0.10	-4.10	0.00	0.02	
4:11:33	14:31:24	0.08	-4.12	0.00	0.03	
4:12:03	14:31:54	0.10	-4.10	0.00	0.04	
4:12:33	14:32:24	0.12	-4.08	0.00	0.01	
4:13:03	14:32:54	0.11	-4.09	0.00	0.03	
4:13:33	14:33:24	0.11	-4.09	0.00	0.03	
4:14:03	14:33:54	0.11	-4.09	0.00	0.02	
4:14:33	14:34:24	0.12	-4.08	0.00	0.01	
4:15:03	14:34:54	0.11	-4.09	0.00	0.04	
4:15:33	14:35:24	0.10	-4.10	0.00	0.04	
4:16:03	14:35:54	0.12	-4.08	0.00	0.03	
4:16:33	14:36:24	0.11	-4.09	0.00	0.03	
4:17:03	14:36:54	0.12	-4.08	0.00	0.01	
4:17:33	14:37:24	0.10	-4.10	0.00	0.06	
4:18:03	14:37:54	0.11	-4.09	0.00	0.02	
4:18:33	14:38:24	0.09	-4.11	0.00	0.03	

Table B-3

VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

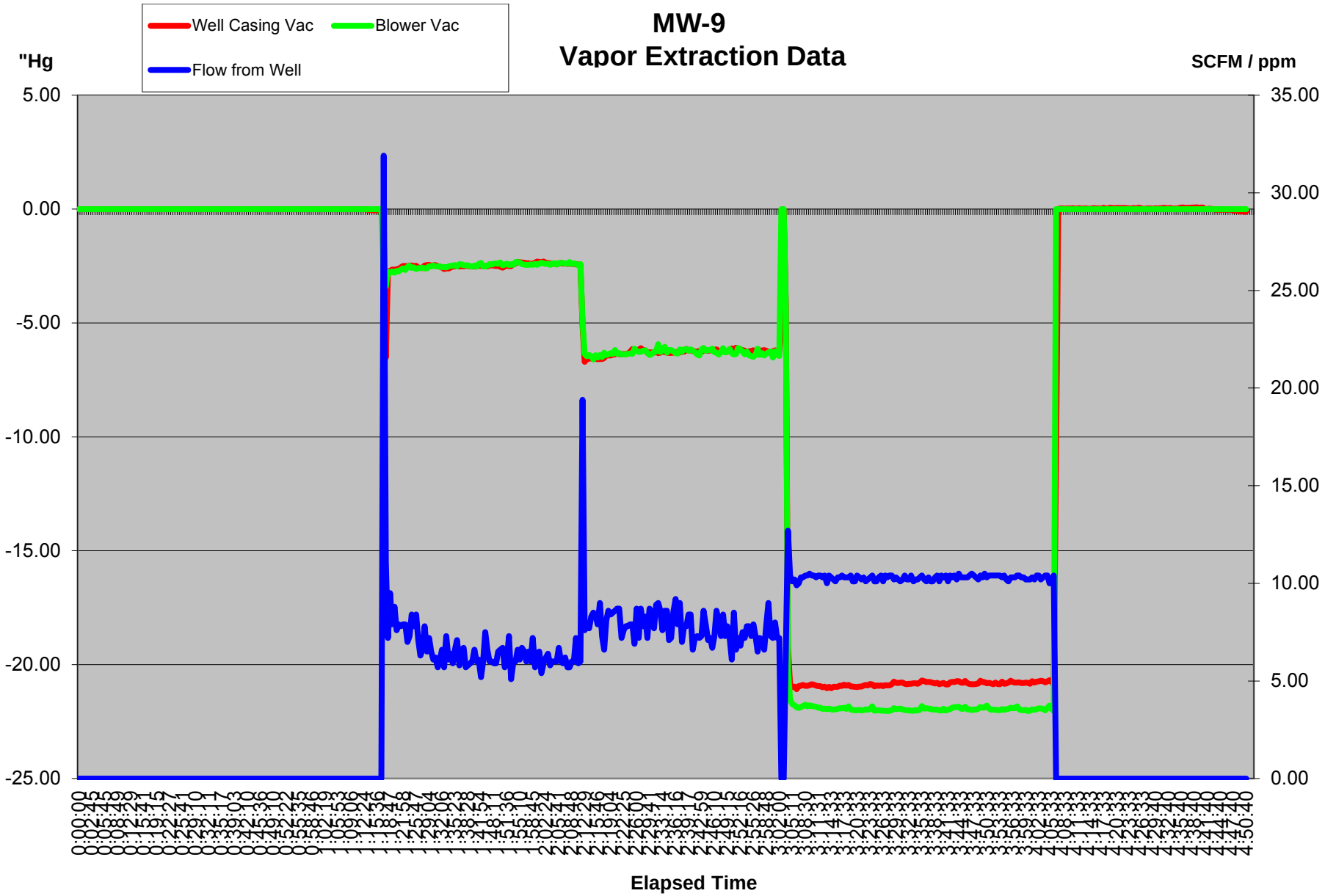
ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
4:19:03	14:38:54	0.10	-4.10	0.00	0.06	
4:19:33	14:39:24	0.11	-4.09	0.00	0.05	
4:20:03	14:39:54	0.13	-4.07	0.00	0.04	
4:20:33	14:40:24	0.12	-4.08	0.00	0.05	
4:21:03	14:40:54	0.12	-4.08	0.00	0.05	
4:21:33	14:41:24	0.12	-4.08	0.00	0.05	
4:22:03	14:41:54	0.11	-4.09	0.00	0.05	
4:22:34	14:42:25	0.14	-4.06	0.00	0.05	
4:23:03	14:42:54	0.11	-4.09	0.00	0.04	
4:23:33	14:43:24	0.11	-4.09	0.00	0.03	
4:24:03	14:43:54	0.12	-4.08	0.00	0.03	
4:24:33	14:44:24	0.12	-4.08	0.00	0.05	
4:25:03	14:44:54	0.11	-4.09	0.00	0.01	
4:25:33	14:45:24	0.09	-4.11	0.00	0.06	
4:26:03	14:45:54	0.11	-4.09	0.00	0.05	
4:26:33	14:46:24	0.10	-4.10	0.00	0.02	
4:27:03	14:46:54	0.10	-4.10	0.00	0.01	
4:27:33	14:47:24	0.10	-4.10	0.00	0.03	
4:28:03	14:47:54	0.13	-4.07	0.00	0.03	
4:28:33	14:48:24	0.10	-4.10	0.00	0.03	
4:29:03	14:48:54	0.17	-4.03	0.00	0.01	
4:29:40	14:49:31	0.22	-3.98	0.00	0.04	
4:30:10	14:50:01	0.27	-3.93	0.00	0.02	
4:30:40	14:50:31	0.34	-3.86	0.00	0.04	
4:31:10	14:51:01	0.35	-3.85	0.00	0.04	
4:31:40	14:51:31	0.36	-3.84	0.00	0.06	
4:32:10	14:52:01	0.43	-3.77	0.00	0.04	
4:32:40	14:52:31	0.46	-3.74	0.00	0.04	
4:33:10	14:53:01	0.49	-3.71	0.00	0.05	
4:33:40	14:53:31	0.53	-3.67	0.00	0.02	
4:34:10	14:54:01	0.56	-3.64	0.00	0.03	
4:34:40	14:54:31	0.60	-3.60	0.00	0.02	
4:35:10	14:55:01	0.65	-3.55	0.00	0.05	
4:35:40	14:55:31	0.65	-3.55	0.00	0.07	

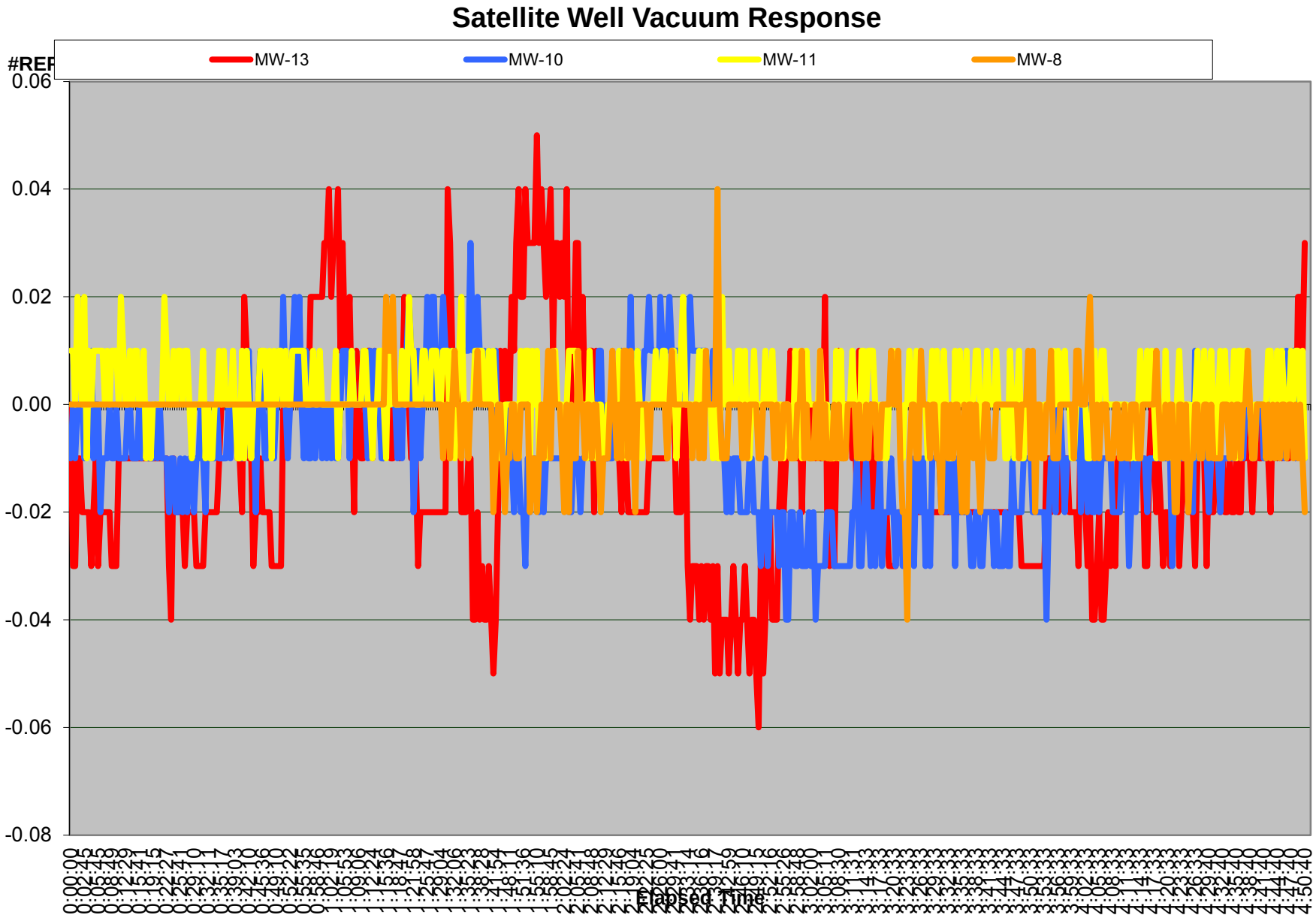
Table B-3

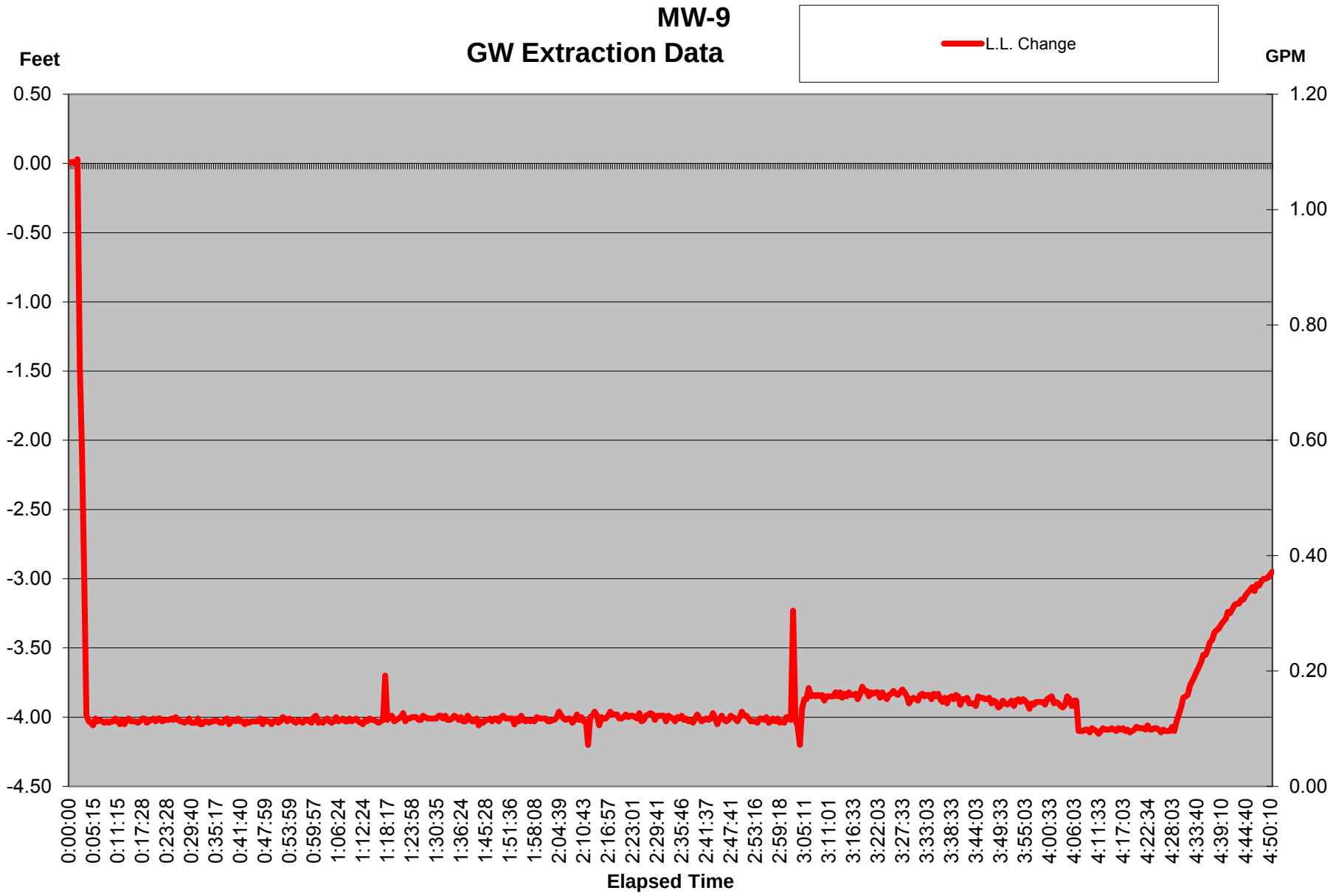
VEGE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9 #REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Comments
		#REF!		#REF!	#REF!	Click to add a comment
4:36:10	14:56:01	0.69	-3.51	0.00	0.07	
4:36:40	14:56:31	0.74	-3.46	0.00	0.05	
4:37:10	14:57:01	0.76	-3.44	0.00	0.06	
4:37:40	14:57:31	0.81	-3.39	0.00	0.06	
4:38:10	14:58:01	0.83	-3.37	0.00	0.07	
4:38:40	14:58:31	0.84	-3.36	0.00	0.07	
4:39:10	14:59:01	0.87	-3.33	0.00	0.08	
4:39:40	14:59:31	0.89	-3.31	0.00	0.06	
4:40:10	15:00:01	0.91	-3.29	0.00	0.07	
4:40:40	15:00:31	0.96	-3.24	0.00	0.07	
4:41:10	15:01:01	0.95	-3.25	0.00	0.00	
4:41:40	15:01:31	0.98	-3.22	0.00	0.01	
4:42:10	15:02:01	1.01	-3.19	0.00	0.02	
4:42:40	15:02:31	1.02	-3.18	0.00	0.01	
4:43:10	15:03:01	1.02	-3.18	0.00	0.00	
4:43:40	15:03:31	1.05	-3.15	0.00	-0.03	
4:44:10	15:04:01	1.05	-3.15	0.00	-0.01	
4:44:40	15:04:31	1.08	-3.12	0.00	-0.03	
4:45:10	15:05:01	1.10	-3.10	0.00	-0.01	
4:45:40	15:05:31	1.12	-3.08	0.00	-0.02	
4:46:10	15:06:01	1.14	-3.06	0.00	-0.03	
4:46:40	15:06:31	1.11	-3.09	0.00	-0.01	
4:47:10	15:07:01	1.16	-3.04	0.00	-0.03	
4:47:40	15:07:31	1.15	-3.05	0.00	-0.07	
4:48:10	15:08:01	1.18	-3.02	0.00	-0.07	
4:48:40	15:08:31	1.20	-3.00	0.00	-0.08	
4:49:10	15:09:01	1.20	-3.00	0.00	-0.11	
4:49:40	15:09:31	1.21	-2.99	0.00	-0.09	
4:50:10	15:10:01	1.23	-2.97	0.00	-0.12	
4:50:40	15:10:31	1.25	-2.95	0.00	-0.11	


MW-9
Vapor Extraction Data
Well Casing Vac
Blower Vac
Flow from Well
"Hg
SCFM / ppm
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
Elapsed Time


Satellite Well Vacuum Response
#REF
MW-13
MW-10
MW-11
MW-8
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
Elapsed Time


MW-9
GW Extraction Data
L.L. Change
Feet
GPM
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
-4.00
-4.50
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0:00:00
0:05:15
0:11:15
0:17:28
0:23:28
0:29:40
0:35:17
0:41:40
0:47:59
0:53:59
0:59:57
1:06:24
1:12:24
1:18:17
1:23:58
1:30:35
1:36:24
1:45:28
1:51:36
1:58:08
2:04:39
2:10:43
2:16:57
2:23:01
2:29:41
2:35:46
2:41:37
2:47:41
2:53:16
2:59:18
3:05:11
3:11:01
3:16:33
3:22:03
3:27:33
3:33:03
3:38:33
3:44:03
3:49:33
3:55:03
4:00:33
4:06:03
4:11:33
4:17:03
4:22:34
4:28:03
4:33:40
4:39:10
4:44:40
4:50:10
Elapsed Time

Satellite Well L.L. Change

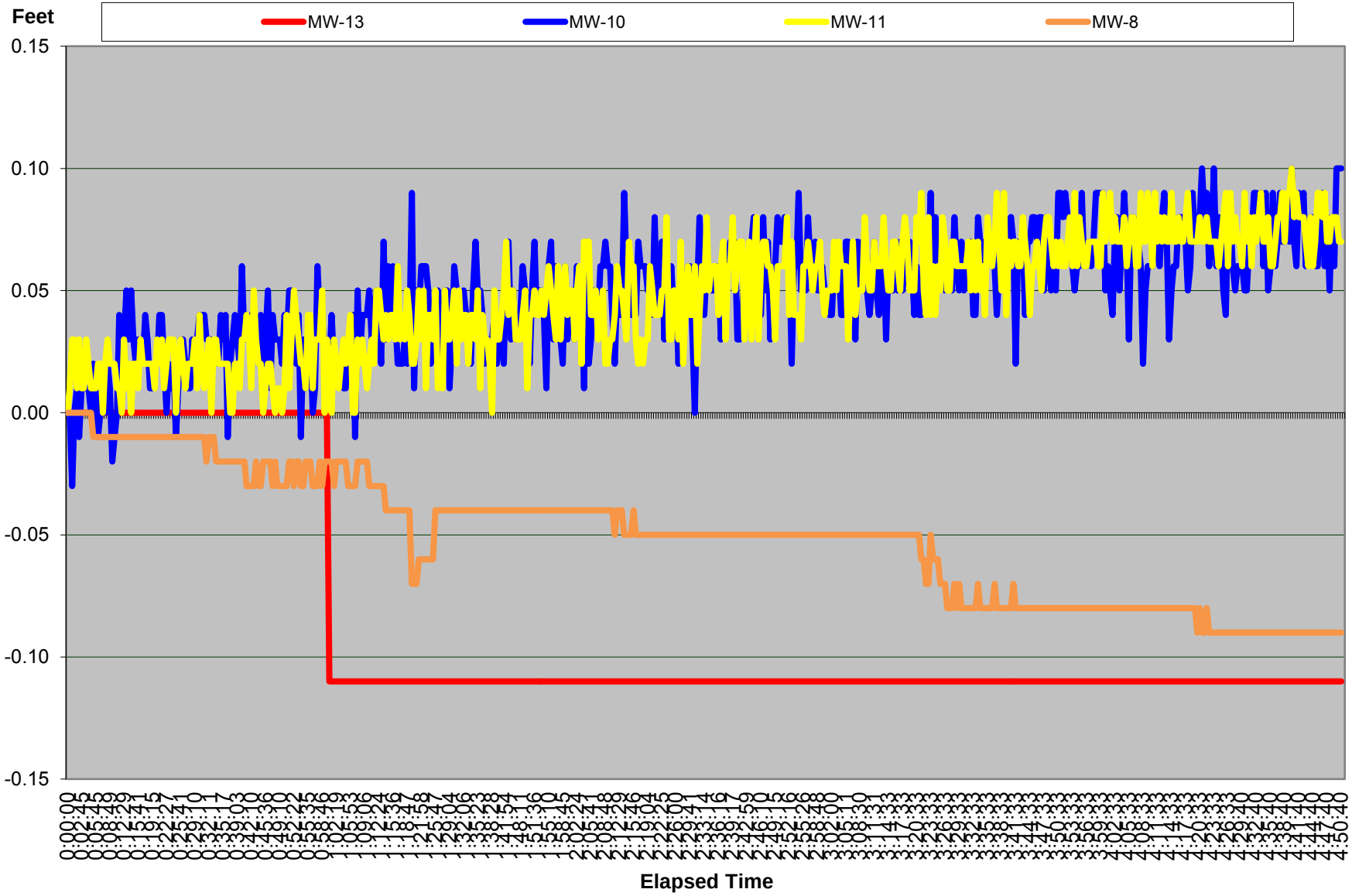


Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:00:00	15:39:07	0.00	0.00	74.70	-22.50	
0:00:24	15:39:32	0.00	0.00	74.60	-22.50	
0:00:54	15:40:02	-0.24	2.90	74.30	19.18	START TPE TEST - STRAW SET @ ~28' BGS
0:01:24	15:40:32	-11.89	36.20	84.00	33.49	
0:01:54	15:41:02	-20.85	11.50	87.30	33.49	
0:02:24	15:41:32	-21.98	9.50	86.40	6.70	
0:02:54	15:42:02	-21.83	9.80	85.90	6.70	
0:03:24	15:42:32	-21.98	9.70	86.40	6.70	
0:03:54	15:43:02	-21.94	9.80	87.10	6.70	
0:04:24	15:43:32	-22.15	9.50	88.50	6.70	
0:04:54	15:44:02	-22.12	9.50	89.70	6.70	
0:05:24	15:44:32	-22.05	9.30	90.90	6.70	
0:05:54	15:45:02	-22.02	9.60	92.00	6.70	
0:06:24	15:45:32	-22.02	9.80	92.70	6.70	
0:06:54	15:46:02	-21.97	9.60	94.20	6.70	
0:07:24	15:46:32	-22.18	9.40	95.00	6.70	
0:07:54	15:47:02	-22.05	9.70	95.80	6.70	
0:08:24	15:47:32	-22.12	9.80	96.70	6.70	
0:08:54	15:48:02	-22.15	9.60	97.60	6.70	
0:09:24	15:48:32	-22.19	9.40	98.30	6.70	
0:09:54	15:49:02	-22.11	9.70	99.20	6.70	
0:10:24	15:49:32	-22.33	9.50	100.00	6.70	
0:10:54	15:50:02	-22.23	9.50	100.50	6.70	
0:11:24	15:50:32	-22.08	9.70	101.20	6.70	
0:11:54	15:51:02	-22.10	9.80	101.80	6.70	
0:12:24	15:51:32	-22.23	9.50	102.30	6.70	
0:12:54	15:52:02	-22.10	9.30	102.70	6.70	
0:13:24	15:52:32	-22.16	9.50	103.00	6.70	
0:13:54	15:53:02	-22.00	9.40	103.50	6.70	
0:14:24	15:53:32	-22.07	9.80	103.80	6.70	
0:14:54	15:54:02	-22.10	9.70	104.40	6.70	
0:15:24	15:54:32	-22.16	9.70	104.90	28.22	
0:15:54	15:55:02	-22.26	9.50	105.60	28.22	
0:16:24	15:55:32	-22.10	9.80	106.50	-29.63	
0:16:54	15:56:02	-22.31	9.10	107.00	-29.63	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:17:24	15:56:32	-22.15	9.70	107.40	-29.63	
0:17:54	15:57:02	-22.13	9.80	108.00	-29.63	
0:18:24	15:57:32	-22.21	9.70	108.40	-9.11	
0:18:54	15:58:02	-22.16	9.70	109.00	-5.06	
0:19:24	15:58:32	-22.21	9.50	109.30	-5.06	
0:19:54	15:59:02	-22.11	9.70	109.50	-5.06	
0:20:24	15:59:32	-22.14	9.60	110.00	-3.29	
0:20:54	16:00:02	-22.13	9.80	110.40	-7.65	
0:21:24	16:00:32	-22.33	9.00	110.60	-7.65	
0:21:54	16:01:02	-22.28	9.50	111.50	-7.65	
0:22:24	16:01:32	-22.15	9.50	111.50	-7.65	
0:22:54	16:02:02	-22.25	9.50	112.10	-4.90	
0:23:24	16:02:32	-22.26	9.80	113.00	-4.90	
0:23:54	16:03:02	-22.13	9.60	113.10	-4.90	
0:24:24	16:03:32	-22.38	9.10	113.50	-4.90	
0:24:54	16:04:02	-22.24	9.50	113.90	-4.90	
0:25:24	16:04:32	-22.36	9.50	114.30	-3.43	
0:25:54	16:05:02	-22.23	9.50	114.70	-1.88	
0:26:24	16:05:32	-22.17	9.30	115.00	0.00	
0:26:54	16:06:02	-22.00	9.70	115.00	0.00	
0:27:24	16:06:32	-22.11	9.60	115.30	0.00	
0:27:55	16:07:02	-22.25	9.20	115.30	0.00	
0:28:24	16:07:32	-22.21	9.60	115.80	0.00	
0:28:54	16:08:02	-22.02	9.80	116.00	0.00	
0:29:24	16:08:32	-22.28	9.30	116.30	0.00	
0:29:54	16:09:02	-22.09	9.50	116.70	0.00	
0:30:24	16:09:32	-22.14	9.70	117.10	0.22	
0:30:54	16:10:02	-22.19	9.70	117.30	0.22	
0:31:24	16:10:32	-22.05	9.80	117.50	0.22	
0:31:54	16:11:02	-22.12	9.50	117.70	0.22	
0:32:24	16:11:32	-22.13	9.70	118.20	0.40	
0:32:54	16:12:02	-22.00	9.70	118.30	0.10	
0:33:24	16:12:32	-21.97	9.60	118.40	0.10	
0:33:54	16:13:02	-22.13	9.30	118.60	0.10	
0:34:24	16:13:32	-22.04	9.40	118.40	0.62	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:34:54	16:14:02	-22.18	9.60	118.90	0.62	
0:35:24	16:14:32	-22.10	9.50	119.10	0.62	
0:35:54	16:15:02	-22.13	9.50	119.10	0.62	
0:36:24	16:15:32	-22.14	9.60	119.50	0.62	
0:36:54	16:16:02	-22.14	9.60	119.90	0.62	
0:37:24	16:16:32	-22.18	9.50	120.20	0.62	
0:37:54	16:17:02	-22.06	9.60	120.30	0.76	
0:38:24	16:17:32	-22.03	9.70	120.70	0.76	
0:38:54	16:18:02	-22.21	9.80	121.10	0.76	
0:39:24	16:18:32	-22.16	9.50	121.20	0.76	
0:39:54	16:19:02	-22.01	9.80	121.30	70.86	
0:40:24	16:19:32	-22.10	9.30	121.50	70.86	
0:40:54	16:20:02	-21.90	9.70	121.50	-13.22	
0:41:24	16:20:32	-21.99	9.70	121.60	-8.78	
0:41:54	16:21:02	-21.90	9.80	121.80	-8.78	
0:42:24	16:21:32	-21.94	9.70	122.00	-3.67	
0:42:54	16:22:02	-21.91	9.70	122.20	-3.67	
0:43:24	16:22:32	-22.19	9.20	122.30	-1.87	
0:43:54	16:23:02	-22.07	9.70	122.50	-1.87	
0:44:24	16:23:32	-21.91	9.80	122.70	-1.87	
0:44:54	16:24:02	-22.03	9.40	123.00	-1.87	
0:45:24	16:24:32	-22.05	9.70	123.10	-1.87	
0:45:54	16:25:02	-22.10	9.80	123.40	-3.67	
0:46:24	16:25:32	-22.24	9.50	123.40	-3.67	
0:46:54	16:26:02	-22.14	9.50	123.50	-3.67	
0:47:24	16:26:32	-22.12	9.70	123.20	-3.67	
0:47:54	16:27:02	-22.19	9.20	123.30	-3.67	
0:48:24	16:27:32	-21.94	9.80	123.50	-3.67	
0:48:54	16:28:02	-21.97	9.70	123.80	-3.67	
0:49:24	16:28:32	-22.00	9.80	123.80	-3.67	
0:49:55	16:29:02	-22.15	9.70	124.10	-2.77	
0:50:25	16:29:32	-22.10	9.20	124.20	-2.77	
0:50:55	16:30:02	-22.03	9.60	124.30	-2.15	
0:51:25	16:30:32	-22.06	9.80	124.70	-0.94	
0:51:55	16:31:02	-22.10	9.60	124.80	-0.63	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
0:52:25	16:31:32	-22.05	9.70	125.00	-0.63	
0:52:55	16:32:02	-22.13	9.50	125.10	-0.39	
0:53:25	16:32:32	-22.00	9.90	125.20	-0.19	
0:53:55	16:33:02	0.00	0.00	117.70	-0.02	BLOWER OFF
0:54:25	16:33:32	0.00	0.00	114.20	-0.02	
0:54:55	16:34:02	0.00	0.00	113.10	-0.02	
0:55:25	16:34:32	0.00	0.00	112.20	-0.02	
0:55:55	16:35:02	0.00	0.00	111.40	0.13	
0:56:25	16:35:32	0.00	0.00	110.60	0.13	
0:56:55	16:36:02	0.00	0.00	109.80	0.25	
0:57:25	16:36:32	0.00	0.00	109.00	0.25	
0:57:55	16:37:02	0.00	0.00	108.60	0.25	
0:58:25	16:37:32	0.00	0.00	107.70	0.25	
0:58:55	16:38:02	0.00	0.00	107.40	0.25	
0:59:25	16:38:32	0.00	0.00	106.80	0.25	
0:59:55	16:39:02	0.00	0.00	106.30	0.37	
1:00:25	16:39:32	0.00	0.00	105.90	0.37	
1:00:55	16:40:02	0.00	0.00	105.20	0.37	
1:01:25	16:40:32	0.00	0.00	104.90	0.37	
1:01:55	16:41:02	0.00	0.00	104.20	0.37	
1:02:25	16:41:32	0.00	0.00	104.10	0.37	
1:02:55	16:42:02	0.00	0.00	103.40	2.89	
1:03:25	16:42:32	0.00	0.00	103.10	2.89	
1:03:55	16:43:02	0.00	0.00	102.60	2.89	
1:04:25	16:43:32	0.00	0.00	102.40	2.89	
1:04:55	16:44:02	0.00	0.00	101.90	2.89	
1:05:25	16:44:32	0.00	0.00	101.40	2.89	
1:05:55	16:45:02	0.00	0.00	101.00	2.89	
1:06:25	16:45:32	0.00	0.00	100.80	2.89	
1:06:55	16:46:02	0.00	0.00	100.20	2.89	
1:07:25	16:46:32	0.00	0.00	100.00	2.89	
1:07:55	16:47:02	0.00	0.00	99.60	2.89	
1:08:25	16:47:32	0.00	0.00	98.90	2.89	
1:08:55	16:48:02	0.00	0.00	98.90	2.89	
1:09:25	16:48:32	0.00	0.00	98.40	2.89	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	SVE Blower Vacuum	SVE Blower Influent Flow	SVE Discharge Temp	SVE ROI	Comments
		IN HG	SCFM	DEG F	Feet	Click to add a comment
1:09:55	16:49:02	0.00	0.00	98.00	2.89	
1:10:25	16:49:32	0.00	0.00	97.80	2.89	

Figure B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:00:00	15:39:07	-9.25	0.00	0.01	9.04	0.00	0.00	12.11	0.00	0.01	7.64	0.00	0.00	
0:00:24	15:39:32	-9.25	0.00	-0.01	9.03	-0.01	0.02	12.10	-0.01	0.00	7.64	0.00	-0.02	
0:00:54	15:40:02	-9.25	0.00	-0.02	9.05	0.01	0.01	12.11	0.00	0.00	7.64	0.00	0.00	START TPE TEST - STRAW SET @ ~28' BGS
0:01:24	15:40:32	-9.25	0.00	0.00	9.02	-0.02	0.01	12.11	0.00	0.00	7.64	0.00	-0.02	
0:01:54	15:41:02	-9.25	0.00	0.01	9.04	0.00	0.00	12.12	0.01	-0.01	7.64	0.00	-0.01	
0:02:24	15:41:32	-9.25	0.00	0.00	9.02	-0.02	-0.01	12.12	0.01	-0.01	7.64	0.00	-0.02	
0:02:54	15:42:02	-9.25	0.00	-0.02	9.05	0.01	0.01	12.10	-0.01	0.01	7.64	0.00	0.00	
0:03:24	15:42:32	-9.25	0.00	-0.01	9.02	-0.02	0.00	12.12	0.01	-0.01	7.64	0.00	-0.01	
0:03:54	15:43:02	-9.25	0.00	-0.02	9.04	0.00	0.01	12.10	-0.01	-0.01	7.64	0.00	-0.01	
0:04:24	15:43:32	-9.25	0.00	-0.02	9.05	0.01	0.02	12.13	0.02	0.00	7.64	0.00	0.00	
0:04:54	15:44:02	-9.25	0.00	-0.01	9.03	-0.01	0.02	12.11	0.00	-0.01	7.64	0.00	-0.01	
0:05:24	15:44:32	-9.25	0.00	-0.01	9.04	0.00	0.02	12.11	0.00	0.00	7.64	0.00	-0.01	
0:05:54	15:45:02	-9.25	0.00	-0.01	9.06	0.02	0.03	12.12	0.01	0.00	7.64	0.00	-0.01	
0:06:24	15:45:32	-9.25	0.00	-0.01	9.04	0.00	0.03	12.11	0.00	0.00	7.64	0.00	-0.01	
0:06:54	15:46:02	-9.25	0.00	-0.01	9.04	0.00	0.03	12.11	0.00	0.01	7.64	0.00	0.00	
0:07:24	15:46:32	-9.25	0.00	0.00	9.04	0.00	0.04	12.14	0.03	0.01	7.64	0.00	0.00	
0:07:54	15:47:02	-9.25	0.00	0.00	9.05	0.01	0.03	12.11	0.00	0.01	7.64	0.00	-0.01	
0:08:24	15:47:32	-9.25	0.00	0.00	9.03	-0.01	0.03	12.10	-0.01	0.01	7.64	0.00	-0.01	
0:08:54	15:48:02	-9.25	0.00	0.01	9.05	0.01	0.04	12.12	0.01	0.00	7.64	0.00	-0.01	
0:09:24	15:48:32	-9.25	0.00	0.00	9.05	0.01	0.04	12.11	0.00	0.01	7.64	0.00	-0.01	
0:09:54	15:49:02	-9.25	0.00	0.00	9.01	-0.03	0.03	12.11	0.00	-0.01	7.64	0.00	-0.02	
0:10:24	15:49:32	-9.25	0.00	0.01	9.02	-0.02	0.03	12.13	0.02	0.00	7.64	0.00	-0.01	
0:10:54	15:50:02	-9.25	0.00	0.01	9.05	0.01	0.02	12.12	0.01	0.00	7.64	0.00	-0.01	
0:11:24	15:50:32	-9.25	0.00	0.01	9.05	0.01	0.02	12.12	0.01	0.01	7.64	0.00	-0.01	
0:11:54	15:51:02	-9.25	0.00	0.00	9.04	0.00	0.02	12.12	0.01	0.01	7.64	0.00	-0.01	
0:12:24	15:51:32	-9.25	0.00	0.01	9.00	-0.04	0.03	12.13	0.02	-0.01	7.64	0.00	-0.02	
0:12:54	15:52:02	-9.25	0.00	0.01	9.05	0.01	0.01	12.11	0.00	0.00	7.64	0.00	-0.01	
0:13:24	15:52:32	-9.25	0.00	0.00	9.05	0.01	0.01	12.11	0.00	0.00	7.64	0.00	-0.01	

Figure B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:13:54	15:53:02	-9.25	0.00	0.00	9.02	-0.02	0.01	12.12	0.01	0.00	7.64	0.00	-0.01	
0:14:24	15:53:32	-9.25	0.00	0.00	9.04	0.00	0.00	12.12	0.01	0.00	7.64	0.00	-0.01	
0:14:54	15:54:02	-9.25	0.00	-0.01	9.06	0.02	0.01	12.12	0.01	-0.02	7.64	0.00	-0.01	
0:15:24	15:54:32	-9.25	0.00	-0.02	9.06	0.02	0.01	12.10	-0.01	0.00	7.64	0.00	0.00	
0:15:54	15:55:02	-9.25	0.00	-0.03	9.06	0.02	0.00	12.13	0.02	0.00	7.64	0.00	-0.01	
0:16:24	15:55:32	-9.25	0.00	-0.03	9.00	-0.04	0.00	12.12	0.01	0.00	7.64	0.00	-0.01	
0:16:54	15:56:02	-9.25	0.00	-0.03	9.07	0.03	0.01	12.10	-0.01	-0.01	7.64	0.00	-0.01	
0:17:24	15:56:32	-9.25	0.00	-0.03	9.03	-0.01	0.00	12.10	-0.01	-0.01	7.64	0.00	-0.01	
0:17:54	15:57:02	-9.25	0.00	-0.03	9.05	0.01	0.00	12.12	0.01	-0.01	7.64	0.00	-0.01	
0:18:24	15:57:32	-9.25	0.00	-0.03	9.05	0.01	0.00	12.12	0.01	0.01	7.64	0.00	-0.02	
0:18:54	15:58:02	-9.25	0.00	-0.03	9.04	0.00	0.00	12.13	0.02	-0.01	7.64	0.00	-0.01	
0:19:24	15:58:32	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.13	0.02	-0.01	7.64	0.00	-0.01	
0:19:54	15:59:02	-9.25	0.00	-0.03	9.01	-0.03	0.00	12.14	0.03	0.00	7.64	0.00	-0.02	
0:20:24	15:59:32	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.10	-0.01	-0.01	7.64	0.00	-0.03	
0:20:54	16:00:02	-9.25	0.00	-0.03	9.07	0.03	-0.01	12.11	0.00	0.00	7.64	0.00	-0.02	
0:21:24	16:00:32	-9.25	0.00	-0.03	9.05	0.01	0.00	12.12	0.01	0.00	7.64	0.00	-0.02	
0:21:54	16:01:02	-9.25	0.00	-0.03	9.07	0.03	-0.01	12.10	-0.01	0.00	7.64	0.00	-0.01	
0:22:24	16:01:32	-9.25	0.00	-0.03	9.05	0.01	0.00	12.11	0.00	0.00	7.64	0.00	-0.02	
0:22:54	16:02:02	-9.25	0.00	-0.03	9.07	0.03	0.00	12.10	-0.01	-0.01	7.64	0.00	-0.02	
0:23:24	16:02:32	-9.25	0.00	-0.03	9.06	0.02	-0.01	12.11	0.00	-0.01	7.64	0.00	-0.02	
0:23:54	16:03:02	-9.25	0.00	-0.03	9.04	0.00	-0.01	12.13	0.02	-0.01	7.64	0.00	0.00	
0:24:24	16:03:32	-9.25	0.00	-0.03	9.04	0.00	-0.01	12.11	0.00	-0.01	7.64	0.00	-0.01	
0:24:54	16:04:02	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.11	0.00	0.00	7.64	0.00	-0.01	
0:25:24	16:04:32	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.11	0.00	0.00	7.64	0.00	-0.01	
0:25:54	16:05:02	-9.25	0.00	-0.03	9.06	0.02	-0.03	12.11	0.00	0.00	7.64	0.00	-0.01	
0:26:24	16:05:32	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.11	0.00	0.01	7.64	0.00	-0.01	
0:26:54	16:06:02	-9.25	0.00	-0.03	9.06	0.02	-0.02	12.13	0.02	-0.01	7.64	0.00	-0.01	
0:27:24	16:06:32	-9.25	0.00	-0.03	9.04	0.00	-0.01	12.11	0.00	0.00	7.64	0.00	-0.01	

Figure B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:27:55	16:07:02	-9.25	0.00	-0.03	9.02	-0.02	-0.01	12.12	0.01	0.00	7.64	0.00	0.00	
0:28:24	16:07:32	-9.25	0.00	-0.03	9.07	0.03	0.00	12.10	-0.01	0.00	7.64	0.00	-0.01	
0:28:54	16:08:02	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.13	0.02	0.00	7.64	0.00	-0.01	
0:29:24	16:08:32	-9.25	0.00	-0.03	9.05	0.01	-0.01	12.12	0.01	0.00	7.64	0.00	-0.01	
0:29:54	16:09:02	-9.25	0.00	-0.03	9.04	0.00	-0.02	12.12	0.01	0.00	7.64	0.00	-0.01	
0:30:24	16:09:32	-9.25	0.00	-0.03	9.05	0.01	-0.02	12.11	0.00	0.01	7.64	0.00	-0.02	
0:30:54	16:10:02	-9.25	0.00	-0.03	9.04	0.00	-0.02	12.09	-0.02	0.01	7.64	0.00	-0.02	
0:31:24	16:10:32	-9.25	0.00	-0.03	9.03	-0.01	-0.01	12.12	0.01	0.00	7.64	0.00	-0.01	
0:31:54	16:11:02	-9.25	0.00	-0.03	9.05	0.01	-0.02	12.13	0.02	0.00	7.64	0.00	-0.01	
0:32:24	16:11:32	-9.25	0.00	-0.03	9.06	0.02	-0.02	12.11	0.00	-0.01	7.64	0.00	-0.04	
0:32:54	16:12:02	-9.25	0.00	-0.03	9.04	0.00	-0.03	12.10	-0.01	0.00	7.64	0.00	-0.03	
0:33:24	16:12:32	-9.25	0.00	-0.03	9.04	0.00	-0.03	12.13	0.02	0.00	7.64	0.00	-0.01	
0:33:54	16:13:02	-9.25	0.00	-0.03	9.05	0.01	-0.04	12.10	-0.01	0.00	7.64	0.00	-0.01	
0:34:24	16:13:32	-9.25	0.00	-0.03	9.02	-0.02	-0.03	12.11	0.00	0.01	7.64	0.00	-0.03	
0:34:54	16:14:02	-9.25	0.00	-0.03	9.03	-0.01	-0.04	12.10	-0.01	-0.01	7.64	0.00	-0.03	
0:35:24	16:14:32	-9.25	0.00	-0.03	9.04	0.00	-0.04	12.11	0.00	0.01	7.62	-0.02	-0.02	
0:35:54	16:15:02	-9.25	0.00	-0.03	9.03	-0.01	-0.03	12.11	0.00	0.01	7.63	-0.01	-0.01	
0:36:24	16:15:32	-9.25	0.00	-0.03	9.05	0.01	-0.04	12.11	0.00	-0.01	7.64	0.00	0.00	
0:36:54	16:16:02	-9.25	0.00	-0.03	9.04	0.00	-0.04	12.12	0.01	-0.01	7.64	0.00	-0.02	
0:37:24	16:16:32	-9.25	0.00	-0.03	9.06	0.02	-0.02	12.09	-0.02	-0.01	7.63	-0.01	-0.02	
0:37:54	16:17:02	-9.25	0.00	-0.03	9.04	0.00	-0.03	12.09	-0.02	-0.01	7.64	0.00	-0.01	
0:38:24	16:17:32	-9.25	0.00	-0.03	9.06	0.02	-0.04	12.08	-0.03	0.00	7.64	0.00	-0.01	
0:38:54	16:18:02	-9.25	0.00	-0.03	9.06	0.02	-0.04	12.13	0.02	0.00	7.64	0.00	-0.01	
0:39:24	16:18:32	-9.25	0.00	-0.03	9.04	0.00	-0.03	12.12	0.01	0.01	7.64	0.00	-0.03	
0:39:54	16:19:02	-9.25	0.00	-0.03	9.05	0.01	-0.04	12.12	0.01	-0.01	7.64	0.00	-0.02	
0:40:24	16:19:32	-9.25	0.00	-0.04	9.02	-0.02	-0.04	12.12	0.01	-0.01	7.64	0.00	-0.01	
0:40:54	16:20:02	-9.25	0.00	-0.03	9.04	0.00	-0.05	12.10	-0.01	0.02	7.64	0.00	-0.02	
0:41:24	16:20:32	-9.25	0.00	-0.02	9.06	0.02	-0.04	12.13	0.02	0.00	7.63	-0.01	-0.01	

Figure B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:41:54	16:21:02	-9.25	0.00	-0.05	9.01	-0.03	-0.03	12.10	-0.01	-0.01	7.62	-0.02	-0.01	
0:42:24	16:21:32	-9.25	0.00	-0.04	9.05	0.01	-0.04	12.11	0.00	0.01	7.62	-0.02	-0.02	
0:42:54	16:22:02	-9.25	0.00	-0.04	9.07	0.03	-0.03	12.10	-0.01	-0.01	7.62	-0.02	-0.02	
0:43:24	16:22:32	-9.25	0.00	-0.04	9.06	0.02	-0.03	12.12	0.01	0.00	7.64	0.00	-0.01	
0:43:54	16:23:02	-9.25	0.00	-0.04	9.05	0.01	-0.04	12.14	0.03	-0.01	7.64	0.00	-0.01	
0:44:24	16:23:32	-9.25	0.00	-0.04	9.04	0.00	-0.03	12.13	0.02	0.01	7.63	-0.01	-0.01	
0:44:54	16:24:02	-9.25	0.00	-0.04	9.06	0.02	-0.04	12.09	-0.02	0.00	7.64	0.00	-0.01	
0:45:24	16:24:32	-9.25	0.00	-0.02	9.05	0.01	-0.04	12.13	0.02	-0.01	7.62	-0.02	-0.02	
0:45:54	16:25:02	-9.25	0.00	-0.04	9.04	0.00	-0.03	12.11	0.00	0.00	7.62	-0.02	-0.02	
0:46:24	16:25:32	-9.25	0.00	-0.03	9.05	0.01	-0.04	12.11	0.00	-0.01	7.64	0.00	-0.03	
0:46:54	16:26:02	-9.25	0.00	-0.03	9.03	-0.01	-0.03	12.11	0.00	0.00	7.63	-0.01	-0.02	
0:47:24	16:26:32	-9.25	0.00	-0.04	9.07	0.03	-0.03	12.12	0.01	0.00	7.62	-0.02	-0.02	
0:47:54	16:27:02	-9.25	0.00	-0.04	9.06	0.02	-0.03	12.10	-0.01	-0.01	7.63	-0.01	-0.02	
0:48:24	16:27:32	-9.25	0.00	-0.02	9.07	0.03	-0.03	12.10	-0.01	0.00	7.62	-0.02	-0.01	
0:48:54	16:28:02	-9.25	0.00	-0.04	9.02	-0.02	-0.05	12.12	0.01	0.00	7.62	-0.02	-0.01	
0:49:24	16:28:32	-9.25	0.00	-0.05	9.06	0.02	-0.06	12.12	0.01	-0.02	7.64	0.00	-0.02	
0:49:55	16:29:02	-9.25	0.00	-0.03	9.03	-0.01	-0.06	12.14	0.03	0.00	7.64	0.00	-0.01	
0:50:25	16:29:32	-9.25	0.00	-0.05	9.03	-0.01	-0.07	12.13	0.02	0.00	7.64	0.00	-0.03	
0:50:55	16:30:02	-9.25	0.00	-0.06	9.08	0.04	-0.07	12.12	0.01	-0.01	7.64	0.00	0.00	
0:51:25	16:30:32	-9.25	0.00	-0.05	9.07	0.03	-0.07	12.12	0.01	0.00	7.64	0.00	-0.01	
0:51:55	16:31:02	-9.25	0.00	-0.05	9.03	-0.01	-0.07	12.12	0.01	0.00	7.62	-0.02	-0.02	
0:52:24	16:31:32	-9.25	0.00	-0.05	9.06	0.02	-0.06	12.12	0.01	0.00	7.62	-0.02	-0.02	
0:52:55	16:32:02	-9.25	0.00	-0.04	9.04	0.00	-0.05	12.13	0.02	-0.01	7.62	-0.02	-0.04	
0:53:25	16:32:32	-9.25	0.00	-0.05	9.05	0.01	-0.06	12.12	0.01	0.00	7.64	0.00	-0.01	
0:53:55	16:33:02	-9.25	0.00	-0.03	9.03	-0.01	-0.07	12.11	0.00	0.00	7.63	-0.01	-0.02	BLOWER OFF
0:54:25	16:33:32	-9.25	0.00	-0.04	9.01	-0.03	-0.05	12.13	0.02	0.00	7.64	0.00	-0.02	
0:54:55	16:34:02	-9.25	0.00	-0.05	9.08	0.04	-0.04	12.12	0.01	-0.01	7.64	0.00	-0.02	
0:55:25	16:34:32	-9.25	0.00	-0.03	9.03	-0.01	-0.03	12.12	0.01	0.00	7.64	0.00	-0.02	

Figure B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
0:55:55	16:35:02	-9.25	0.00	-0.03	9.06	0.02	-0.04	12.12	0.01	0.00	7.64	0.00	-0.02	
0:56:25	16:35:32	-9.25	0.00	-0.03	9.04	0.00	-0.03	12.12	0.01	0.00	7.63	-0.01	-0.02	
0:56:55	16:36:02	-9.25	0.00	-0.01	9.06	0.02	-0.01	12.13	0.02	-0.01	7.62	-0.02	-0.02	
0:57:25	16:36:32	-9.25	0.00	-0.02	9.07	0.03	0.00	12.13	0.02	-0.01	7.64	0.00	-0.02	
0:57:55	16:37:02	-9.25	0.00	-0.01	9.09	0.05	0.00	12.12	0.01	0.00	7.64	0.00	-0.02	
0:58:25	16:37:32	-9.25	0.00	-0.02	9.05	0.01	0.00	12.12	0.01	0.00	7.64	0.00	-0.02	
0:58:55	16:38:02	-9.25	0.00	-0.01	9.03	-0.01	0.00	12.11	0.00	-0.01	7.64	0.00	-0.02	
0:59:25	16:38:32	-9.25	0.00	0.01	9.05	0.01	0.00	12.12	0.01	0.00	7.63	-0.01	-0.03	
0:59:55	16:39:02	-9.25	0.00	0.02	9.06	0.02	0.00	12.12	0.01	0.00	7.64	0.00	-0.02	
1:00:25	16:39:32	-9.25	0.00	0.01	9.06	0.02	0.00	12.12	0.01	-0.01	7.64	0.00	-0.03	
1:00:55	16:40:02	-9.25	0.00	0.00	9.05	0.01	0.00	12.14	0.03	-0.01	7.64	0.00	-0.03	
1:01:25	16:40:32	-9.25	0.00	0.00	9.05	0.01	0.00	12.11	0.00	-0.02	7.64	0.00	-0.03	
1:01:55	16:41:02	-9.25	0.00	0.00	9.03	-0.01	0.00	12.11	0.00	0.01	7.64	0.00	-0.03	
1:02:25	16:41:32	-9.25	0.00	0.00	9.06	0.02	0.00	12.13	0.02	-0.01	7.63	-0.01	-0.03	
1:02:55	16:42:02	-9.25	0.00	0.00	9.06	0.02	0.00	12.12	0.01	-0.01	7.62	-0.02	-0.03	
1:03:25	16:42:32	-9.25	0.00	0.00	9.07	0.03	0.00	12.13	0.02	-0.01	7.64	0.00	-0.02	
1:03:55	16:43:02	-9.25	0.00	0.00	9.08	0.04	0.00	12.13	0.02	-0.01	7.64	0.00	-0.01	
1:04:25	16:43:32	-9.25	0.00	0.00	9.04	0.00	0.00	12.12	0.01	0.00	7.62	-0.02	-0.03	
1:04:55	16:44:02	-9.25	0.00	0.00	9.06	0.02	0.00	12.12	0.01	-0.01	7.64	0.00	-0.03	
1:05:25	16:44:32	-9.25	0.00	0.00	9.05	0.01	0.00	12.14	0.03	0.00	7.63	-0.01	-0.03	
1:05:55	16:45:02	-9.25	0.00	0.00	9.06	0.02	0.00	12.14	0.03	-0.01	7.62	-0.02	-0.02	
1:06:25	16:45:32	-9.25	0.00	0.00	9.06	0.02	0.00	12.10	-0.01	-0.01	7.62	-0.02	-0.04	
1:06:55	16:46:02	-9.25	0.00	0.00	9.07	0.03	0.00	12.12	0.01	0.00	7.62	-0.02	-0.03	
1:07:25	16:46:32	-9.25	0.00	0.00	9.06	0.02	0.00	12.13	0.02	-0.02	7.62	-0.02	-0.03	
1:07:55	16:47:02	-9.25	0.00	0.00	9.07	0.03	0.00	12.10	-0.01	-0.01	7.63	-0.01	-0.02	
1:08:25	16:47:32	-9.25	0.00	0.00	9.05	0.01	0.00	12.14	0.03	-0.01	7.62	-0.02	-0.04	
1:08:55	16:48:02	-9.25	0.00	0.00	9.06	0.02	0.00	12.13	0.02	0.01	7.64	0.00	-0.04	
1:09:25	16:48:32	-9.25	0.00	0.00	9.04	0.00	0.00	12.13	0.02	-0.01	7.64	0.00	-0.03	

Figure B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 1 MW-13			RADIO 2 MW-10			RADIO 3 MW-11			RADIO 4 MW-8			Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Click to add a comment
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:09:55	16:49:02	-9.25	0.00	0.00	9.07	0.03	0.00	12.14	0.03	-0.01	7.63	-0.01	-0.03	
1:10:25	16:49:32	-9.25	0.00	0.00	9.07	0.03	0.00	12.13	0.02	-0.01	7.62	-0.02	-0.03	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well)				Comments
		MW-9				
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Click to add a comment
		#REF!		#REF!	#REF!	
0:00:00	15:39:07	6.07	0.00	0.00	0.02	
0:00:24	15:39:32	6.07	0.00	0.00	-0.01	
0:00:54	15:40:02	6.10	0.03	0.00	0.01	START TPE TEST - STRAW SET @ ~28' BGS
0:01:24	15:40:32	3.90	-2.17	0.00	-0.05	
0:01:54	15:41:02	3.39	-2.68	0.00	-11.78	
0:02:24	15:41:32	3.64	-2.43	0.00	-14.17	
0:02:54	15:42:02	3.57	-2.50	0.00	-14.34	
0:03:24	15:42:32	3.60	-2.47	0.00	-14.57	
0:03:54	15:43:02	3.49	-2.58	0.00	-14.83	
0:04:24	15:43:32	3.44	-2.63	0.00	-14.90	
0:04:54	15:44:02	3.50	-2.57	0.00	-15.22	
0:05:24	15:44:32	3.52	-2.55	0.00	-15.45	
0:05:54	15:45:02	3.43	-2.64	0.00	-15.44	
0:06:24	15:45:32	3.41	-2.66	0.00	-15.72	
0:06:54	15:46:02	3.39	-2.68	0.00	-15.87	
0:07:24	15:46:32	3.41	-2.66	0.00	-16.05	
0:07:54	15:47:02	3.48	-2.59	0.00	-16.29	
0:08:24	15:47:32	3.36	-2.71	0.00	-16.29	
0:08:54	15:48:02	3.47	-2.60	0.00	-16.33	
0:09:24	15:48:32	3.59	-2.48	0.00	-16.46	
0:09:54	15:49:02	3.50	-2.57	0.00	-16.46	
0:10:24	15:49:32	3.63	-2.44	0.00	-16.53	
0:10:54	15:50:02	3.60	-2.47	0.00	-16.70	
0:11:24	15:50:32	3.53	-2.54	0.00	-16.68	
0:11:54	15:51:02	3.65	-2.42	0.00	-16.75	
0:12:24	15:51:32	3.64	-2.43	0.00	-16.79	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9				Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Click to add a comment
		#REF!		#REF!	#REF!	
0:12:54	15:52:02	3.63	-2.44	0.00	-16.89	
0:13:24	15:52:32	3.54	-2.53	0.00	-16.78	
0:13:54	15:53:02	3.54	-2.53	0.00	-16.92	
0:14:24	15:53:32	3.41	-2.66	0.00	-17.01	
0:14:54	15:54:02	3.47	-2.60	0.00	-16.79	
0:15:24	15:54:32	3.38	-2.69	0.00	-16.95	
0:15:54	15:55:02	3.51	-2.56	0.00	-17.13	
0:16:24	15:55:32	3.25	-2.82	0.00	-16.79	
0:16:54	15:56:02	3.58	-2.49	0.00	-17.09	
0:17:24	15:56:32	3.47	-2.60	0.00	-17.18	
0:17:54	15:57:02	3.39	-2.68	0.00	-17.16	
0:18:24	15:57:32	3.30	-2.77	0.00	-17.04	
0:18:54	15:58:02	3.40	-2.67	0.00	-17.09	
0:19:24	15:58:32	3.37	-2.70	0.00	-17.23	
0:19:54	15:59:02	3.31	-2.76	0.00	-17.08	
0:20:24	15:59:32	3.36	-2.71	0.00	-17.03	
0:20:54	16:00:02	3.42	-2.65	0.00	-17.17	
0:21:24	16:00:32	3.34	-2.73	0.00	-17.21	
0:21:54	16:01:02	3.33	-2.74	0.00	-17.04	
0:22:24	16:01:32	3.44	-2.63	0.00	-17.16	
0:22:54	16:02:02	3.41	-2.66	0.00	-17.16	
0:23:24	16:02:32	3.42	-2.65	0.00	-17.08	
0:23:54	16:03:02	3.38	-2.69	0.00	-17.34	
0:24:24	16:03:32	3.45	-2.62	0.00	-17.15	
0:24:54	16:04:02	3.35	-2.72	0.00	-17.24	
0:25:24	16:04:32	3.39	-2.68	0.00	-17.13	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well)				Comments
		MW-9				
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	
		#REF!		#REF!	#REF!	Click to add a comment
0:25:54	16:05:02	3.41	-2.66	0.00	-17.04	
0:26:24	16:05:32	3.48	-2.59	0.00	-17.18	
0:26:54	16:06:02	3.44	-2.63	0.00	-17.30	
0:27:24	16:06:32	3.34	-2.73	0.00	-17.15	
0:27:55	16:07:02	3.53	-2.54	0.00	-17.32	
0:28:24	16:07:32	3.33	-2.74	0.00	-16.91	
0:28:54	16:08:02	3.53	-2.54	0.00	-17.18	
0:29:24	16:08:32	3.43	-2.64	0.00	-17.25	
0:29:54	16:09:02	3.45	-2.62	0.00	-17.31	
0:30:24	16:09:32	3.48	-2.59	0.00	-17.13	
0:30:54	16:10:02	3.40	-2.67	0.00	-17.19	
0:31:24	16:10:32	3.45	-2.62	0.00	-17.10	
0:31:54	16:11:02	3.50	-2.57	0.00	-17.15	
0:32:24	16:11:32	3.56	-2.51	0.00	-17.30	
0:32:54	16:12:02	3.46	-2.61	0.00	-17.21	
0:33:24	16:12:32	3.32	-2.75	0.00	-17.12	
0:33:54	16:13:02	3.52	-2.55	0.00	-17.37	
0:34:24	16:13:32	3.37	-2.70	0.00	-17.19	
0:34:54	16:14:02	3.31	-2.76	0.00	-17.15	
0:35:24	16:14:32	3.43	-2.64	0.00	-17.14	
0:35:54	16:15:02	3.33	-2.74	0.00	-17.06	
0:36:24	16:15:32	3.50	-2.57	0.00	-17.19	
0:36:54	16:16:02	3.28	-2.79	0.00	-17.33	
0:37:24	16:16:32	3.43	-2.64	0.00	-17.07	
0:37:54	16:17:02	3.47	-2.60	0.00	-17.14	
0:38:24	16:17:32	3.47	-2.60	0.00	-17.44	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well)				Comments
		MW-9				
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	
		#REF!		#REF!	#REF!	Click to add a comment
0:38:54	16:18:02	3.51	-2.56	0.00	-17.30	
0:39:24	16:18:32	3.40	-2.67	0.00	-17.20	
0:39:54	16:19:02	3.45	-2.62	0.00	-17.40	
0:40:24	16:19:32	3.48	-2.59	0.00	-17.39	
0:40:54	16:20:02	3.33	-2.74	0.00	-17.34	
0:41:24	16:20:32	3.49	-2.58	0.00	-17.40	
0:41:54	16:21:02	3.46	-2.61	0.00	-17.31	
0:42:24	16:21:32	3.45	-2.62	0.00	-17.27	
0:42:54	16:22:02	3.41	-2.66	0.00	-17.52	
0:43:24	16:22:32	3.38	-2.69	0.00	-17.31	
0:43:54	16:23:02	3.24	-2.83	0.00	-17.13	
0:44:24	16:23:32	3.28	-2.79	0.00	-17.07	
0:44:54	16:24:02	3.41	-2.66	0.00	-17.22	
0:45:24	16:24:32	3.25	-2.82	0.00	-17.25	
0:45:54	16:25:02	3.27	-2.80	0.00	-17.29	
0:46:24	16:25:32	3.39	-2.68	0.00	-17.45	
0:46:54	16:26:02	3.36	-2.71	0.00	-17.32	
0:47:24	16:26:32	3.25	-2.82	0.00	-17.24	
0:47:54	16:27:02	3.30	-2.77	0.00	-17.31	
0:48:24	16:27:32	3.32	-2.75	0.00	-17.03	
0:48:54	16:28:02	3.34	-2.73	0.00	-17.15	
0:49:25	16:28:32	3.47	-2.60	0.00	-17.12	
0:49:55	16:29:02	3.46	-2.61	0.00	-17.43	
0:50:25	16:29:32	3.45	-2.62	0.00	-17.45	
0:50:55	16:30:02	3.39	-2.68	0.00	-17.47	
0:51:25	16:30:32	3.45	-2.62	0.00	-17.38	

Table B-4

TPE at MW-9

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

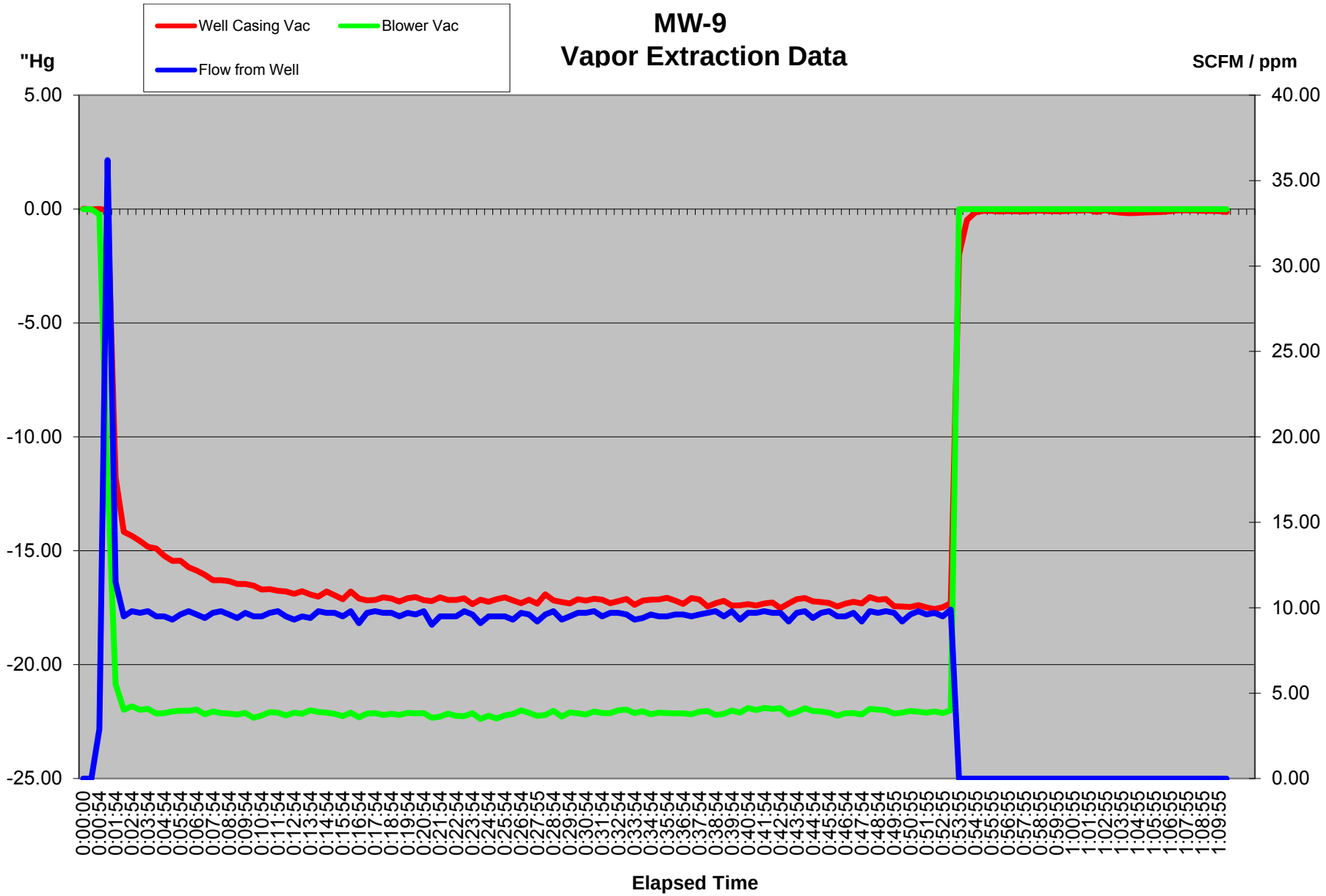
ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well) MW-9				Comments
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	Click to add a comment
		#REF!		#REF!	#REF!	
0:51:55	16:31:02	3.35	-2.72	0.00	-17.49	
0:52:25	16:31:32	3.40	-2.67	0.00	-17.56	
0:52:55	16:32:02	3.50	-2.57	0.00	-17.48	
0:53:25	16:32:32	3.33	-2.74	0.00	-17.30	
0:53:55	16:33:02	2.94	-3.13	0.00	-2.01	BLOWER OFF
0:54:25	16:33:32	2.64	-3.43	0.00	-0.48	
0:54:55	16:34:02	2.60	-3.47	0.00	-0.15	
0:55:25	16:34:32	2.62	-3.45	0.00	-0.08	
0:55:55	16:35:02	2.61	-3.46	0.00	-0.08	
0:56:25	16:35:32	2.64	-3.43	0.00	-0.11	
0:56:55	16:36:02	2.64	-3.43	0.00	-0.09	
0:57:25	16:36:32	2.64	-3.43	0.00	-0.10	
0:57:55	16:37:02	2.64	-3.43	0.00	-0.11	
0:58:25	16:37:32	2.67	-3.40	0.00	-0.08	
0:58:55	16:38:02	2.67	-3.40	0.00	-0.07	
0:59:25	16:38:32	2.63	-3.44	0.00	-0.09	
0:59:55	16:39:02	2.65	-3.42	0.00	-0.10	
1:00:25	16:39:32	2.67	-3.40	0.00	-0.09	
1:00:55	16:40:02	2.69	-3.38	0.00	-0.07	
1:01:25	16:40:32	2.66	-3.41	0.00	-0.07	
1:01:55	16:41:02	2.68	-3.39	0.00	-0.04	
1:02:25	16:41:32	2.69	-3.38	0.00	-0.13	
1:02:55	16:42:02	2.70	-3.37	0.00	-0.04	
1:03:25	16:42:32	2.70	-3.37	0.00	-0.12	
1:03:55	16:43:02	2.71	-3.36	0.00	-0.16	
1:04:25	16:43:32	2.69	-3.38	0.00	-0.18	

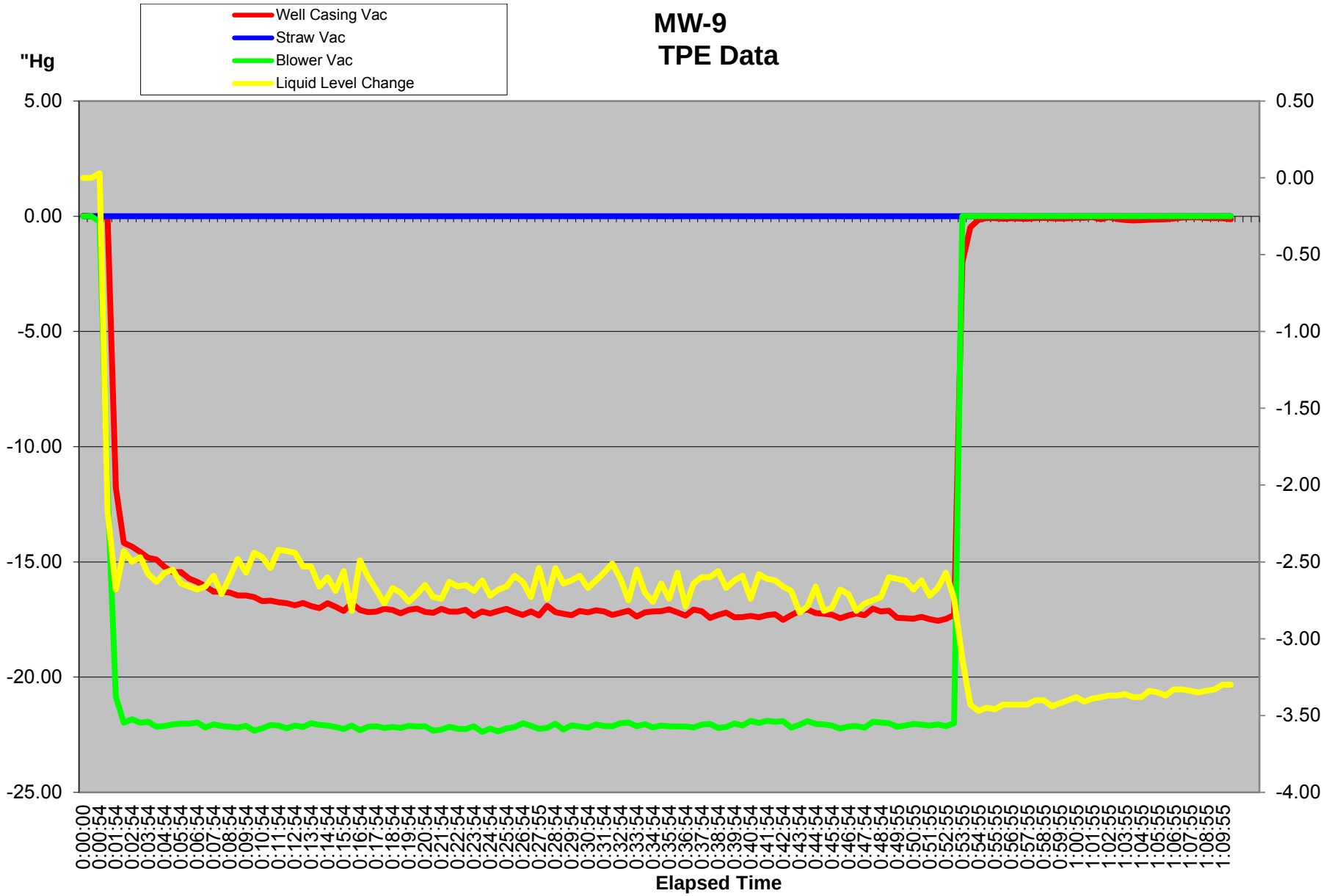
Table B-4

TPE at MW-9

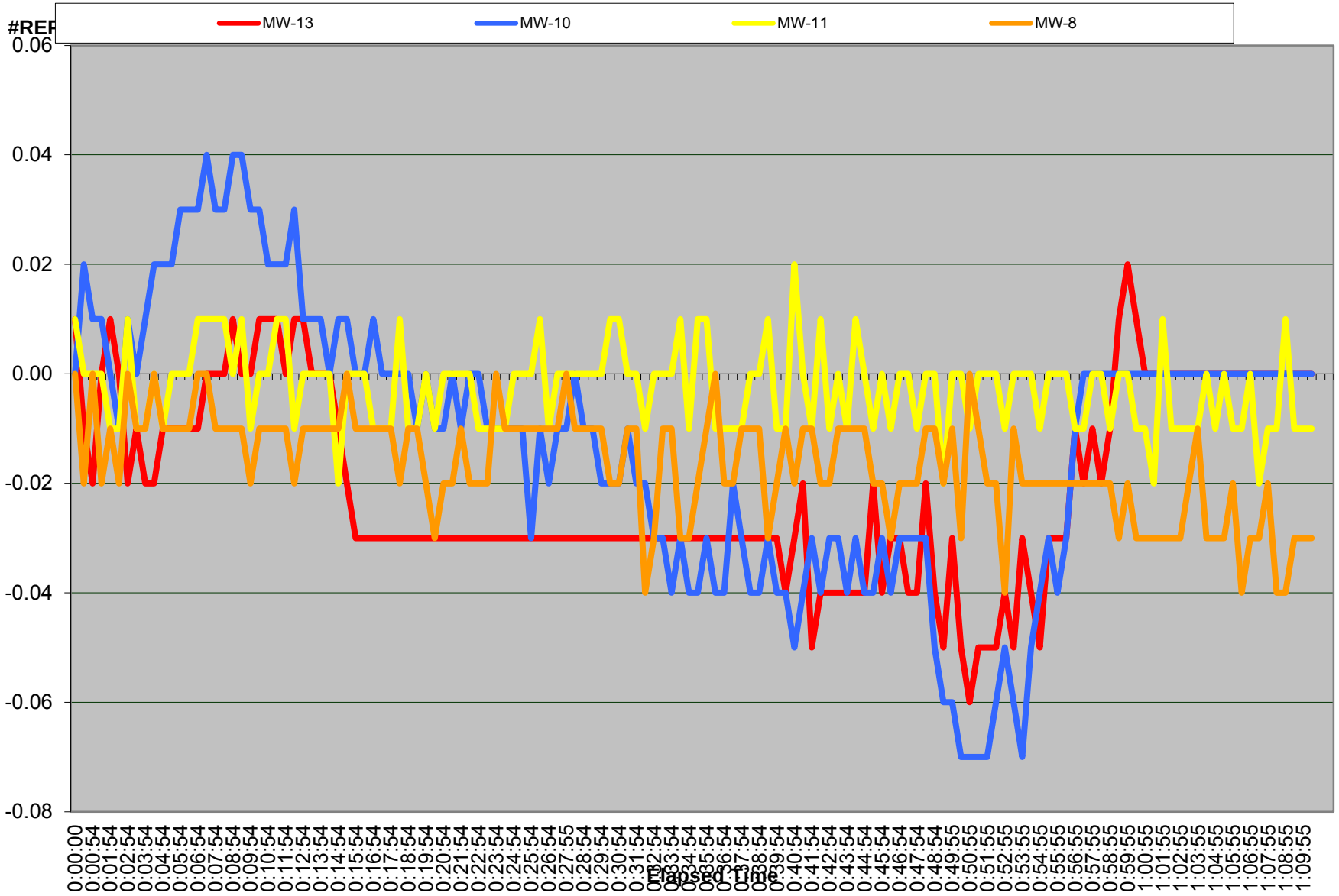
United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

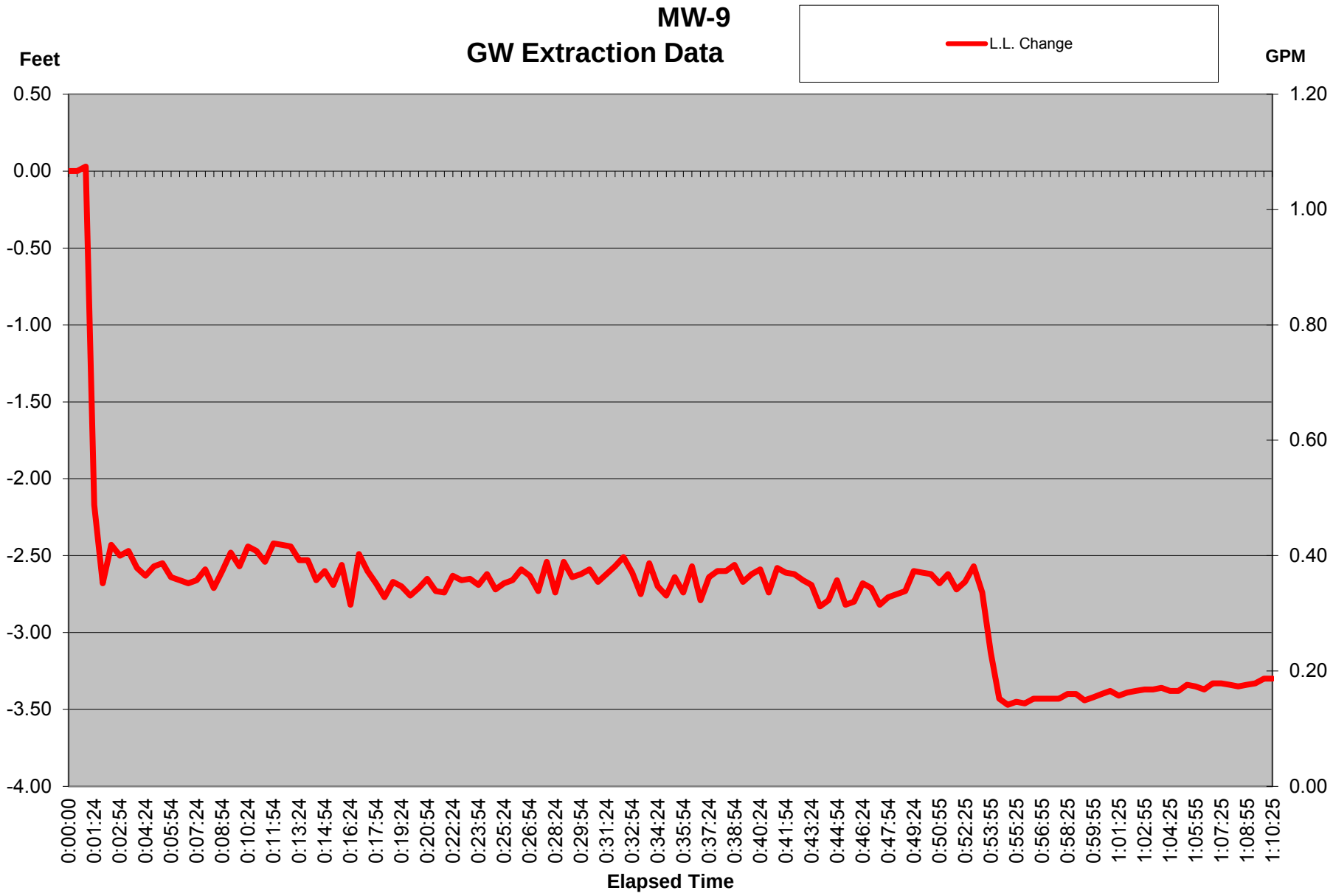
ELAPSED TIME hh/mm/ss	Time	RADIO 6 (Extraction Well)				Comments
		MW-9				
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	
		#REF!		#REF!	#REF!	Click to add a comment
1:04:55	16:44:02	2.69	-3.38	0.00	-0.17	
1:05:25	16:44:32	2.73	-3.34	0.00	-0.15	
1:05:55	16:45:02	2.72	-3.35	0.00	-0.14	
1:06:25	16:45:32	2.70	-3.37	0.00	-0.13	
1:06:55	16:46:02	2.74	-3.33	0.00	-0.10	
1:07:25	16:46:32	2.74	-3.33	0.00	-0.06	
1:07:55	16:47:02	2.73	-3.34	0.00	-0.05	
1:08:25	16:47:32	2.72	-3.35	0.00	-0.05	
1:08:55	16:48:02	2.73	-3.34	0.00	-0.08	
1:09:25	16:48:32	2.74	-3.33	0.00	-0.08	
1:09:55	16:49:02	2.77	-3.30	0.00	-0.09	
1:10:25	16:49:32	2.77	-3.30	0.00	-0.13	


MW-9
Vapor Extraction Data
Well Casing Vac
Blower Vac
Flow from Well
"Hg
SCFM / ppm
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
0:00:00
0:00:54
0:01:54
0:02:54
0:03:54
0:04:54
0:05:54
0:06:54
0:07:54
0:08:54
0:09:54
0:10:54
0:11:54
0:12:54
0:13:54
0:14:54
0:15:54
0:16:54
0:17:54
0:18:54
0:19:54
0:20:54
0:21:54
0:22:54
0:23:54
0:24:54
0:25:54
0:26:55
0:27:54
0:28:54
0:29:54
0:30:54
0:31:54
0:32:54
0:33:54
0:34:54
0:35:54
0:36:54
0:37:54
0:38:54
0:39:54
0:40:54
0:41:54
0:42:54
0:43:54
0:44:54
0:45:54
0:46:54
0:47:54
0:48:54
0:49:55
0:50:55
0:51:55
0:52:55
0:53:55
0:54:55
0:55:55
0:56:55
0:57:55
0:58:55
0:59:55
1:00:55
1:01:55
1:02:55
1:03:55
1:04:55
1:05:55
1:06:55
1:07:55
1:08:55
1:09:55
Elapsed Time


MW-9
TPE Data
Well Casing Vac
Straw Vac
Blower Vac
Liquid Level Change
"Hg
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
-4.00
Elapsed Time

Satellite Well Vacuum Response




MW-9
GW Extraction Data
L.L. Change
Feet
GPM
0.50
0.00
-0.50
-1.00
-1.50
-2.00
-2.50
-3.00
-3.50
-4.00
1.20
1.00
0.80
0.60
0.40
0.20
0.00
0:00:00
0:01:24
0:02:54
0:04:24
0:05:54
0:07:24
0:08:54
0:10:24
0:11:54
0:13:24
0:14:54
0:16:24
0:17:54
0:19:24
0:20:54
0:22:24
0:23:54
0:25:24
0:26:54
0:28:24
0:29:54
0:31:24
0:32:54
0:34:24
0:35:54
0:37:24
0:38:54
0:40:24
0:41:54
0:43:24
0:44:54
0:46:24
0:47:54
0:49:24
0:50:55
0:52:25
0:53:55
0:55:25
0:56:55
0:58:25
0:59:55
1:01:25
1:02:55
1:04:25
1:05:55
1:07:25
1:08:55
1:10:25
Elapsed Time

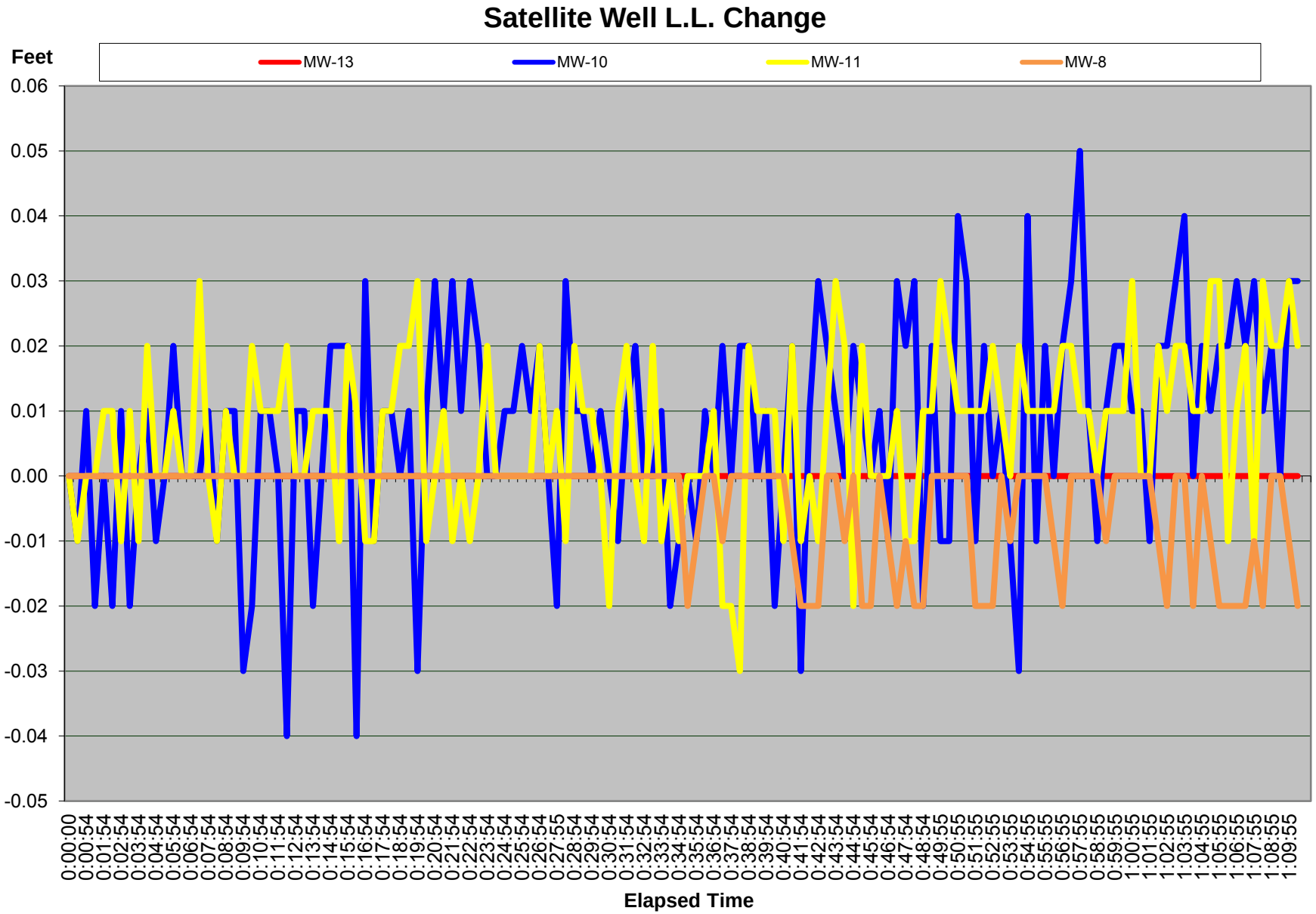

Satellite Well L.L. Change
Feet
MW-13
MW-10
MW-11
MW-8
0.06
0.05
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
-0.05
0:00:00
0:00:54
0:01:54
0:02:54
0:03:54
0:04:54
0:05:54
0:06:54
0:07:54
0:08:54
0:09:54
0:10:54
0:11:54
0:12:54
0:13:54
0:14:54
0:15:54
0:16:54
0:17:54
0:18:54
0:19:54
0:20:54
0:21:54
0:22:54
0:23:54
0:24:54
0:25:54
0:26:54
0:27:55
0:28:54
0:29:54
0:30:54
0:31:54
0:32:54
0:33:54
0:34:54
0:35:54
0:36:54
0:37:54
0:38:54
0:39:54
0:40:54
0:41:54
0:42:54
0:43:54
0:44:54
0:45:54
0:46:54
0:47:54
0:48:54
0:49:55
0:50:55
0:51:55
0:52:55
0:53:55
0:54:55
0:55:55
0:56:55
0:57:55
0:58:55
0:59:55
1:00:55
1:01:55
1:02:55
1:03:55
1:04:55
1:05:55
1:06:55
1:07:55
1:08:55
1:09:55
Elapsed Time

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	8:59:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.00	
0:00:30	9:00:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.00	
0:01:00	9:00:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	1.95	
0:01:30	9:01:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.80	0	2.50	
0:02:00	9:01:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	3.21	
0:02:32	9:02:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	3.20	
0:03:00	9:02:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	3.19	
0:03:30	9:03:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	3.14	
0:04:04	9:03:59	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	3.12	
0:04:30	9:04:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.9	
0:05:03	9:04:58	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.76	
0:05:30	9:05:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.72	
0:06:05	9:06:00	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.69	
0:07:00	9:06:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.7	
0:07:30	9:07:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.67	
0:08:00	9:07:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.69	
0:08:30	9:08:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.7	
0:09:00	9:08:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.45	
0:09:30	9:09:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.49	
0:10:00	9:09:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.51	
0:10:30	9:10:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.54	
0:11:00	9:10:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.45	
0:11:30	9:11:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.44	
0:12:00	9:11:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.46	
0:12:30	9:12:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.46	
0:13:00	9:12:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.47	
0:13:30	9:13:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.23	
0:14:00	9:13:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.27	
0:14:30	9:14:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.28	
0:15:00	9:14:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.3	
0:15:30	9:15:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.36	
0:16:00	9:15:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.4	
0:16:30	9:16:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.44	
0:17:00	9:16:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.46	
0:17:30	9:17:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.41	
0:18:00	9:17:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.28	
0:18:30	9:18:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.34	
0:19:00	9:18:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.36	
0:19:30	9:19:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.42	
0:20:00	9:19:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.45	
0:20:30	9:20:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.46	
0:21:00	9:20:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.5	
0:21:30	9:21:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.54	
0:22:00	9:21:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.90	0	2.33	
0:22:30	9:22:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.00	0	2.34	
0:23:00	9:22:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.30	0	2.73	
0:23:30	9:23:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.30	0	3.92	Step 2
0:24:00	9:23:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.60	0	3.92	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:24:30	9:24:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.40	0	3.77	
0:25:00	9:24:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.60	0	3.68	
0:25:30	9:25:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.60	0	3.77	
0:26:00	9:25:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.70	0	3.87	
0:26:30	9:26:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.60	0	3.64	
0:27:00	9:26:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.73	
0:27:30	9:27:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.81	
0:28:00	9:27:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.70	0	3.81	
0:28:30	9:28:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.66	
0:29:00	9:28:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.75	
0:29:30	9:29:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.74	
0:30:00	9:29:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.51	
0:30:30	9:30:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.65	
0:31:00	9:30:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.7	
0:31:30	9:31:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.49	
0:32:00	9:31:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.6	
0:32:30	9:32:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.66	
0:33:00	9:32:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.44	
0:33:30	9:33:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.54	
0:34:00	9:33:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.63	
0:34:30	9:34:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.80	0	3.71	
0:35:00	9:34:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.5	
0:35:30	9:35:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.57	
0:36:00	9:35:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.67	
0:36:30	9:36:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.47	
0:37:00	9:36:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.54	
0:37:30	9:37:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.71	
0:38:00	9:37:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.54	
0:38:30	9:38:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.62	
0:39:00	9:38:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.74	
0:39:30	9:39:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.5	
0:40:00	9:39:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.57	
0:40:30	9:40:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.7	
0:41:00	9:40:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.48	
0:41:30	9:41:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.56	
0:42:00	9:41:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.68	
0:42:30	9:42:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.49	
0:43:00	9:42:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.57	
0:43:30	9:43:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.74	
0:44:00	9:43:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	2.90	0	3.52	
0:44:30	9:44:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.59	
0:45:00	9:44:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.73	
0:45:30	9:45:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.52	
0:46:00	9:45:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.59	
0:46:30	9:46:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.74	
0:47:00	9:46:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.53	
0:47:30	9:47:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.62	
0:48:00	9:47:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.75	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:48:30	9:48:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.00	0	3.54	
0:49:00	9:48:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.61	
0:49:30	9:49:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.30	0	3.73	
0:50:00	9:49:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.54	
0:50:30	9:50:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.63	
0:51:00	9:50:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.75	
0:51:30	9:51:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.55	
0:52:00	9:51:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.63	
0:52:30	9:52:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.30	0	3.75	
0:53:00	9:52:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.10	0	3.53	
0:53:30	9:53:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.62	
0:54:00	9:53:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.30	0	3.73	
0:54:30	9:54:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.54	
0:55:00	9:54:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.20	0	3.63	
0:55:30	9:55:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	3.40	0	3.75	
0:56:01	9:55:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.40	0	4.93	Step 3
0:56:30	9:56:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.70	0	4.98	
0:57:01	9:56:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.60	0	4.87	
0:57:31	9:57:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.80	0	5	
0:58:01	9:57:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.70	0	4.79	
0:58:31	9:58:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.70	0	4.91	
0:59:01	9:58:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.60	0	4.78	
0:59:31	9:59:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.60	0	4.86	
1:00:01	9:59:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.80	0	4.74	
1:00:31	10:00:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.60	0	4.69	
1:01:01	10:00:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.80	0	4.72	
1:01:31	10:01:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.70	0	4.64	
1:02:01	10:01:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	5.80	0	4.75	
1:02:31	10:02:25	0.00	0.00	-218.76	#NUM!	0.00	0.00	5.80	0	4.78	
1:03:01	10:02:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.80	0	4.7	
1:03:31	10:03:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.70	0	4.59	
1:04:01	10:03:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.69	
1:04:31	10:04:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.80	0	4.58	
1:05:01	10:04:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.80	0	4.72	
1:05:31	10:05:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.57	
1:06:01	10:05:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.80	0	4.69	
1:06:31	10:06:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.61	
1:07:01	10:06:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.7	
1:07:31	10:07:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.57	
1:08:02	10:07:56	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.80	0	4.49	
1:08:31	10:08:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.56	
1:09:01	10:08:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.80	0	4.47	
1:09:31	10:09:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.61	
1:10:01	10:09:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.47	
1:10:31	10:10:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.61	
1:11:01	10:10:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.52	
1:11:31	10:11:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.10	0	4.61	
1:12:01	10:11:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.48	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:12:31	10:12:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.48	
1:13:01	10:12:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.48	
1:13:31	10:13:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.4	
1:14:01	10:13:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.53	
1:14:31	10:14:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.39	
1:15:01	10:14:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.10	0	4.53	
1:15:31	10:15:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.44	
1:16:01	10:15:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.53	
1:16:31	10:16:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.41	
1:17:01	10:16:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.45	
1:17:31	10:17:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.10	0	4.41	
1:18:01	10:17:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.35	
1:18:31	10:18:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.47	
1:19:01	10:18:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	5.90	0	4.33	
1:19:31	10:19:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.48	
1:20:01	10:19:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.10	0	4.39	
1:20:31	10:20:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.48	
1:21:01	10:20:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.10	0	4.36	
1:21:31	10:21:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.37	
1:22:01	10:21:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.37	
1:22:31	10:22:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.29	
1:23:01	10:22:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.20	0	4.43	
1:23:31	10:23:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.00	0	4.28	
1:24:01	10:23:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	6.10	0	4.42	End Test
1:24:31	10:24:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	0.00	0	4.35	
1:25:01	10:24:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	0.00	0	0.51	
1:25:31	10:25:25	0.00	0.00	-86.25	#NUM!	0.00	0.00	0.00	0	0.29	
1:26:01	10:25:55	0.00	0.00	-86.25	#NUM!	0.00	0.00	0.00	0	0.28	
1:26:31	10:26:25	0.00	0.00	-5.41	#NUM!	0.00	0.00	0.00	0	0.27	
1:27:01	10:26:55	0.00	0.00	-2.64	#NUM!	0.00	0.00	0.00	0	0.24	
1:27:31	10:27:25	0.00	0.00	-1.22	#NUM!	0.00	0.00	0.00	0	0.22	
1:28:01	10:27:55	0.00	0.00	-1.22	#NUM!	0.00	0.00	0.00	0	0.21	
1:28:31	10:28:25	0.00	0.00	-1.22	#NUM!	0.00	0.00	0.00	0	0.19	
1:29:01	10:28:55	0.00	0.00	-1.22	#NUM!	0.00	0.00	0.00	0	0.18	
1:29:31	10:29:25	0.00	0.00	-1.22	#NUM!	0.00	0.00	0.00	0	0.18	
1:29:48	10:29:43	0.00	0.00	-1.22	#NUM!	0.00	0.00	0.00	0	0.17	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	8:59:55	4.31	0.00	0.00	6.18	0.00	0.00	6.85	0.00	-0.01	
0:00:30	9:00:25	4.32	0.01	0.00	6.17	-0.01	0.01	6.85	0.00	-0.01	
0:01:00	9:00:55	4.32	0.01	0.00	6.17	-0.01	0.01	6.85	0.00	-0.01	
0:01:30	9:01:25	4.32	0.01	0.00	6.18	0.00	0.01	6.85	0.00	-0.02	
0:02:00	9:01:55	4.32	0.01	0.00	6.17	-0.01	0.01	6.85	0.00	-0.01	
0:02:32	9:02:26	4.32	0.01	0.00	6.17	-0.01	0.01	6.85	0.00	-0.02	
0:03:00	9:02:55	4.32	0.01	0.00	6.18	0.00	0.01	6.85	0.00	-0.02	
0:03:30	9:03:25	4.31	0.00	0.00	6.18	0.00	0.01	6.85	0.00	-0.01	
0:04:04	9:03:59	4.31	0.00	0.00	6.19	0.01	0.01	6.85	0.00	-0.02	
0:04:30	9:04:25	4.31	0.00	-0.01	6.19	0.01	0.01	6.85	0.00	-0.01	
0:05:03	9:04:58	4.32	0.01	0.00	6.19	0.01	0.01	6.85	0.00	-0.01	
0:05:30	9:05:25	4.32	0.01	0.00	6.19	0.01	0.01	6.85	0.00	-0.03	
0:06:05	9:06:00	4.32	0.01	-0.01	6.19	0.01	0.01	6.85	0.00	-0.02	
0:07:00	9:06:55	4.31	0.00	0.00	6.19	0.01	0.01	6.85	0.00	-0.01	
0:07:30	9:07:25	4.31	0.00	0.00	6.19	0.01	0.01	6.85	0.00	-0.01	
0:08:00	9:07:55	4.31	0.00	0.00	6.19	0.01	0.00	6.85	0.00	-0.01	
0:08:30	9:08:25	4.31	0.00	0.00	6.19	0.01	0.01	6.85	0.00	-0.01	
0:09:00	9:08:55	4.32	0.01	-0.01	6.19	0.01	0.00	6.85	0.00	-0.02	
0:09:30	9:09:25	4.31	0.00	-0.01	6.19	0.01	0.01	6.85	0.00	-0.02	
0:10:00	9:09:55	4.32	0.01	-0.01	6.19	0.01	0.01	6.85	0.00	-0.01	
0:10:30	9:10:25	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.01	
0:11:00	9:10:55	4.31	0.00	0.00	6.19	0.01	0.00	6.85	0.00	-0.02	
0:11:30	9:11:25	4.32	0.01	0.00	6.19	0.01	0.01	6.85	0.00	-0.02	
0:12:00	9:11:55	4.31	0.00	-0.01	6.19	0.01	0.01	6.85	0.00	-0.02	
0:12:30	9:12:25	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.01	
0:13:00	9:12:55	4.31	0.00	0.00	6.19	0.01	0.01	6.85	0.00	-0.02	
0:13:30	9:13:25	4.32	0.01	-0.01	6.19	0.01	0.00	6.85	0.00	-0.01	
0:14:00	9:13:55	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.01	
0:14:30	9:14:25	4.32	0.01	0.00	6.19	0.01	0.01	6.85	0.00	-0.01	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:15:00	9:14:55	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.02	
0:15:30	9:15:25	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.02	
0:16:00	9:15:55	4.31	0.00	0.00	6.19	0.01	0.01	6.85	0.00	-0.01	
0:16:30	9:16:25	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.02	
0:17:00	9:16:55	4.32	0.01	0.00	6.19	0.01	0.00	6.85	0.00	-0.01	
0:17:30	9:17:25	4.32	0.01	0.00	6.19	0.01	0.00	6.87	0.02	-0.03	
0:18:00	9:17:55	4.32	0.01	0.00	6.19	0.01	0.01	6.86	0.01	-0.03	
0:18:30	9:18:25	4.32	0.01	0.00	6.19	0.01	0.01	6.86	0.01	-0.03	
0:19:00	9:18:55	4.31	0.00	0.00	6.19	0.01	0.01	6.87	0.02	-0.01	
0:19:30	9:19:25	4.31	0.00	0.00	6.19	0.01	0.01	6.87	0.02	-0.02	
0:20:00	9:19:55	4.31	0.00	0.00	6.19	0.01	0.01	6.86	0.01	-0.04	
0:20:30	9:20:25	4.31	0.00	0.00	6.19	0.01	0.01	6.87	0.02	-0.01	
0:21:00	9:20:55	4.32	0.01	-0.01	6.19	0.01	0.00	6.88	0.03	-0.02	
0:21:30	9:21:25	4.32	0.01	0.00	6.19	0.01	0.01	6.88	0.03	-0.01	
0:22:00	9:21:55	4.31	0.00	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	
0:22:30	9:22:25	4.31	0.00	-0.01	6.19	0.01	0.01	6.88	0.03	-0.02	
0:23:00	9:22:55	4.32	0.01	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	Step 2
0:23:30	9:23:25	4.32	0.01	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	
0:24:00	9:23:55	4.32	0.01	0.00	6.19	0.01	0.00	6.88	0.03	-0.04	
0:24:30	9:24:25	4.32	0.01	0.00	6.19	0.01	0.01	6.88	0.03	-0.01	
0:25:00	9:24:55	4.32	0.01	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	
0:25:30	9:25:25	4.31	0.00	0.00	6.19	0.01	0.00	6.88	0.03	-0.02	
0:26:00	9:25:55	4.31	0.00	0.00	6.19	0.01	0.00	6.88	0.03	-0.04	
0:26:30	9:26:25	4.31	0.00	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	
0:27:00	9:26:55	4.32	0.01	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	
0:27:30	9:27:25	4.31	0.00	-0.01	6.19	0.01	0.01	6.88	0.03	-0.06	
0:28:00	9:27:55	4.31	0.00	0.00	6.19	0.01	0.00	6.88	0.03	-0.02	
0:28:30	9:28:25	4.31	0.00	0.00	6.19	0.01	0.01	6.88	0.03	-0.02	
0:29:00	9:28:55	4.31	0.00	0.00	6.19	0.01	0.01	6.89	0.04	-0.02	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:29:30	9:29:25	4.32	0.01	0.00	6.19	0.01	0.01	6.89	0.04	0.00	
0:30:00	9:29:55	4.32	0.01	0.00	6.19	0.01	0.00	6.89	0.04	-0.04	
0:30:30	9:30:25	4.32	0.01	0.00	6.19	0.01	0.01	6.89	0.04	-0.02	
0:31:00	9:30:55	4.32	0.01	0.00	6.19	0.01	0.00	6.90	0.05	-0.03	
0:31:30	9:31:25	4.31	0.00	0.00	6.19	0.01	0.00	6.90	0.05	-0.02	
0:32:00	9:31:55	4.32	0.01	-0.01	6.19	0.01	0.00	6.90	0.05	-0.04	
0:32:30	9:32:25	4.32	0.01	-0.01	6.19	0.01	0.00	6.90	0.05	-0.03	
0:33:00	9:32:55	4.32	0.01	0.00	6.19	0.01	0.00	6.90	0.05	-0.03	
0:33:30	9:33:25	4.32	0.01	0.00	6.19	0.01	0.00	6.90	0.05	-0.03	
0:34:00	9:33:55	4.32	0.01	0.00	6.19	0.01	0.00	6.90	0.05	-0.03	
0:34:30	9:34:25	4.31	0.00	-0.01	6.19	0.01	0.00	6.90	0.05	-0.03	
0:35:00	9:34:55	4.31	0.00	-0.01	6.19	0.01	0.01	6.91	0.06	-0.03	
0:35:30	9:35:25	4.32	0.01	0.00	6.19	0.01	0.01	6.91	0.06	-0.03	
0:36:00	9:35:55	4.32	0.01	0.00	6.19	0.01	0.01	6.91	0.06	-0.03	
0:36:30	9:36:25	4.32	0.01	0.00	6.19	0.01	0.00	6.91	0.06	-0.03	
0:37:00	9:36:55	4.32	0.01	0.00	6.19	0.01	0.01	6.91	0.06	-0.03	
0:37:30	9:37:25	4.32	0.01	0.00	6.19	0.01	0.01	6.91	0.06	-0.03	
0:38:00	9:37:55	4.32	0.01	0.00	6.19	0.01	0.00	6.92	0.07	-0.03	
0:38:30	9:38:25	4.32	0.01	0.00	6.19	0.01	0.00	6.92	0.07	-0.04	
0:39:00	9:38:55	4.31	0.00	0.00	6.19	0.01	0.01	6.92	0.07	-0.05	
0:39:30	9:39:25	4.32	0.01	0.00	6.19	0.01	0.00	6.92	0.07	-0.03	
0:40:00	9:39:55	4.31	0.00	-0.01	6.19	0.01	0.00	6.92	0.07	-0.03	
0:40:30	9:40:25	4.31	0.00	-0.01	6.19	0.01	0.01	6.92	0.07	-0.04	
0:41:00	9:40:55	4.32	0.01	0.00	6.19	0.01	0.01	6.92	0.07	-0.04	
0:41:30	9:41:25	4.31	0.00	-0.01	6.19	0.01	0.01	6.93	0.08	0.00	
0:42:00	9:41:55	4.31	0.00	0.00	6.19	0.01	0.01	6.93	0.08	-0.09	
0:42:30	9:42:25	4.32	0.01	0.00	6.19	0.01	0.01	6.93	0.08	-0.03	
0:43:00	9:42:55	4.31	0.00	0.00	6.19	0.01	0.01	6.93	0.08	-0.03	
0:43:30	9:43:25	4.32	0.01	0.00	6.19	0.01	0.01	6.93	0.08	-0.04	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:44:00	9:43:55	4.31	0.00	-0.01	6.19	0.01	0.01	6.93	0.08	-0.03	
0:44:30	9:44:25	4.31	0.00	0.00	6.19	0.01	0.01	6.93	0.08	-0.06	
0:45:00	9:44:55	4.31	0.00	0.00	6.19	0.01	0.00	6.93	0.08	-0.04	
0:45:30	9:45:25	4.31	0.00	0.00	6.20	0.02	0.01	6.93	0.08	-0.02	
0:46:00	9:45:55	4.31	0.00	0.00	6.20	0.02	0.01	6.93	0.08	-0.04	
0:46:30	9:46:25	4.31	0.00	0.00	6.20	0.02	0.01	6.94	0.09	-0.03	
0:47:00	9:46:55	4.31	0.00	0.00	6.20	0.02	0.01	6.94	0.09	-0.06	
0:47:30	9:47:25	4.31	0.00	-0.01	6.20	0.02	0.01	6.94	0.09	-0.03	
0:48:00	9:47:55	4.31	0.00	0.00	6.20	0.02	0.01	6.94	0.09	-0.01	
0:48:30	9:48:25	4.31	0.00	0.00	6.20	0.02	0.00	6.95	0.10	-0.06	
0:49:00	9:48:55	4.31	0.00	0.00	6.20	0.02	0.01	6.95	0.10	-0.03	
0:49:30	9:49:25	4.31	0.00	0.00	6.20	0.02	0.00	6.95	0.10	-0.06	
0:50:00	9:49:55	4.31	0.00	0.00	6.20	0.02	0.01	6.95	0.10	-0.04	
0:50:30	9:50:25	4.31	0.00	0.00	6.20	0.02	0.01	6.95	0.10	-0.05	
0:51:00	9:50:55	4.31	0.00	0.00	6.20	0.02	0.01	6.95	0.10	-0.07	
0:51:30	9:51:25	4.31	0.00	-0.01	6.20	0.02	0.01	6.96	0.11	-0.01	
0:52:00	9:51:55	4.31	0.00	-0.01	6.20	0.02	0.00	6.96	0.11	-0.03	
0:52:30	9:52:25	4.31	0.00	0.00	6.20	0.02	0.01	6.96	0.11	-0.04	
0:53:00	9:52:55	4.31	0.00	0.00	6.20	0.02	0.00	6.96	0.11	-0.04	
0:53:30	9:53:25	4.31	0.00	0.00	6.20	0.02	0.01	6.96	0.11	-0.03	
0:54:00	9:53:55	4.31	0.00	0.00	6.20	0.02	0.01	6.96	0.11	-0.02	
0:54:30	9:54:25	4.31	0.00	0.00	6.20	0.02	0.01	6.96	0.11	-0.04	
0:55:00	9:54:55	4.30	-0.01	-0.01	6.20	0.02	0.00	6.96	0.11	-0.03	
0:55:30	9:55:25	4.31	0.00	0.00	6.20	0.02	0.00	6.96	0.11	-0.03	
0:56:01	9:55:55	4.31	0.00	-0.01	6.20	0.02	0.01	6.98	0.13	-0.02	Step 3
0:56:30	9:56:25	4.31	0.00	0.00	6.20	0.02	0.00	6.98	0.13	-0.03	
0:57:01	9:56:55	4.32	0.01	0.00	6.20	0.02	0.01	6.98	0.13	-0.03	
0:57:31	9:57:25	4.32	0.01	0.00	6.20	0.02	0.01	6.98	0.13	-0.04	
0:58:01	9:57:55	4.32	0.01	0.00	6.20	0.02	0.01	6.98	0.13	-0.03	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:58:31	9:58:25	4.31	0.00	0.00	6.20	0.02	0.01	6.98	0.13	-0.03	
0:59:01	9:58:55	4.31	0.00	0.00	6.20	0.02	0.01	6.99	0.14	-0.02	
0:59:31	9:59:25	4.31	0.00	0.00	6.20	0.02	0.00	6.98	0.13	-0.03	
1:00:01	9:59:55	4.32	0.01	0.00	6.20	0.02	0.01	6.99	0.14	-0.04	
1:00:31	10:00:25	4.31	0.00	0.00	6.20	0.02	0.00	6.99	0.14	-0.02	
1:01:01	10:00:55	4.31	0.00	0.00	6.20	0.02	0.01	6.99	0.14	-0.04	
1:01:31	10:01:25	4.32	0.01	0.00	6.20	0.02	0.00	7.00	0.15	-0.07	
1:02:01	10:01:55	4.31	0.00	-0.01	6.20	0.02	0.01	7.00	0.15	-0.02	
1:02:31	10:02:25	4.32	0.01	0.00	6.20	0.02	0.01	7.01	0.16	-0.04	
1:03:01	10:02:55	4.31	0.00	0.00	6.20	0.02	0.01	7.01	0.16	-0.03	
1:03:31	10:03:25	4.32	0.01	0.00	6.20	0.02	0.01	7.01	0.16	-0.03	
1:04:01	10:03:55	4.31	0.00	0.00	6.20	0.02	0.00	7.01	0.16	-0.02	
1:04:31	10:04:25	4.31	0.00	0.00	6.20	0.02	0.01	7.01	0.16	-0.04	
1:05:01	10:04:55	4.32	0.01	0.00	6.20	0.02	0.01	7.01	0.16	-0.03	
1:05:31	10:05:25	4.32	0.01	0.00	6.20	0.02	0.01	7.01	0.16	-0.03	
1:06:01	10:05:55	4.32	0.01	0.00	6.20	0.02	0.01	7.01	0.16	-0.02	
1:06:31	10:06:25	4.31	0.00	0.00	6.20	0.02	0.01	7.01	0.16	-0.04	
1:07:01	10:06:55	4.32	0.01	0.00	6.20	0.02	0.00	7.02	0.17	-0.02	
1:07:31	10:07:25	4.31	0.00	0.00	6.20	0.02	0.01	7.02	0.17	-0.04	
1:08:02	10:07:56	4.32	0.01	0.00	6.20	0.02	0.00	7.02	0.17	-0.04	
1:08:31	10:08:25	4.31	0.00	0.00	6.20	0.02	0.01	7.02	0.17	-0.04	
1:09:01	10:08:55	4.31	0.00	0.00	6.20	0.02	0.01	7.02	0.17	-0.05	
1:09:31	10:09:25	4.31	0.00	0.00	6.20	0.02	0.01	7.02	0.17	-0.03	
1:10:01	10:09:55	4.31	0.00	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	
1:10:31	10:10:25	4.31	0.00	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	
1:11:01	10:10:55	4.32	0.01	-0.01	6.20	0.02	0.01	7.03	0.18	-0.04	
1:11:31	10:11:25	4.31	0.00	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	
1:12:01	10:11:55	4.31	0.00	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	
1:12:31	10:12:25	4.32	0.01	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
1:13:01	10:12:55	4.32	0.01	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	
1:13:31	10:13:25	4.31	0.00	0.00	6.20	0.02	0.01	7.03	0.18	-0.04	
1:14:01	10:13:55	4.31	0.00	0.00	6.20	0.02	0.01	7.03	0.18	-0.03	
1:14:31	10:14:25	4.32	0.01	0.00	6.20	0.02	0.01	7.04	0.19	-0.03	
1:15:01	10:14:55	4.32	0.01	0.00	6.20	0.02	0.01	7.04	0.19	-0.03	
1:15:31	10:15:25	4.31	0.00	0.00	6.20	0.02	0.01	7.04	0.19	-0.03	
1:16:01	10:15:55	4.31	0.00	0.00	6.20	0.02	0.01	7.04	0.19	-0.03	
1:16:31	10:16:25	4.32	0.01	0.00	6.20	0.02	0.01	7.04	0.19	-0.03	
1:17:01	10:16:55	4.32	0.01	0.00	6.20	0.02	0.01	7.05	0.20	-0.03	
1:17:31	10:17:25	4.31	0.00	0.00	6.20	0.02	0.01	7.05	0.20	-0.03	
1:18:01	10:17:55	4.31	0.00	0.00	6.20	0.02	0.01	7.05	0.20	-0.04	
1:18:31	10:18:25	4.31	0.00	0.00	6.20	0.02	0.01	7.05	0.20	-0.03	
1:19:01	10:18:55	4.32	0.01	0.00	6.20	0.02	0.01	7.05	0.20	-0.04	
1:19:31	10:19:25	4.31	0.00	0.00	6.20	0.02	0.01	7.05	0.20	-0.03	
1:20:01	10:19:55	4.31	0.00	0.00	6.20	0.02	0.01	7.05	0.20	-0.04	
1:20:31	10:20:25	4.31	0.00	0.00	6.20	0.02	0.01	7.05	0.20	-0.04	
1:21:01	10:20:55	4.31	0.00	0.00	6.20	0.02	0.00	7.06	0.21	-0.04	
1:21:31	10:21:25	4.31	0.00	0.00	6.20	0.02	0.01	7.06	0.21	-0.04	
1:22:01	10:21:55	4.32	0.01	0.00	6.20	0.02	0.01	7.06	0.21	-0.04	
1:22:31	10:22:25	4.32	0.01	0.00	6.20	0.02	0.01	7.06	0.21	-0.04	
1:23:01	10:22:55	4.31	0.00	0.00	6.20	0.02	0.01	7.06	0.21	-0.04	
1:23:31	10:23:25	4.32	0.01	0.00	6.20	0.02	0.00	7.06	0.21	-0.04	
1:24:01	10:23:55	4.32	0.01	0.00	6.20	0.02	0.01	7.06	0.21	-0.03	
1:24:31	10:24:25	4.31	0.00	0.00	6.20	0.02	0.00	7.06	0.21	-0.04	end test
1:25:01	10:24:55	4.31	0.00	0.00	6.20	0.02	0.01	7.06	0.21	-0.05	
1:25:31	10:25:25	4.31	0.00	0.00	6.20	0.02	0.00	7.06	0.21	-0.05	
1:26:01	10:25:55	4.31	0.00	0.00	6.20	0.02	0.00	7.06	0.21	-0.05	
1:26:31	10:26:25	4.31	0.00	0.00				7.06	0.21	-0.05	
1:27:01	10:26:55	4.31	0.00	-0.01				7.06	0.21	-0.05	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-7			RADIO 3 MW-1R			RADIO 4 MW-14			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
1:27:31	10:27:25	4.32	0.01	0.00				7.06	0.21	-0.04	
1:28:01	10:27:55	4.31	0.00	0.00				7.06	0.21	-0.05	
1:28:31	10:28:25	4.31	0.00	0.00				7.07	0.22	-0.05	
1:29:01	10:28:55	4.31	0.00	0.00				7.06	0.21	-0.05	
1:29:31	10:29:25	4.31	0.00	0.00				7.06	0.21	-0.04	
1:29:48	10:29:43	4.31	0.00	0.00				7.06	0.21	-0.06	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-4			RADIO 7 IP-1S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	8:59:55	4.15	0.00	0.00			1.98	
0:00:30	9:00:25	4.13	-0.02	0.00			1.97	
0:01:00	9:00:55	4.12	-0.03	0.00			1.95	
0:01:30	9:01:25	4.15	0.00	-0.01			2.50	
0:02:00	9:01:55	4.15	0.00	0.00			3.21	
0:02:32	9:02:26	4.14	-0.01	0.00			3.20	
0:03:00	9:02:55	4.15	0.00	0.00			3.19	
0:03:30	9:03:25	4.14	-0.01	-0.01			3.14	
0:04:04	9:03:59	4.13	-0.02	0.00			3.12	
0:04:30	9:04:25	4.13	-0.02	0.00			2.90	
0:05:03	9:04:58	4.13	-0.02	0.00			2.76	
0:05:30	9:05:25	4.14	-0.01	-0.01			2.72	
0:06:05	9:06:00	4.13	-0.02	0.00			2.69	
0:07:00	9:06:55	4.12	-0.03	0.00			2.70	
0:07:30	9:07:25	4.12	-0.03	0.00			2.67	
0:08:00	9:07:55	4.13	-0.02	0.00			2.69	
0:08:30	9:08:25	4.12	-0.03	0.00			2.70	
0:09:00	9:08:55	4.13	-0.02	-0.01			2.45	
0:09:30	9:09:25	4.13	-0.02	0.00			2.49	
0:10:00	9:09:55	4.14	-0.01	-0.01			2.51	
0:10:30	9:10:25	4.13	-0.02	0.00			2.54	
0:11:00	9:10:55	4.14	-0.01	0.00			2.45	
0:11:30	9:11:25	4.12	-0.03	0.00			2.44	
0:12:00	9:11:55	4.15	0.00	0.00			2.46	
0:12:30	9:12:25	4.13	-0.02	0.00			2.46	
0:13:00	9:12:55	4.14	-0.01	0.00			2.47	
0:13:30	9:13:25	4.16	0.01	0.00			2.23	
0:14:00	9:13:55	4.13	-0.02	-0.01			2.27	
0:14:30	9:14:25	4.13	-0.02	0.00			2.28	
0:15:00	9:14:55	4.14	-0.01	0.00			2.30	
0:15:30	9:15:25	4.12	-0.03	-0.01			2.36	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-4			RADIO 7 IP-1S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:16:00	9:15:55	4.14	-0.01	0.00			2.40	
0:16:30	9:16:25	4.15	0.00	-0.01			2.44	
0:17:00	9:16:55	4.17	0.02	0.00			2.46	
0:17:30	9:17:25	4.13	-0.02	0.00			2.41	
0:18:00	9:17:55	4.14	-0.01	-0.01			2.28	
0:18:30	9:18:25	4.15	0.00	0.00			2.34	
0:19:00	9:18:55	4.14	-0.01	-0.01			2.36	
0:19:30	9:19:25	4.14	-0.01	-0.01			2.42	
0:20:00	9:19:55	4.11	-0.04	0.00			2.45	
0:20:30	9:20:25	4.13	-0.02	-0.01			2.46	
0:21:00	9:20:55	4.14	-0.01	-0.01			2.50	
0:21:30	9:21:25	4.14	-0.01	0.00			2.54	
0:22:00	9:21:55	4.14	-0.01	0.00			2.33	
0:22:30	9:22:25	4.13	-0.02	0.00			2.34	
0:23:00	9:22:55	4.14	-0.01	-0.01			2.73	Step 2
0:23:30	9:23:25	4.14	-0.01	0.00			3.92	
0:24:00	9:23:55	4.13	-0.02	0.01			3.92	
0:24:30	9:24:25	4.12	-0.03	-0.01			3.77	
0:25:00	9:24:55	4.14	-0.01	0.00			3.68	
0:25:30	9:25:25	4.15	0.00	-0.01			3.77	
0:26:00	9:25:55	4.13	-0.02	0.00			3.87	
0:26:30	9:26:25	4.12	-0.03	-0.01			3.64	
0:27:00	9:26:55	4.13	-0.02	0.00			3.73	
0:27:30	9:27:25	4.13	-0.02	0.00			3.81	
0:28:00	9:27:55	4.14	-0.01	0.00			3.81	
0:28:30	9:28:25	4.14	-0.01	0.00			3.66	
0:29:00	9:28:55	4.15	0.00	0.00			3.75	
0:29:30	9:29:25	4.14	-0.01	0.00			3.74	
0:30:00	9:29:55	4.13	-0.02	0.00			3.51	
0:30:30	9:30:25	4.15	0.00	0.00			3.65	
0:31:00	9:30:55	4.12	-0.03	-0.01			3.70	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-4			RADIO 7 IP-1S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:31:30	9:31:25	4.14	-0.01	0.00			3.49	
0:32:00	9:31:55	4.14	-0.01	0.00			3.60	
0:32:30	9:32:25	4.14	-0.01	-0.01			3.66	
0:33:00	9:32:55	4.14	-0.01	-0.01			3.44	
0:33:30	9:33:25	4.14	-0.01	-0.01			3.54	
0:34:00	9:33:55	4.14	-0.01	0.00			3.63	
0:34:30	9:34:25	4.12	-0.03	-0.01			3.71	
0:35:00	9:34:55	4.12	-0.03	-0.01			3.50	
0:35:30	9:35:25	4.14	-0.01	0.00			3.57	
0:36:00	9:35:55	4.16	0.01	0.00			3.67	
0:36:30	9:36:25	4.13	-0.02	0.00			3.47	
0:37:00	9:36:55	4.14	-0.01	0.00			3.54	
0:37:30	9:37:25	4.14	-0.01	0.00			3.71	
0:38:00	9:37:55	4.13	-0.02	-0.01			3.54	
0:38:30	9:38:25	4.14	-0.01	-0.01			3.62	
0:39:00	9:38:55	4.14	-0.01	0.00			3.74	
0:39:30	9:39:25	4.13	-0.02	-0.01			3.50	
0:40:00	9:39:55	4.12	-0.03	0.00			3.57	
0:40:30	9:40:25	4.15	0.00	-0.01			3.70	
0:41:00	9:40:55	4.12	-0.03	0.00			3.48	
0:41:30	9:41:25	4.13	-0.02	-0.01			3.56	
0:42:00	9:41:55	4.13	-0.02	-0.01			3.68	
0:42:30	9:42:25	4.12	-0.03	-0.01			3.49	
0:43:00	9:42:55	4.13	-0.02	0.00			3.57	
0:43:30	9:43:25	4.12	-0.03	-0.01			3.74	
0:44:00	9:43:55	4.15	0.00	-0.01			3.52	
0:44:30	9:44:25	4.13	-0.02	0.00			3.59	
0:45:00	9:44:55	4.13	-0.02	-0.01			3.73	
0:45:30	9:45:25	4.15	0.00	-0.01			3.52	
0:46:00	9:45:55	4.16	0.01	-0.01			3.59	
0:46:30	9:46:25	4.11	-0.04	-0.01			3.74	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-4			RADIO 7 IP-1S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:47:00	9:46:55	4.13	-0.02	-0.01			3.53	
0:47:30	9:47:25	4.13	-0.02	-0.01			3.62	
0:48:00	9:47:55	4.14	-0.01	-0.01			3.75	
0:48:30	9:48:25	4.14	-0.01	0.00			3.54	
0:49:00	9:48:55	4.16	0.01	-0.01			3.61	
0:49:30	9:49:25	4.14	-0.01	0.00			3.73	
0:50:00	9:49:55	4.13	-0.02	-0.01			3.54	
0:50:30	9:50:25	4.13	-0.02	-0.01			3.63	
0:51:00	9:50:55	4.12	-0.03	-0.01			3.75	
0:51:30	9:51:25	4.12	-0.03	-0.01			3.55	
0:52:00	9:51:55	4.12	-0.03	-0.01			3.63	
0:52:30	9:52:25	4.14	-0.01	-0.01			3.75	
0:53:00	9:52:55	4.13	-0.02	-0.01			3.53	
0:53:30	9:53:25	4.12	-0.03	0.00			3.62	
0:54:00	9:53:55	4.13	-0.02	-0.01			3.73	
0:54:30	9:54:25	4.11	-0.04	-0.01			3.54	
0:55:00	9:54:55	4.12	-0.03	-0.01			3.63	
0:55:30	9:55:25	4.12	-0.03	-0.01			3.75	
0:56:01	9:55:55	4.10	-0.05	-0.01			4.93	Step 3
0:56:30	9:56:25	4.13	-0.02	-0.01			4.98	
0:57:01	9:56:55	4.13	-0.02	0.00			4.87	
0:57:31	9:57:25	4.13	-0.02	0.00			5.00	
0:58:01	9:57:55	4.13	-0.02	0.00			4.79	
0:58:31	9:58:25	4.14	-0.01	-0.01			4.91	
0:59:01	9:58:55	4.14	-0.01	0.00			4.78	
0:59:31	9:59:25	4.13	-0.02	0.00			4.86	
1:00:01	9:59:55	4.13	-0.02	0.00			4.74	
1:00:31	10:00:25	4.13	-0.02	0.00			4.69	
1:01:01	10:00:55	4.13	-0.02	0.00			4.72	
1:01:31	10:01:25	4.12	-0.03	0.00			4.64	
1:02:01	10:01:55	4.13	-0.02	-0.01			4.75	

Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

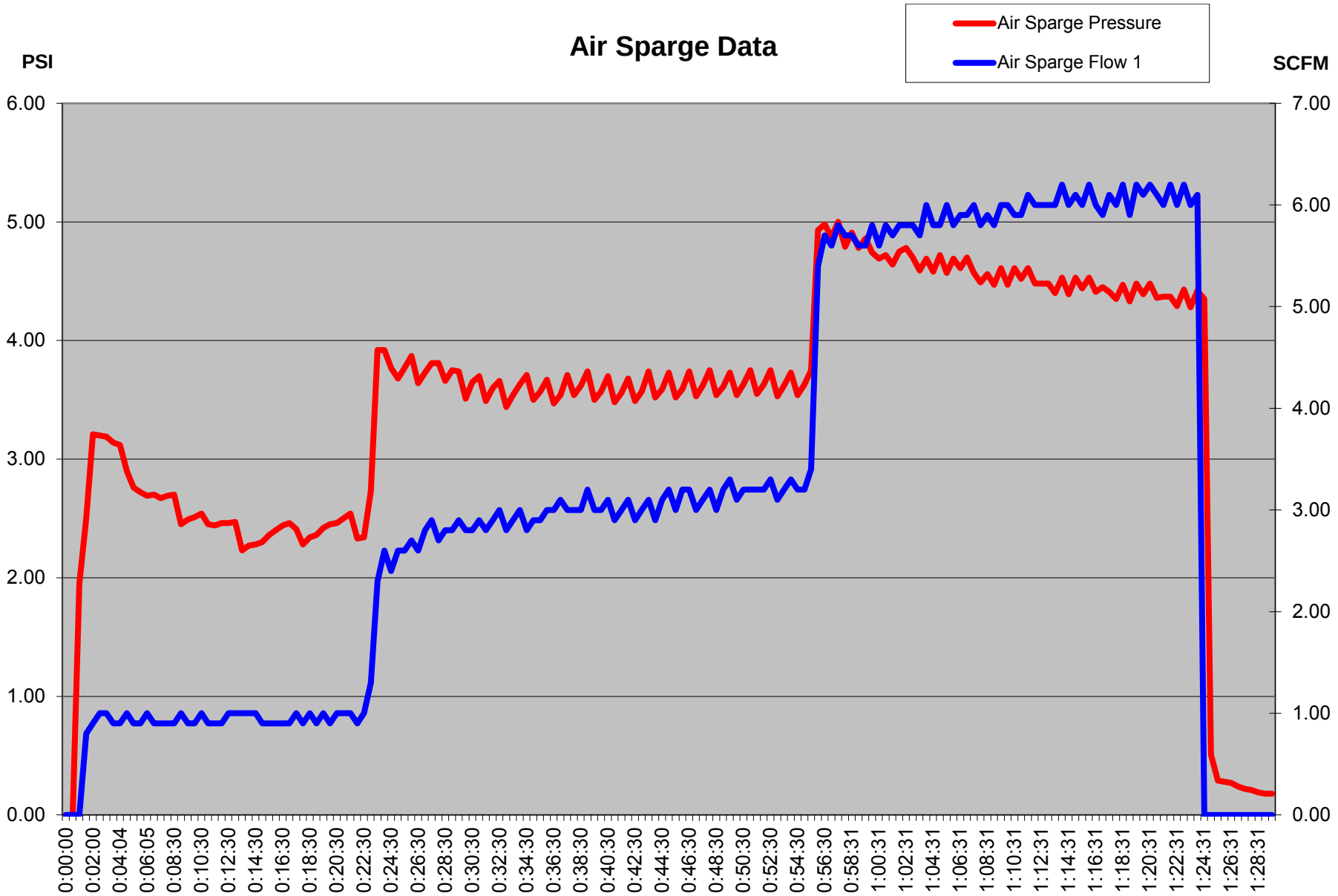
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-4			RADIO 7 IP-1S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:02:31	10:02:25	4.14	-0.01	-0.01			4.78	
1:03:01	10:02:55	4.11	-0.04	0.00			4.70	
1:03:31	10:03:25	4.14	-0.01	0.00			4.59	
1:04:01	10:03:55	4.13	-0.02	0.00			4.69	
1:04:31	10:04:25	4.13	-0.02	-0.01			4.58	
1:05:01	10:04:55	4.13	-0.02	-0.01			4.72	
1:05:31	10:05:25	4.14	-0.01	0.00			4.57	
1:06:01	10:05:55	4.14	-0.01	-0.01			4.69	
1:06:31	10:06:25	4.11	-0.04	0.00			4.61	
1:07:01	10:06:55	4.11	-0.04	-0.01			4.70	
1:07:31	10:07:25	4.14	-0.01	0.00			4.57	
1:08:02	10:07:56	4.12	-0.03	0.00			4.49	
1:08:31	10:08:25	4.12	-0.03	0.00			4.56	
1:09:01	10:08:55	4.13	-0.02	0.00			4.47	
1:09:31	10:09:25	4.12	-0.03	0.00			4.61	
1:10:01	10:09:55	4.12	-0.03	0.00			4.47	
1:10:31	10:10:25	4.13	-0.02	0.00			4.61	
1:11:01	10:10:55	4.13	-0.02	-0.01			4.52	
1:11:31	10:11:25	4.13	-0.02	-0.01			4.61	
1:12:01	10:11:55	4.11	-0.04	-0.01			4.48	
1:12:31	10:12:25	4.14	-0.01	0.00			4.48	
1:13:01	10:12:55	4.13	-0.02	-0.01			4.48	
1:13:31	10:13:25	4.13	-0.02	-0.01			4.40	
1:14:01	10:13:55	4.12	-0.03	0.00			4.53	
1:14:31	10:14:25	4.12	-0.03	0.00			4.39	
1:15:01	10:14:55	4.12	-0.03	0.00			4.53	
1:15:31	10:15:25	4.14	-0.01	0.00			4.44	
1:16:01	10:15:55	4.13	-0.02	-0.01			4.53	
1:16:31	10:16:25	4.13	-0.02	-0.01			4.41	
1:17:01	10:16:55	4.12	-0.03	-0.01			4.45	
1:17:31	10:17:25	4.16	0.01	0.00			4.41	

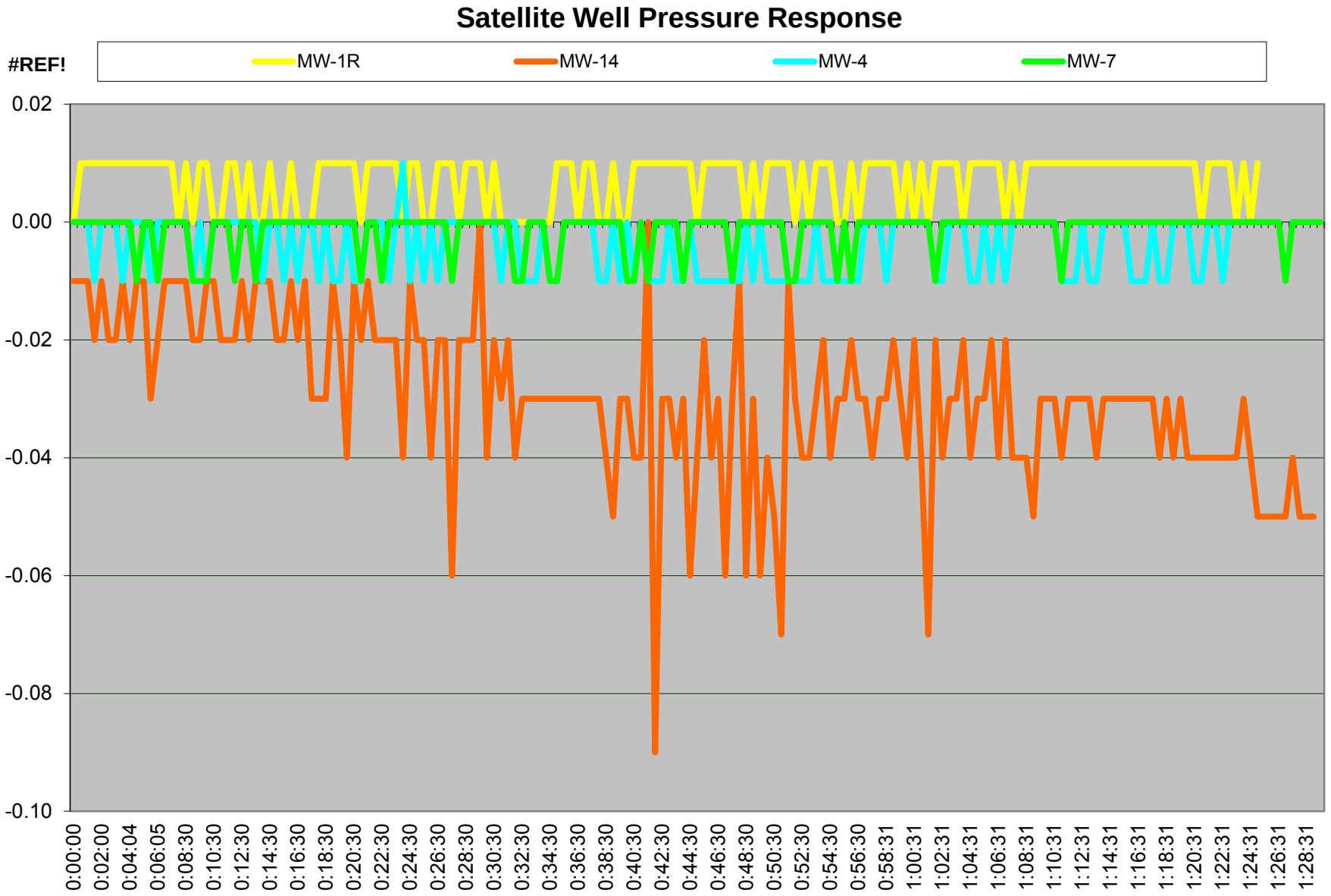
Table B-5

Air Injection at IP-1S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-4			RADIO 7 IP-1S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:18:01	10:17:55	4.11	-0.04	-0.01			4.35	
1:18:31	10:18:25	4.14	-0.01	-0.01			4.47	
1:19:01	10:18:55	4.15	0.00	0.00			4.33	
1:19:31	10:19:25	4.13	-0.02	0.00			4.48	
1:20:01	10:19:55	4.12	-0.03	0.00			4.39	
1:20:31	10:20:25	4.13	-0.02	-0.01			4.48	
1:21:01	10:20:55	4.13	-0.02	-0.01			4.36	
1:21:31	10:21:25	4.13	-0.02	0.00			4.37	
1:22:01	10:21:55	4.12	-0.03	0.00			4.37	
1:22:31	10:22:25	4.11	-0.04	-0.01			4.29	
1:23:01	10:22:55	4.12	-0.03	0.00			4.43	
1:23:31	10:23:25	4.12	-0.03	0.00			4.28	
1:24:01	10:23:55	4.11	-0.04	0.00			4.42	end test
1:24:31	10:24:25	4.14	-0.01	0.00			4.35	
1:25:01	10:24:55	4.14	-0.01	-0.01			0.51	
1:25:31	10:25:25	4.12	-0.03	-0.01			0.29	
1:26:01	10:25:55						0.28	
1:26:31	10:26:25						0.27	
1:27:01	10:26:55						0.24	
1:27:31	10:27:25						0.22	
1:28:01	10:27:55						0.21	
1:28:31	10:28:25						0.19	
1:29:01	10:28:55						0.18	
1:29:31	10:29:25						0.18	
1:29:48	10:29:43						0.17	


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
6.00
5.00
4.00
3.00
2.00
1.00
0.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0:00:00
0:02:00
0:04:04
0:06:05
0:08:30
0:10:30
0:12:30
0:14:30
0:16:30
0:18:30
0:20:30
0:22:30
0:24:30
0:26:30
0:28:30
0:30:30
0:32:30
0:34:30
0:36:30
0:38:30
0:40:30
0:42:30
0:44:30
0:46:30
0:48:30
0:50:30
0:52:30
0:54:30
0:56:30
0:58:31
1:00:31
1:02:31
1:04:31
1:06:31
1:08:31
1:10:31
1:12:31
1:14:31
1:16:31
1:18:31
1:20:31
1:22:31
1:24:31
1:26:31
1:28:31


Satellite Well Pressure Response
#REF!
MW-1R
MW-14
MW-4
MW-7
0.02
0.00
-0.02
-0.04
-0.06
-0.08
-0.10
0:00:00
0:02:00
0:04:04
0:06:05
0:08:30
0:10:30
0:12:30
0:14:30
0:16:30
0:18:30
0:20:30
0:22:30
0:24:30
0:26:30
0:28:30
0:30:30
0:32:30
0:34:30
0:36:30
0:38:30
0:40:30
0:42:30
0:44:30
0:46:30
0:48:30
0:50:30
0:52:30
0:54:30
0:56:30
0:58:31
1:00:31
1:02:31
1:04:31
1:06:31
1:08:31
1:10:31
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1:26:31
1:28:31

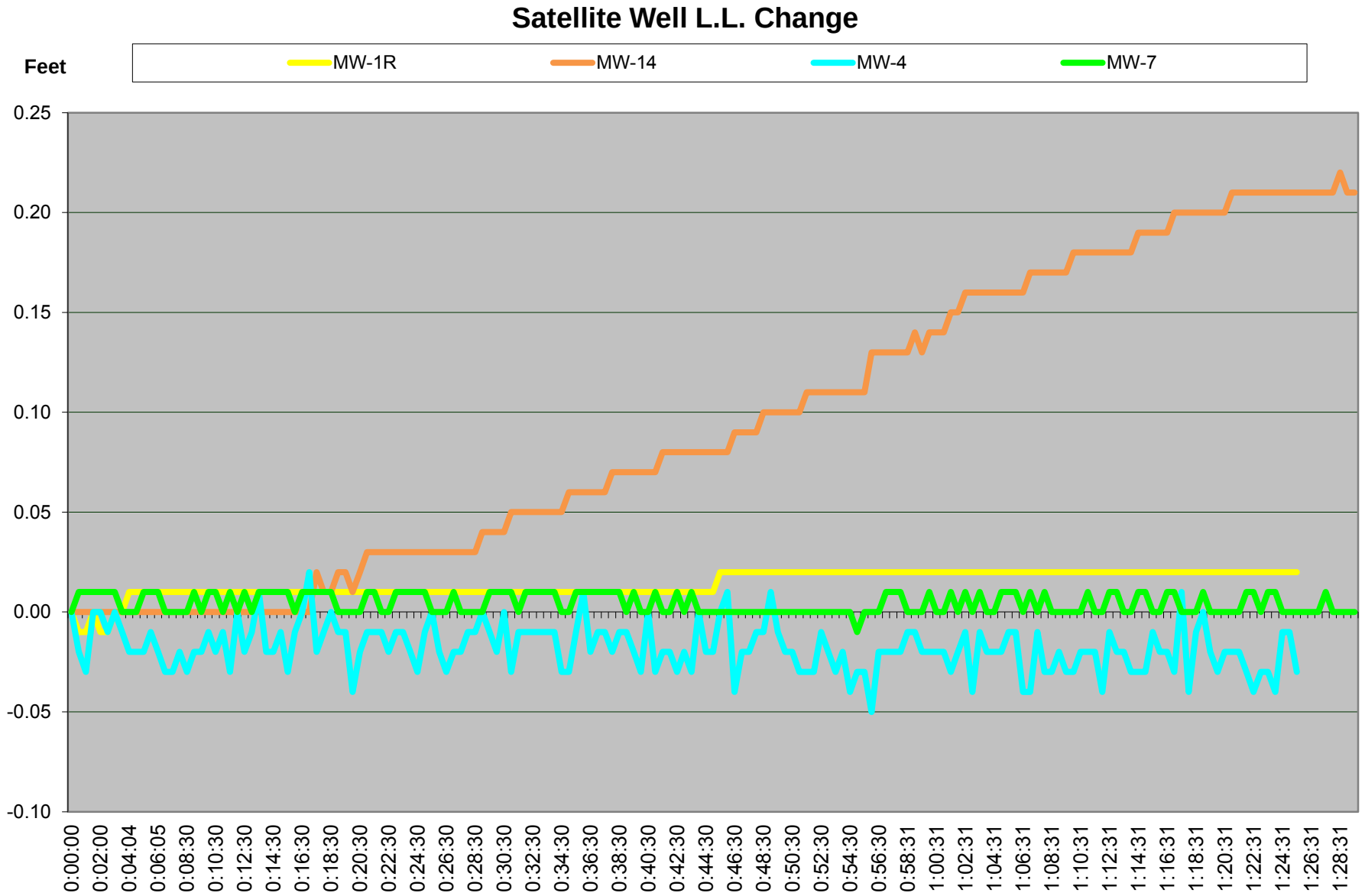

Satellite Well L.L. Change
Feet
MW-1R
MW-14
MW-4
MW-7
0.25
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
0:00:00
0:02:00
0:04:04
0:06:05
0:08:30
0:10:30
0:12:30
0:14:30
0:16:30
0:18:30
0:20:30
0:22:30
0:24:30
0:26:30
0:28:30
0:30:30
0:32:30
0:34:30
0:36:30
0:38:30
0:40:30
0:42:30
0:44:30
0:46:30
0:48:30
0:50:30
0:52:30
0:54:30
0:56:30
0:58:31
1:00:31
1:02:31
1:04:31
1:06:31
1:08:31
1:10:31
1:12:31
1:14:31
1:16:31
1:18:31
1:20:31
1:22:31
1:24:31
1:26:31
1:28:31

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	5
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	10:51:44	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.02	
0:00:11	10:51:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.02	
0:00:41	10:52:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.02	
0:01:11	10:52:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.02	
0:01:42	10:53:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.02	
0:02:12	10:53:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.20	0	6.18	
0:02:42	10:54:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	9.23	
0:03:12	10:54:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	12.8	
0:03:42	10:55:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.10	0	16.93	
0:04:12	10:55:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.20	0	16.23	
0:04:42	10:56:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.40	0	16.17	
0:05:12	10:56:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.17	
0:05:42	10:57:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.60	0	16.22	
0:06:12	10:57:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.23	
0:06:42	10:58:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.27	
0:07:12	10:58:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.40	0	15.99	
0:07:42	10:59:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.02	
0:08:12	10:59:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.05	
0:08:42	11:00:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.11	
0:09:12	11:00:56	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.15	
0:09:42	11:01:26	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.50	0	16.14	
0:10:12	11:01:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	15.94	
0:10:42	11:02:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	15.97	
0:11:12	11:02:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.04	
0:11:42	11:03:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	16.09	
0:12:12	11:03:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.12	
0:12:42	11:04:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.84	
0:13:12	11:04:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	15.89	
0:13:42	11:05:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.93	
0:14:12	11:05:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16	
0:14:42	11:06:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.06	
0:15:12	11:06:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.81	
0:15:42	11:07:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.88	
0:16:12	11:07:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.94	
0:16:42	11:08:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.99	
0:17:12	11:08:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.06	
0:17:42	11:09:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.81	
0:18:12	11:09:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.86	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	5
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:18:42	11:10:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.93	
0:19:12	11:10:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.01	
0:19:42	11:11:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.06	
0:20:12	11:11:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.8	
0:20:42	11:12:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.87	
0:21:12	11:12:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.93	
0:21:42	11:13:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	16.01	
0:22:12	11:13:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.86	
0:22:42	11:14:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.78	
0:23:12	11:14:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.84	
0:23:42	11:15:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.9	
0:24:12	11:15:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.95	
0:24:42	11:16:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.73	
0:25:12	11:16:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.78	
0:25:42	11:17:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.84	
0:26:12	11:17:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.91	
0:26:42	11:18:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	15.99	
0:27:12	11:18:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.71	
0:27:42	11:19:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.79	
0:28:12	11:19:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.87	
0:28:42	11:20:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.92	
0:29:12	11:20:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.95	
0:29:42	11:21:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	15.8	
0:30:12	11:21:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	15.85	
0:30:42	11:22:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	15.92	end step 1
0:31:12	11:22:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	19.2	
0:31:42	11:23:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.30	0	18.81	
0:32:12	11:23:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.50	0	18.94	
0:32:42	11:24:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.30	0	19.02	
0:33:12	11:24:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.50	0	18.8	
0:33:42	11:25:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	18.91	
0:34:12	11:25:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.70	0	18.68	
0:34:42	11:26:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	18.77	
0:35:12	11:26:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.80	0	18.91	
0:35:42	11:27:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.80	0	18.64	
0:36:12	11:27:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.80	0	18.74	
0:36:42	11:28:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.80	0	18.87	
0:37:12	11:28:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.90	0	18.67	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	5
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:37:42	11:29:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.10	0	18.75	
0:38:12	11:29:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.90	0	18.54	
0:38:42	11:30:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.20	0	18.68	
0:39:12	11:30:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.00	0	18.76	
0:39:42	11:31:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.10	0	18.57	
0:40:12	11:31:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.30	0	18.7	
0:40:42	11:32:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.20	0	18.41	
0:41:12	11:32:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.40	0	18.55	
0:41:42	11:33:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.30	0	18.34	
0:42:12	11:33:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.30	0	18.44	
0:42:42	11:34:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.40	0	18.56	
0:43:12	11:34:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.60	0	18.36	
0:43:42	11:35:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.70	0	18.46	
0:44:12	11:35:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.60	0	18.28	
0:44:42	11:36:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.70	0	18.46	
0:45:12	11:36:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.60	0	18.29	
0:45:42	11:37:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.60	0	18.34	
0:46:12	11:37:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.70	0	18.13	
0:46:42	11:38:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.90	0	18.21	
0:47:12	11:38:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.80	0	18.26	
0:47:42	11:39:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.90	0	18.2	
0:48:12	11:39:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.90	0	18.27	
0:48:42	11:40:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.90	0	18.12	
0:49:12	11:40:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	18.27	
0:49:42	11:41:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.90	0	18.01	
0:50:12	11:41:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	18.19	
0:50:42	11:42:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.00	0	18.01	
0:51:12	11:42:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	18.13	
0:51:42	11:43:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.00	0	17.97	
0:52:12	11:43:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.30	0	18.14	
0:52:42	11:44:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	17.9	
0:53:12	11:44:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	18.06	
0:53:42	11:45:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	17.84	
0:54:12	11:45:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.20	0	17.97	
0:54:42	11:46:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	17.8	
0:55:12	11:46:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.30	0	18.01	
0:55:42	11:47:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	17.85	
0:56:12	11:47:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.30	0	18	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	5
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:56:42	11:48:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	17.85	
0:57:12	11:48:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.30	0	17.98	
0:57:42	11:49:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.00	0	17.95	
0:58:12	11:49:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.20	0	17.96	
0:58:42	11:50:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.10	0	18	end step 2
0:59:12	11:50:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	7.80	0	19.99	
0:59:42	11:51:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.00	0	19.59	
1:00:12	11:51:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.10	0	19.67	
1:00:42	11:52:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.20	0	19.52	
1:01:12	11:52:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.40	0	19.39	
1:01:42	11:53:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.30	0	19.46	
1:02:12	11:53:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.50	0	19.42	
1:02:42	11:54:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.40	0	19.34	
1:03:12	11:54:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.50	0	19.24	
1:03:42	11:55:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.60	0	19.33	
1:04:12	11:55:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.60	0	19.21	
1:04:42	11:56:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.70	0	19.07	
1:05:12	11:56:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.60	0	19.12	
1:05:42	11:57:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.80	0	19.17	
1:06:12	11:57:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.80	0	19.01	
1:06:42	11:58:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.90	0	18.93	
1:07:12	11:58:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.90	0	18.98	
1:07:42	11:59:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.00	0	18.98	
1:08:12	11:59:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.00	0	18.92	
1:08:42	12:00:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	8.90	0	18.85	
1:09:12	12:00:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.20	0	18.99	
1:09:42	12:01:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.20	0	18.91	
1:10:12	12:01:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.10	0	18.84	
1:10:42	12:02:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.10	0	18.89	
1:11:12	12:02:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.40	0	18.88	
1:11:42	12:03:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.10	0	18.79	
1:12:12	12:03:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.30	0	18.65	
1:12:42	12:04:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.30	0	18.67	
1:13:12	12:04:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	9.80	0	18.68	end test
1:13:42	12:05:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	12.61	
1:14:12	12:05:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	1.27	
1:14:42	12:06:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0.42	
1:15:12	12:06:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0.3	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	5
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:15:42	12:07:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0.18	
1:16:12	12:07:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	-7.76	
1:16:42	12:08:26	0.00	0.00	0.96	#NUM!	0.00	0.00	0.00	0	-7.76	
1:17:12	12:08:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	-7.76	
1:17:42	12:09:26	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	-7.76	
1:17:48	12:09:32	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	-7.76	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-22			RADIO 3 MW-13			RADIO 4 MW-14			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	10:51:44	16.12	0.00	-0.01	11.44	0.00	-0.01	7.15	0.00	-0.01	
0:00:11	10:51:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.15	0.00	0.00	
0:00:41	10:52:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.14	-0.01	0.00	
0:01:11	10:52:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.14	-0.01	-0.01	
0:01:41	10:53:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.15	0.00	0.00	
0:02:11	10:53:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.14	-0.01	-0.01	
0:02:42	10:54:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.15	0.00	-0.01	
0:03:12	10:54:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.14	-0.01	0.00	
0:03:42	10:55:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.15	0.00	-0.01	
0:04:12	10:55:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.14	-0.01	-0.01	
0:04:42	10:56:26	16.12	0.00	-0.01	11.44	0.00	-0.01	7.14	-0.01	0.00	
0:05:12	10:56:56	16.12	0.00	-0.01	11.44	0.00	-0.01	7.14	-0.01	-0.01	
0:05:42	10:57:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.14	-0.01	-0.01	
0:06:12	10:57:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.15	0.00	-0.01	
0:06:42	10:58:26	16.12	0.00	-0.02	11.44	0.00	0.00	7.15	0.00	-0.01	
0:07:12	10:58:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.15	0.00	-0.01	
0:07:42	10:59:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.16	0.01	-0.01	
0:08:12	10:59:56	16.12	0.00	-0.01	11.44	0.00	-0.01	7.16	0.01	-0.01	
0:08:42	11:00:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.16	0.01	-0.01	
0:09:12	11:00:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.16	0.01	-0.01	
0:09:42	11:01:26	16.12	0.00	-0.01	11.44	0.00	-0.01	7.17	0.02	-0.03	
0:10:12	11:01:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.16	0.01	-0.02	
0:10:42	11:02:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.17	0.02	-0.03	
0:11:12	11:02:56	16.12	0.00	-0.01	11.44	0.00	-0.01	7.17	0.02	-0.03	
0:11:42	11:03:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.17	0.02	-0.03	
0:12:12	11:03:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.17	0.02	-0.03	
0:12:42	11:04:26	16.12	0.00	-0.02	11.44	0.00	0.00	7.17	0.02	-0.03	
0:13:12	11:04:56	16.12	0.00	-0.01	11.44	0.00	-0.01	7.18	0.03	-0.03	
0:13:42	11:05:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.18	0.03	-0.03	
0:14:12	11:05:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.18	0.03	-0.04	
0:14:42	11:06:26	16.12	0.00	0.00	11.44	0.00	-0.01	7.18	0.03	-0.04	
0:15:12	11:06:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.18	0.03	-0.04	
0:15:42	11:07:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.18	0.03	-0.04	
0:16:12	11:07:56	16.12	0.00	-0.01	11.44	0.00	0.00	7.18	0.03	-0.04	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-22			RADIO 3 MW-13			RADIO 4 MW-14			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:16:42	11:08:26	16.12	0.00	-0.01	11.44	0.00	0.00	7.18	0.03	-0.04	
0:17:12	11:08:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.19	0.04	-0.04	
0:17:42	11:09:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.20	0.05	-0.04	
0:18:12	11:09:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.20	0.05	-0.04	
0:18:42	11:10:26	16.14	0.02	-0.01	11.44	0.00	0.01	7.20	0.05	-0.05	
0:19:12	11:10:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.21	0.06	-0.04	
0:19:42	11:11:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:20:12	11:11:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:20:42	11:12:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:21:12	11:12:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:21:42	11:13:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:22:12	11:13:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:22:42	11:14:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:23:12	11:14:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:23:42	11:15:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.22	0.07	-0.04	
0:24:12	11:15:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.23	0.08	-0.04	
0:24:42	11:16:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.23	0.08	-0.04	
0:25:12	11:16:56	16.14	0.02	-0.01	11.44	0.00	0.01	7.23	0.08	-0.04	
0:25:42	11:17:26	16.14	0.02	-0.01	11.44	0.00	-0.01	7.23	0.08	-0.04	
0:26:12	11:17:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.23	0.08	-0.04	
0:26:42	11:18:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.23	0.08	-0.04	
0:27:12	11:18:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.23	0.08	-0.03	
0:27:42	11:19:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.24	0.09	-0.03	
0:28:12	11:19:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.23	0.08	-0.03	
0:28:42	11:20:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.24	0.09	-0.04	
0:29:12	11:20:56	16.14	0.02	-0.01	11.44	0.00	0.01	7.24	0.09	-0.03	
0:29:42	11:21:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.24	0.09	-0.03	
0:30:12	11:21:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.24	0.09	-0.03	
0:30:42	11:22:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.24	0.09	-0.03	End step 1
0:31:12	11:22:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.24	0.09	-0.03	
0:31:42	11:23:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.25	0.10	-0.02	
0:32:12	11:23:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.25	0.10	-0.02	
0:32:42	11:24:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.25	0.10	-0.02	
0:33:12	11:24:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.26	0.11	-0.01	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-22			RADIO 3 MW-13			RADIO 4 MW-14			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:33:42	11:25:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.26	0.11	-0.01	
0:34:12	11:25:56	16.14	0.02	-0.01	11.44	0.00	0.01	7.27	0.12	-0.01	
0:34:42	11:26:26	16.14	0.02	-0.02	11.44	0.00	0.00	7.28	0.13	-0.01	
0:35:12	11:26:56	16.14	0.02	0.00	11.44	0.00	0.00	7.28	0.13	-0.01	
0:35:42	11:27:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.28	0.13	0.00	
0:36:12	11:27:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.29	0.14	-0.01	
0:36:42	11:28:26	16.14	0.02	-0.01	11.44	0.00	0.01	7.29	0.14	-0.01	
0:37:12	11:28:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.29	0.14	0.00	
0:37:42	11:29:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.30	0.15	0.00	
0:38:12	11:29:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.30	0.15	0.00	
0:38:42	11:30:26	16.14	0.02	0.00	11.44	0.00	0.00	7.30	0.15	0.00	
0:39:12	11:30:56	16.14	0.02	-0.01	11.44	0.00	0.00	7.30	0.15	0.00	
0:39:42	11:31:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.31	0.16	0.01	
0:40:12	11:31:56	16.14	0.02	-0.01	11.44	0.00	0.01	7.31	0.16	0.00	
0:40:42	11:32:26	16.14	0.02	-0.01	11.44	0.00	0.01	7.32	0.17	0.00	
0:41:12	11:32:56	16.14	0.02	0.00	11.44	0.00	0.00	7.32	0.17	0.00	
0:41:42	11:33:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.33	0.18	0.01	
0:42:12	11:33:56	16.14	0.02	0.00	11.44	0.00	0.00	7.33	0.18	0.01	
0:42:42	11:34:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.33	0.18	0.02	
0:43:12	11:34:56	16.14	0.02	-0.01	11.44	0.00	0.01	7.34	0.19	0.01	
0:43:42	11:35:26	16.14	0.02	0.00	11.44	0.00	0.00	7.35	0.20	0.02	
0:44:12	11:35:56	16.14	0.02	0.00	11.44	0.00	0.01	7.35	0.20	0.02	
0:44:42	11:36:26	16.14	0.02	-0.01	11.44	0.00	0.01	7.35	0.20	0.03	
0:45:12	11:36:56	16.14	0.02	0.00	11.44	0.00	0.00	7.36	0.21	0.03	
0:45:42	11:37:26	16.14	0.02	0.00	11.44	0.00	0.00	7.36	0.21	0.03	
0:46:12	11:37:56	16.14	0.02	0.00	11.44	0.00	0.01	7.37	0.22	0.03	
0:46:42	11:38:26	16.14	0.02	0.00	11.44	0.00	0.01	7.37	0.22	0.04	
0:47:12	11:38:56	16.14	0.02	0.00	11.44	0.00	0.00	7.37	0.22	0.04	
0:47:42	11:39:26	16.14	0.02	0.00	11.44	0.00	0.00	7.38	0.23	0.03	
0:48:12	11:39:56	16.14	0.02	0.00	11.44	0.00	0.01	7.38	0.23	0.04	
0:48:42	11:40:26	16.14	0.02	0.00	11.44	0.00	0.00	7.38	0.23	0.03	
0:49:12	11:40:56	16.14	0.02	-0.01	11.44	0.00	0.01	7.39	0.24	0.04	
0:49:42	11:41:26	16.14	0.02	0.00	11.44	0.00	0.01	7.39	0.24	0.03	
0:50:12	11:41:56	16.14	0.02	0.01	11.44	0.00	0.00	7.39	0.24	0.03	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-22			RADIO 3 MW-13			RADIO 4 MW-14			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:50:42	11:42:26	16.14	0.02	0.00	11.44	0.00	0.01	7.39	0.24	0.04	
0:51:12	11:42:56	16.14	0.02	0.00	11.44	0.00	0.01	7.39	0.24	0.03	
0:51:42	11:43:26	16.14	0.02	0.00	11.44	0.00	0.01	7.40	0.25	0.03	
0:52:12	11:43:56	16.14	0.02	0.00	11.44	0.00	0.01	7.41	0.26	0.03	
0:52:42	11:44:26	16.14	0.02	0.00	11.44	0.00	0.00	7.41	0.26	0.03	
0:53:12	11:44:56	16.14	0.02	0.00	11.44	0.00	0.01	7.43	0.28	0.04	
0:53:42	11:45:26	16.14	0.02	0.00	11.44	0.00	0.01	7.42	0.27	0.03	
0:54:12	11:45:56	16.14	0.02	0.00	11.44	0.00	0.01	7.43	0.28	0.02	
0:54:42	11:46:26	16.14	0.02	0.00	11.44	0.00	0.01	7.43	0.28	0.03	
0:55:12	11:46:56	16.14	0.02	0.00	11.44	0.00	0.00	7.43	0.28	0.02	
0:55:42	11:47:26	16.14	0.02	0.00	11.44	0.00	0.00	7.44	0.29	0.02	
0:56:12	11:47:56	16.14	0.02	0.01	11.44	0.00	0.01	7.44	0.29	0.02	
0:56:42	11:48:26	16.14	0.02	0.00	11.44	0.00	0.01	7.44	0.29	0.02	
0:57:12	11:48:56	16.14	0.02	0.00	11.44	0.00	0.01	7.44	0.29	0.02	
0:57:42	11:49:26	16.14	0.02	0.01	11.44	0.00	0.01	7.45	0.30	0.02	
0:58:12	11:49:56	16.14	0.02	0.00	11.44	0.00	0.00	7.45	0.30	0.02	
0:58:42	11:50:26	16.14	0.02	0.00	11.44	0.00	0.00	7.45	0.30	0.02	end step 2
0:59:12	11:50:56	16.14	0.02	0.01	11.44	0.00	0.01	7.45	0.30	0.02	
0:59:42	11:51:26	16.14	0.02	0.00	11.44	0.00	0.00	7.46	0.31	0.06	
1:00:12	11:51:56	16.14	0.02	0.00	11.44	0.00	0.01	7.49	0.34	0.10	
1:00:42	11:52:26	16.14	0.02	0.00	11.44	0.00	0.01	7.49	0.34	0.12	
1:01:12	11:52:56	16.14	0.02	0.01	11.44	0.00	0.00	7.50	0.35	0.16	
1:01:42	11:53:26	16.14	0.02	0.00	11.44	0.00	0.00	7.50	0.35	0.14	
1:02:12	11:53:56	16.14	0.02	0.01	11.44	0.00	0.00	7.51	0.36	0.17	
1:02:42	11:54:26	16.14	0.02	0.00	11.44	0.00	0.00	7.51	0.36	0.16	
1:03:12	11:54:56	16.14	0.02	0.00	11.44	0.00	0.00	7.52	0.37	0.18	
1:03:42	11:55:26	16.14	0.02	0.00	11.44	0.00	0.00	7.52	0.37	0.16	
1:04:12	11:55:56	16.14	0.02	0.00	11.44	0.00	0.00	7.53	0.38	0.18	
1:04:42	11:56:26	16.14	0.02	0.00	11.44	0.00	0.00	7.54	0.39	0.16	
1:05:12	11:56:56	16.14	0.02	0.00	11.44	0.00	0.00	7.55	0.40	0.14	
1:05:42	11:57:26	16.14	0.02	0.00	11.44	0.00	0.00	7.55	0.40	0.17	
1:06:12	11:57:56	16.14	0.02	0.00	11.44	0.00	0.00	7.55	0.40	0.16	
1:06:42	11:58:26	16.14	0.02	0.00	11.44	0.00	0.00	7.56	0.41	0.15	
1:07:12	11:58:56	16.14	0.02	0.00	11.44	0.00	0.00	7.56	0.41	0.16	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-22			RADIO 3 MW-13			RADIO 4 MW-14			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	Comments
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	
1:07:42	11:59:26	16.14	0.02	0.00	11.44	0.00	0.00	7.57	0.42	0.16	
1:08:12	11:59:56	16.14	0.02	0.00	11.44	0.00	0.00	7.57	0.42	0.16	
1:08:42	12:00:26	16.14	0.02	0.00	11.44	0.00	0.00	7.58	0.43	0.16	
1:09:12	12:00:56	16.14	0.02	0.00	11.44	0.00	0.00	7.58	0.43	0.16	
1:09:42	12:01:26	16.14	0.02	0.00	11.44	0.00	0.00	7.58	0.43	0.14	
1:10:12	12:01:56	16.14	0.02	0.00	11.45	0.01	0.00	7.60	0.45	0.16	
1:10:42	12:02:26	16.14	0.02	-0.01	11.44	0.00	0.00	7.60	0.45	0.15	
1:11:12	12:02:56	16.14	0.02	-0.01	11.45	0.01	0.00	7.61	0.46	0.16	
1:11:42	12:03:26	16.14	0.02	0.00	11.45	0.01	0.00	7.61	0.46	0.15	
1:12:12	12:03:56	16.14	0.02	-0.01	11.45	0.01	0.00	7.61	0.46	0.16	
1:12:42	12:04:26	16.14	0.02	-0.01	11.45	0.01	0.00	7.62	0.47	0.16	
1:13:12	12:04:56	16.14	0.02	-0.01	11.45	0.01	0.01	7.62	0.47	0.16	
1:13:42	12:05:26	16.14	0.02	-0.01	11.45	0.01	0.00	7.62	0.47	0.13	
1:14:12	12:05:56	16.14	0.02	-0.01	11.45	0.01	0.00	7.61	0.46	0.03	
1:14:42	12:06:26	16.14	0.02	0.00	11.45	0.01	0.00	7.61	0.46	-0.02	
1:15:12	12:06:56	16.14	0.02	0.00				7.60	0.45	-0.05	
1:15:42	12:07:26	16.14	0.02	-0.01				7.60	0.45	-0.05	
1:16:12	12:07:56	16.15	0.03	-0.01							
1:16:42	12:08:26	16.15	0.03	-0.01							
1:17:12	12:08:56										
1:17:42	12:09:26										
1:17:48	12:09:32										

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-9			RADIO 7 IP-1D			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	10:51:44	13.33	0.00	0.02			0.02	
0:00:11	10:51:56	13.32	-0.01	0.01			0.02	
0:00:41	10:52:26	13.35	0.02	0.01			0.02	
0:01:11	10:52:56	13.34	0.01	0.01			0.02	
0:01:41	10:53:26	13.35	0.02	0.01			0.02	
0:02:11	10:53:56	13.34	0.01	0.01			6.18	
0:02:42	10:54:26	13.36	0.03	0.01			9.23	
0:03:12	10:54:56	13.35	0.02	0.01			12.80	
0:03:42	10:55:26	13.36	0.03	0.01			16.93	
0:04:12	10:55:56	13.35	0.02	0.01			16.23	
0:04:42	10:56:26	13.35	0.02	0.02			16.17	
0:05:12	10:56:56	13.37	0.04	0.02			16.17	
0:05:42	10:57:26	13.37	0.04	0.01			16.22	
0:06:12	10:57:56	13.36	0.03	0.01			16.23	
0:06:42	10:58:26	13.37	0.04	0.01			16.27	
0:07:12	10:58:56	13.39	0.06	0.01			15.99	
0:07:42	10:59:26	13.38	0.05	0.01			16.02	
0:08:12	10:59:56	13.40	0.07	0.01			16.05	
0:08:42	11:00:26	13.40	0.07	0.01			16.11	
0:09:12	11:00:56	13.41	0.08	0.01			16.15	
0:09:42	11:01:26	13.41	0.08	0.00			16.14	
0:10:12	11:01:56	13.42	0.09	0.01			15.94	
0:10:42	11:02:26	13.40	0.07	0.01			15.97	
0:11:12	11:02:56	13.41	0.08	0.01			16.04	
0:11:42	11:03:26	13.40	0.07	0.01			16.09	
0:12:12	11:03:56	13.41	0.08	0.01			16.12	
0:12:42	11:04:26	13.43	0.10	0.01			15.84	
0:13:12	11:04:56	13.41	0.08	0.01			15.89	
0:13:42	11:05:26	13.42	0.09	0.01			15.93	
0:14:12	11:05:56	13.44	0.11	0.00			16.00	
0:14:42	11:06:26	13.44	0.11	0.00			16.06	
0:15:12	11:06:56	13.43	0.10	0.01			15.81	
0:15:42	11:07:26	13.44	0.11	0.01			15.88	
0:16:12	11:07:56	13.44	0.11	0.01			15.94	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-9			RADIO 7 IP-1D			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:16:42	11:08:26	13.45	0.12	0.01			15.99	
0:17:12	11:08:56	13.44	0.11	0.00			16.06	
0:17:42	11:09:26	13.46	0.13	0.00			15.81	
0:18:12	11:09:56	13.46	0.13	0.01			15.86	
0:18:42	11:10:26	13.43	0.10	0.01			15.93	
0:19:12	11:10:56	13.45	0.12	0.00			16.01	
0:19:42	11:11:26	13.45	0.12	0.01			16.06	
0:20:12	11:11:56	13.46	0.13	0.01			15.80	
0:20:42	11:12:26	13.45	0.12	0.01			15.87	
0:21:12	11:12:56	13.46	0.13	0.01			15.93	
0:21:42	11:13:26	13.47	0.14	0.01			16.01	
0:22:12	11:13:56	13.47	0.14	0.00			15.86	
0:22:42	11:14:26	13.48	0.15	0.01			15.78	
0:23:12	11:14:56	13.47	0.14	0.01			15.84	
0:23:42	11:15:26	13.47	0.14	0.00			15.90	
0:24:12	11:15:56	13.47	0.14	0.01			15.95	
0:24:42	11:16:26	13.49	0.16	0.01			15.73	
0:25:12	11:16:56	13.49	0.16	0.00			15.78	
0:25:42	11:17:26	13.49	0.16	0.01			15.84	
0:26:12	11:17:56	13.50	0.17	0.01			15.91	
0:26:42	11:18:26	13.49	0.16	0.01			15.99	
0:27:12	11:18:56	13.49	0.16	0.00			15.71	
0:27:42	11:19:26	13.51	0.18	0.00			15.79	
0:28:12	11:19:56	13.50	0.17	0.01			15.87	
0:28:42	11:20:26	13.51	0.18	0.00			15.92	
0:29:12	11:20:56	13.50	0.17	0.00			15.95	
0:29:42	11:21:26	13.52	0.19	0.01			15.80	
0:30:12	11:21:56	13.52	0.19	0.01			15.85	
0:30:42	11:22:26	13.52	0.19	0.01			15.92	
0:31:12	11:22:56	13.51	0.18	0.01			19.20	
0:31:42	11:23:26	13.51	0.18	0.01			18.81	
0:32:12	11:23:56	13.53	0.20	0.00			18.94	
0:32:42	11:24:26	13.52	0.19	0.01			19.02	
0:33:12	11:24:56	13.52	0.19	0.01			18.80	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-9			RADIO 7 IP-1D			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:33:42	11:25:26	13.52	0.19	0.01			18.91	
0:34:12	11:25:56	13.53	0.20	0.00			18.68	
0:34:42	11:26:26	13.55	0.22	0.01			18.77	
0:35:12	11:26:56	13.55	0.22	0.00			18.91	
0:35:42	11:27:26	13.53	0.20	0.01			18.64	
0:36:12	11:27:56	13.52	0.19	0.01			18.74	
0:36:42	11:28:26	13.55	0.22	0.01			18.87	
0:37:12	11:28:56	13.54	0.21	0.01			18.67	
0:37:42	11:29:26	13.57	0.24	0.01			18.75	
0:38:12	11:29:56	13.55	0.22	0.00			18.54	
0:38:42	11:30:26	13.56	0.23	0.00			18.68	end step 1
0:39:12	11:30:56	13.57	0.24	0.01			18.76	
0:39:42	11:31:26	13.56	0.23	0.01			18.57	
0:40:12	11:31:56	13.56	0.23	0.01			18.70	
0:40:42	11:32:26	13.57	0.24	0.00			18.41	
0:41:12	11:32:56	13.55	0.22	0.01			18.55	
0:41:42	11:33:26	13.56	0.23	0.01			18.34	
0:42:12	11:33:56	13.55	0.22	0.00			18.44	
0:42:42	11:34:26	13.56	0.23	0.00			18.56	
0:43:12	11:34:56	13.57	0.24	0.01			18.36	
0:43:42	11:35:26	13.58	0.25	0.00			18.46	
0:44:12	11:35:56	13.57	0.24	0.01			18.28	
0:44:42	11:36:26	13.60	0.27	0.00			18.46	
0:45:12	11:36:56	13.57	0.24	0.00			18.29	
0:45:42	11:37:26	13.58	0.25	0.01			18.34	
0:46:12	11:37:56	13.58	0.25	0.00			18.13	
0:46:42	11:38:26	13.59	0.26	0.00			18.21	
0:47:12	11:38:56	13.58	0.25	0.01			18.26	
0:47:42	11:39:26	13.59	0.26	0.00			18.20	
0:48:12	11:39:56	13.61	0.28	0.00			18.27	
0:48:42	11:40:26	13.59	0.26	0.00			18.12	
0:49:12	11:40:56	13.60	0.27	0.00			18.27	
0:49:42	11:41:26	13.61	0.28	0.00			18.01	
0:50:12	11:41:56	13.60	0.27	0.01			18.19	

Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

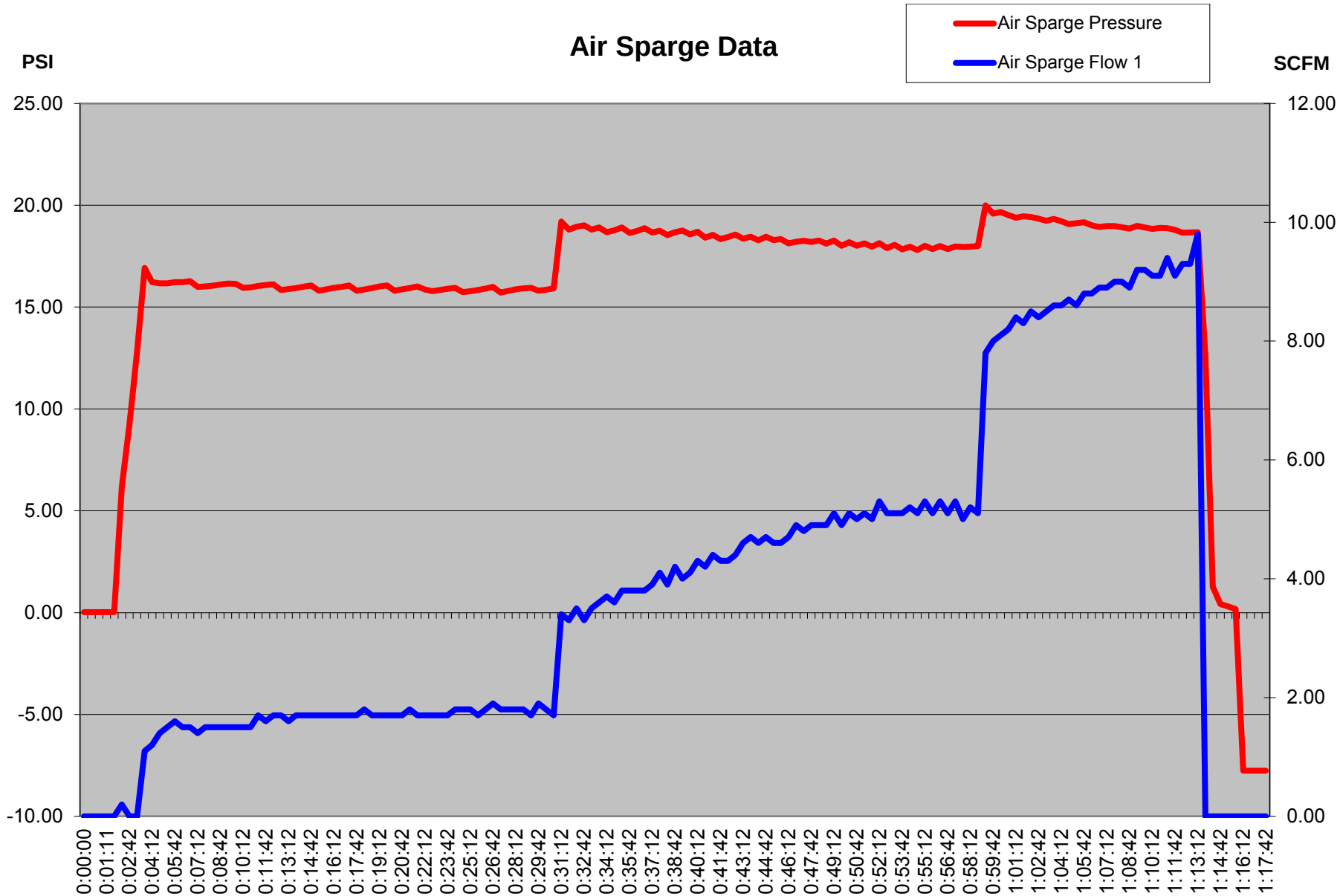
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-9			RADIO 7 IP-1D			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:50:42	11:42:26	13.61	0.28	0.00			18.01	
0:51:12	11:42:56	13.61	0.28	0.00			18.13	
0:51:42	11:43:26	13.62	0.29	0.00			17.97	
0:52:12	11:43:56	13.64	0.31	0.00			18.14	
0:52:42	11:44:26	13.62	0.29	0.00			17.90	
0:53:12	11:44:56	13.62	0.29	0.00			18.06	
0:53:42	11:45:26	13.62	0.29	0.00			17.84	
0:54:12	11:45:56	13.62	0.29	0.00			17.97	
0:54:42	11:46:26	13.63	0.30	-0.01			17.80	
0:55:12	11:46:56	13.63	0.30	0.00			18.01	
0:55:42	11:47:26	13.63	0.30	0.00			17.85	
0:56:12	11:47:56	13.64	0.31	0.00			18.00	
0:56:42	11:48:26	13.64	0.31	0.00			17.85	
0:57:12	11:48:56	13.64	0.31	0.00			17.98	
0:57:42	11:49:26	13.67	0.34	0.00			17.95	
0:58:12	11:49:56	13.66	0.33	0.00			17.96	
0:58:42	11:50:26	13.65	0.32	0.00			18.00	end step 2
0:59:12	11:50:56	13.66	0.33	0.00			19.99	
0:59:42	11:51:26	13.66	0.33	0.00			19.59	
1:00:12	11:51:56	13.66	0.33	0.00			19.67	
1:00:42	11:52:26	13.66	0.33	0.00			19.52	
1:01:12	11:52:56	13.68	0.35	0.00			19.39	
1:01:42	11:53:26	13.67	0.34	0.00			19.46	
1:02:12	11:53:56	13.67	0.34	0.00			19.42	
1:02:42	11:54:26	13.67	0.34	0.00			19.34	
1:03:12	11:54:56	13.67	0.34	0.00			19.24	
1:03:42	11:55:26	13.68	0.35	0.00			19.33	
1:04:12	11:55:56	13.69	0.36	0.00			19.21	
1:04:42	11:56:26	13.69	0.36	0.00			19.07	
1:05:12	11:56:56	13.68	0.35	0.00			19.12	
1:05:42	11:57:26	13.68	0.35	0.00			19.17	
1:06:12	11:57:56	13.69	0.36	0.00			19.01	
1:06:42	11:58:26	13.70	0.37	0.00			18.93	
1:07:12	11:58:56	13.69	0.36	0.00			18.98	

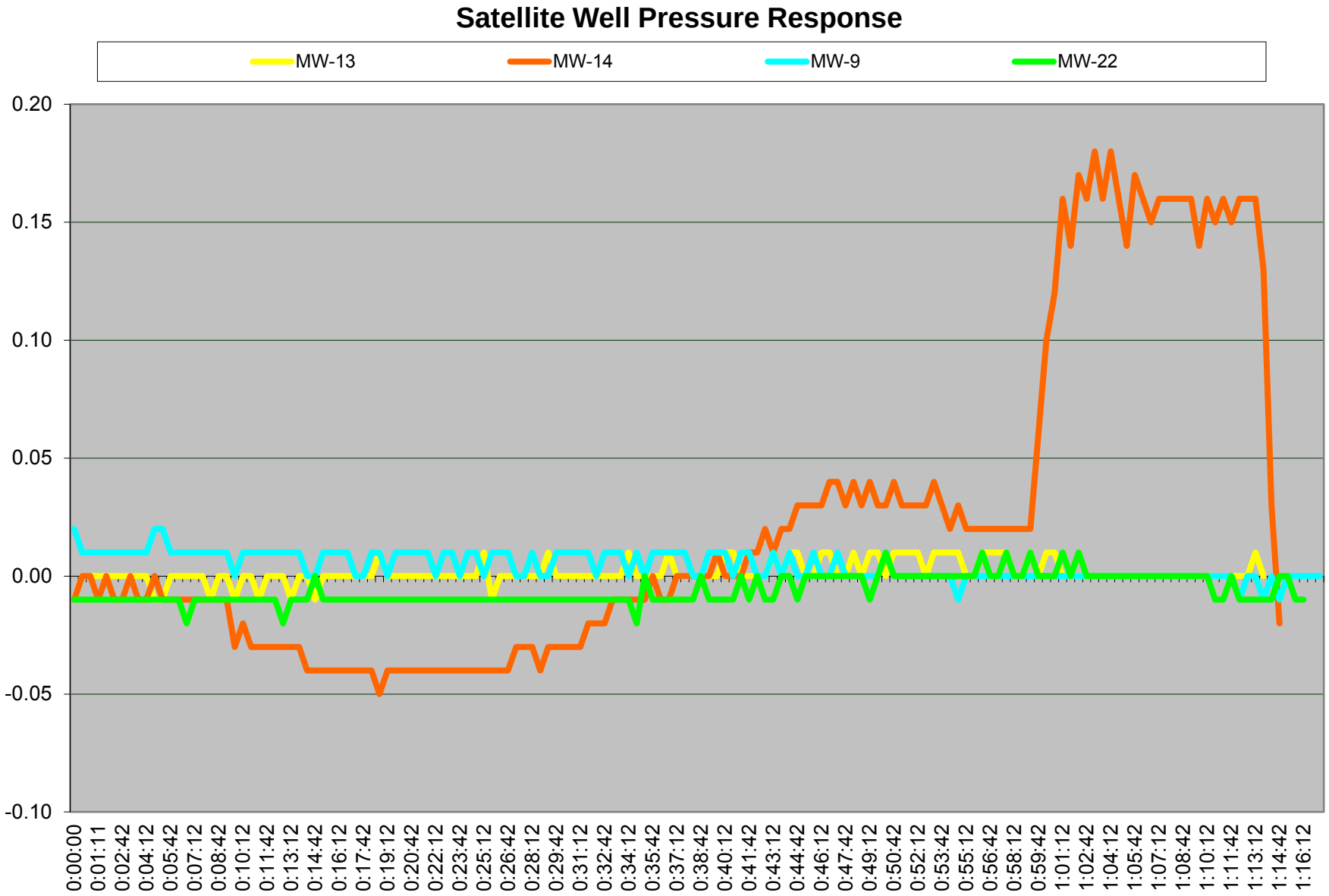
Table B-6

Air Injection at IP-1D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-9			RADIO 7 IP-1D			5
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:07:42	11:59:26	13.68	0.35	0.00			18.98	
1:08:12	11:59:56	13.69	0.36	0.00			18.92	
1:08:42	12:00:26	13.70	0.37	0.00			18.85	
1:09:12	12:00:56	13.70	0.37	0.00			18.99	
1:09:42	12:01:26	13.69	0.36	0.00			18.91	
1:10:12	12:01:56	13.69	0.36	0.00			18.84	
1:10:42	12:02:26	13.68	0.35	0.00			18.89	
1:11:12	12:02:56	13.71	0.38	0.00			18.88	
1:11:42	12:03:26	13.71	0.38	0.00			18.79	
1:12:12	12:03:56	13.70	0.37	-0.01			18.65	
1:12:42	12:04:26	13.71	0.38	0.00			18.67	
1:13:12	12:04:56	13.71	0.38	0.00			18.68	end test
1:13:42	12:05:26	13.71	0.38	-0.01			12.61	
1:14:12	12:05:56	13.71	0.38	0.00			1.27	
1:14:42	12:06:26	13.73	0.40	-0.01			0.42	
1:15:12	12:06:56	13.71	0.38	0.00			0.30	
1:15:42	12:07:26	13.73	0.40	0.00			0.18	
1:16:12	12:07:56	13.73	0.40	0.00			-7.76	
1:16:42	12:08:26	13.72	0.39	0.00			-7.76	
1:17:12	12:08:56	13.72	0.39	0.00			-7.76	
1:17:42	12:09:26	13.74	0.41	-0.01			-7.76	
1:17:48	12:09:32	13.74	0.41	-0.01			-7.76	


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
25.00
20.00
15.00
10.00
5.00
0.00
-5.00
-10.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0:00:00
0:01:11
0:02:42
0:04:12
0:05:42
0:07:12
0:08:42
0:10:12
0:11:42
0:13:12
0:14:42
0:16:12
0:17:42
0:19:12
0:20:42
0:22:12
0:23:42
0:25:12
0:26:42
0:28:12
0:29:42
0:31:12
0:32:42
0:34:12
0:35:42
0:37:12
0:38:42
0:40:12
0:41:42
0:43:12
0:44:42
0:46:12
0:47:42
0:49:12
0:50:42
0:52:12
0:53:42
0:55:12
0:56:42
0:58:12
0:59:42
1:01:12
1:02:42
1:04:12
1:05:42
1:07:12
1:08:42
1:10:12
1:11:42
1:13:12
1:14:42
1:16:12
1:17:42


Satellite Well Pressure Response
MW-13
MW-14
MW-9
MW-22
0.20
0.15
0.10
0.05
0.00
-0.05
-0.10
0:00:00
0:01:11
0:02:42
0:04:12
0:05:42
0:07:12
0:08:42
0:10:12
0:11:42
0:13:12
0:14:42
0:16:12
0:17:42
0:19:12
0:20:42
0:22:12
0:23:42
0:25:12
0:26:42
0:28:12
0:29:42
0:31:12
0:32:42
0:34:12
0:35:42
0:37:12
0:38:42
0:40:12
0:41:42
0:43:12
0:44:42
0:46:12
0:47:42
0:49:12
0:50:42
0:52:12
0:53:42
0:55:12
0:56:42
0:58:12
0:59:42
1:01:12
1:02:42
1:04:12
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1:13:12
1:14:42
1:16:12

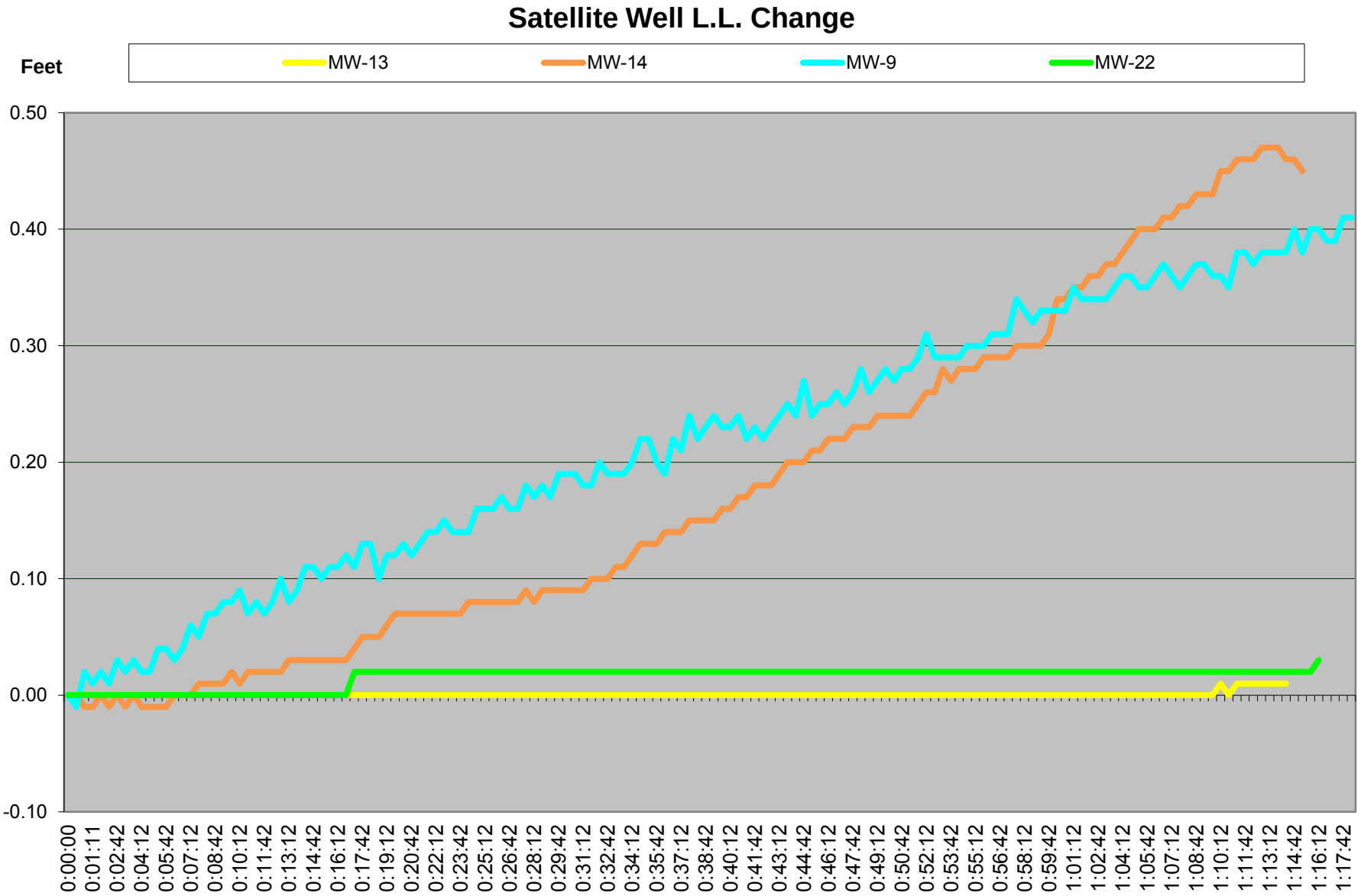

Satellite Well L.L. Change
Feet
MW-13
MW-14
MW-9
MW-22
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
0:00:00
0:01:11
0:02:42
0:04:12
0:05:42
0:07:12
0:08:42
0:10:12
0:11:42
0:13:12
0:14:42
0:16:12
0:17:42
0:19:12
0:20:42
0:22:12
0:23:42
0:25:12
0:26:42
0:28:12
0:29:42
0:31:12
0:32:42
0:34:12
0:35:42
0:37:12
0:38:42
0:40:12
0:41:42
0:43:12
0:44:42
0:46:12
0:47:42
0:49:12
0:50:42
0:52:12
0:53:42
0:55:12
0:56:42
0:58:12
0:59:42
1:01:12
1:02:42
1:04:12
1:05:42
1:07:12
1:08:42
1:10:12
1:11:42
1:13:12
1:14:42
1:16:12
1:17:42

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	8:16:23	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:00:30	8:16:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:01:00	8:17:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:01:30	8:17:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:02:00	8:18:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:02:30	8:18:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:03:00	8:19:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:03:30	8:19:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:04:00	8:20:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:04:30	8:20:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.60	0	8.7	
0:05:00	8:21:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.30	0	8.7	
0:05:30	8:21:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.20	0	8.7	
0:06:04	8:22:27	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	8.7	
0:06:30	8:22:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.30	0	8.7	
0:07:00	8:23:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.30	0	8.7	
0:07:30	8:23:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	18	
0:08:00	8:24:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.80	0	18	
0:08:30	8:24:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.70	0	18	
0:09:07	8:25:29	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.70	0	18	
0:09:30	8:25:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.80	0	18	
0:10:00	8:26:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.80	0	18	
0:10:30	8:26:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	18	
0:11:00	8:27:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	18	
0:11:30	8:27:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	18	
0:12:00	8:28:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	17	
0:12:30	8:28:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	17	
0:13:00	8:29:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	16	
0:13:30	8:29:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	16	
0:14:00	8:30:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	15.2	
0:14:30	8:30:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	15.3	
0:15:00	8:31:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	15.4	
0:15:30	8:31:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	15	
0:16:00	8:32:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	15	
0:16:30	8:32:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	15	
0:17:00	8:33:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	14.2	
0:17:30	8:33:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	14.2	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:18:00	8:34:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	13	
0:18:30	8:34:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	13	
0:19:00	8:35:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.3	
0:19:30	8:35:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.3	
0:20:00	8:36:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.3	
0:20:30	8:36:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.3	
0:21:00	8:37:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.3	
0:21:30	8:37:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.3	
0:22:00	8:38:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.3	
0:22:30	8:38:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.3	
0:23:00	8:39:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.3	
0:23:30	8:39:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.3	
0:24:00	8:40:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.3	
0:24:30	8:40:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.1	
0:25:00	8:41:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.1	
0:25:30	8:41:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.1	
0:26:00	8:42:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.1	
0:26:30	8:42:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.1	
0:27:00	8:43:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.1	
0:27:30	8:43:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.1	
0:28:00	8:44:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12	
0:28:30	8:44:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12	
0:29:00	8:45:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12	
0:29:30	8:45:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12	
0:30:00	8:46:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12	
0:30:30	8:46:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	11.9	
0:31:00	8:47:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.9	
0:31:30	8:47:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.9	
0:32:00	8:48:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.9	
0:32:30	8:48:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.9	
0:33:01	8:49:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	11.9	
0:33:30	8:49:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	11.9	
0:34:00	8:50:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	11.9	
0:34:30	8:50:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	11.9	
0:35:00	8:51:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.9	
0:35:30	8:51:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	11.9	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:36:00	8:52:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	13.3	
0:36:30	8:52:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	13.3	
0:37:00	8:53:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	13.3	Increased flow to 2 scfm
0:37:30	8:53:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.10	0	13.3	
0:38:00	8:54:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.10	0	13.3	
0:38:30	8:54:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.10	0	13.3	
0:39:00	8:55:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	13.3	
0:39:30	8:55:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.20	0	13.1	
0:40:00	8:56:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.20	0	13.1	
0:40:30	8:56:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.20	0	13.1	
0:41:00	8:57:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.00	0	13.2	
0:41:30	8:57:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.10	0	13.2	
0:42:00	8:58:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	13	
0:42:30	8:58:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	13	
0:43:00	8:59:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.10	0	13	
0:43:30	8:59:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	13	
0:44:00	9:00:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	13	
0:44:30	9:00:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	13	
0:45:00	9:01:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.30	0	13	
0:45:30	9:01:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	13	
0:46:00	9:02:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.9	
0:46:30	9:02:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.9	
0:47:00	9:03:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.30	0	12.9	
0:47:30	9:03:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.9	
0:48:00	9:04:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	12.9	
0:48:30	9:04:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.9	
0:49:00	9:05:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	12.9	
0:49:30	9:05:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	12.9	
0:50:00	9:06:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.9	
0:50:32	9:06:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.9	
0:51:01	9:07:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.8	
0:51:30	9:07:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.8	
0:52:00	9:08:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.8	
0:52:31	9:08:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.8	
0:53:01	9:09:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	12.8	
0:53:31	9:09:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.8	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:54:04	9:10:27	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.8	
0:54:31	9:10:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.69	
0:55:01	9:11:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.75	
0:55:31	9:11:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.79	
0:56:01	9:12:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.8	
0:56:31	9:12:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.68	
0:57:01	9:13:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.77	
0:57:31	9:13:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.70	0	12.82	
0:58:01	9:14:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.82	
0:58:31	9:14:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.67	
0:59:01	9:15:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.76	
0:59:31	9:15:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	12.81	
1:00:01	9:16:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.65	
1:00:31	9:16:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.70	0	12.71	
1:01:01	9:17:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.8	
1:01:31	9:17:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.73	
1:02:01	9:18:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	12.64	
1:02:31	9:18:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	7.60	0	12.76	End Step 2
1:03:01	9:19:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.20	0	15.31	
1:03:31	9:19:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.70	0	15.07	
1:04:01	9:20:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.60	0	15.04	
1:04:31	9:20:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.80	0	14.95	
1:05:01	9:21:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.80	0	14.86	
1:05:31	9:21:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.80	0	14.87	
1:06:01	9:22:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.80	0	14.81	
1:06:31	9:22:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.90	0	14.85	
1:07:01	9:23:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.90	0	14.76	
1:07:31	9:23:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.81	
1:08:01	9:24:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.80	0	14.73	
1:08:31	9:24:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.79	
1:09:01	9:25:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.71	
1:09:31	9:25:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.80	0	14.75	
1:10:01	9:26:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.67	
1:10:31	9:26:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	5.90	0	14.65	
1:11:01	9:27:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.7	
1:11:31	9:27:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.65	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:12:01	9:28:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.68	
1:12:31	9:28:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.62	
1:13:01	9:29:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.10	0	14.69	
1:13:31	9:29:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.6	
1:14:01	9:30:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.67	
1:14:31	9:30:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.6	
1:15:01	9:31:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.58	
1:15:31	9:31:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.58	
1:16:01	9:32:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.56	
1:16:31	9:32:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.62	
1:17:01	9:33:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.10	0	14.54	
1:17:31	9:33:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.58	
1:18:01	9:34:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.53	
1:18:31	9:34:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.6	
1:19:01	9:35:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.55	
1:19:31	9:35:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.59	
1:20:01	9:36:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.54	
1:20:31	9:36:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.10	0	14.5	
1:21:01	9:37:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.30	0	14.58	
1:21:31	9:37:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.53	
1:22:01	9:38:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.55	
1:22:31	9:38:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.49	
1:23:01	9:39:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.00	0	14.52	
1:23:31	9:39:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.49	
1:24:01	9:40:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.30	0	14.51	
1:24:31	9:40:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.53	
1:25:01	9:41:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.48	
1:25:31	9:41:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.30	0	14.52	
1:26:01	9:42:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.47	
1:26:31	9:42:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.54	
1:27:01	9:43:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.48	
1:27:31	9:43:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.54	
1:28:01	9:44:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.46	
1:28:31	9:44:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.30	0	14.43	
1:29:01	9:45:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.51	
1:29:31	9:45:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.42	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:30:01	9:46:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.49	
1:30:31	9:46:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.4	
1:31:01	9:47:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.45	
1:31:31	9:47:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.4	
1:32:01	9:48:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.44	
1:32:31	9:48:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.50	0	14.44	
1:33:01	9:49:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.38	
1:33:31	9:49:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.43	
1:34:01	9:50:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.36	
1:34:31	9:50:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.46	
1:35:01	9:51:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.38	
1:35:31	9:51:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.43	
1:36:01	9:52:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.35	
1:36:31	9:52:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.33	
1:37:01	9:53:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.39	
1:37:31	9:53:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.33	
1:38:01	9:54:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.38	
1:38:31	9:54:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.33	
1:39:01	9:55:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.37	
1:39:31	9:55:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.31	
1:40:01	9:56:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.36	
1:40:31	9:56:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.35	
1:41:01	9:57:23	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.28	
1:41:31	9:57:53	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.32	
1:42:01	9:58:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.27	
1:42:31	9:58:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.3	
1:43:01	9:59:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.3	
1:43:31	9:59:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.20	0	14.34	
1:44:01	10:00:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.25	
1:44:31	10:00:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.50	0	14.22	
1:45:01	10:01:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	6.40	0	14.25	
1:45:31	10:01:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	12.21	Test complete
1:46:01	10:02:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	6.19	
1:46:31	10:02:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	4.65	
1:47:01	10:03:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	4.3	
1:47:31	10:03:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.89	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:48:01	10:04:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.66	
1:48:31	10:04:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.51	
1:49:01	10:05:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.46	
1:49:31	10:05:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.38	
1:50:01	10:06:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.3	
1:50:31	10:06:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.25	
1:51:01	10:07:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.22	
1:51:31	10:07:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.18	
1:52:01	10:08:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.15	
1:52:31	10:08:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.12	
1:53:01	10:09:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.1	
1:53:07	10:09:29	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	3.09	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3			4
		MW-23			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	Comments
0:00:00	8:16:23	2.05	0.00	0.00	
0:00:30	8:16:53	2.05	0.00	0.00	
0:01:00	8:17:23	2.05	0.00	-0.01	
0:01:30	8:17:53	2.05	0.00	0.00	
0:02:00	8:18:23	2.06	0.01	0.00	
0:02:30	8:18:53	2.05	0.00	0.01	
0:03:00	8:19:23	2.04	-0.01	0.00	
0:03:30	8:19:53	2.05	0.00	-0.01	
0:04:00	8:20:23	2.05	0.00	0.01	
0:04:30	8:20:53	2.03	-0.02	0.01	
0:05:00	8:21:23	2.04	-0.01	0.00	
0:05:30	8:21:53	2.06	0.01	0.01	
0:06:04	8:22:27	2.02	-0.03	0.01	
0:06:30	8:22:53	2.03	-0.02	0.01	
0:07:00	8:23:23	2.03	-0.02	0.01	
0:07:30	8:23:53	2.04	-0.01	0.00	
0:08:00	8:24:23	2.04	-0.01	0.01	
0:08:30	8:24:53	2.04	-0.01	0.01	
0:09:07	8:25:29	2.04	-0.01	0.00	
0:09:30	8:25:53	2.05	0.00	0.01	
0:10:00	8:26:23	2.04	-0.01	0.01	
0:10:30	8:26:53	2.00	-0.05	0.01	
0:11:00	8:27:23	2.02	-0.03	0.00	
0:11:30	8:27:53	2.04	-0.01	0.00	
0:12:00	8:28:23	2.03	-0.02	0.00	
0:12:30	8:28:53	2.05	0.00	0.00	
0:13:00	8:29:23	2.03	-0.02	0.01	
0:13:30	8:29:53	2.04	-0.01	0.01	
0:14:00	8:30:23	2.03	-0.02	0.01	
0:14:30	8:30:53	2.03	-0.02	0.02	
0:15:00	8:31:23	2.05	0.00	0.01	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3 MW-23 #REF!	L.L. Change - = ↓ + = ↑	#REF!	4
		#REF!		#REF!	Comments
0:15:30	8:31:53	2.03	-0.02	0.00	
0:16:00	8:32:23	2.02	-0.03	0.01	
0:16:30	8:32:53	2.05	0.00	0.00	
0:17:00	8:33:23	2.03	-0.02	0.02	
0:17:30	8:33:53	2.03	-0.02	0.01	
0:18:00	8:34:23	2.04	-0.01	0.01	
0:18:30	8:34:53	2.02	-0.03	0.01	
0:19:00	8:35:23	2.02	-0.03	0.01	
0:19:30	8:35:53	2.04	-0.01	0.01	
0:20:00	8:36:23	2.03	-0.02	0.02	
0:20:30	8:36:53	2.04	-0.01	0.02	
0:21:00	8:37:23	2.02	-0.03	0.02	
0:21:30	8:37:53	2.02	-0.03	0.00	
0:22:00	8:38:23	2.03	-0.02	0.01	
0:22:30	8:38:53	2.02	-0.03	0.01	
0:23:00	8:39:23	2.03	-0.02	0.01	
0:23:30	8:39:53	2.01	-0.04	0.01	
0:24:00	8:40:23	2.03	-0.02	0.02	
0:24:30	8:40:53	2.02	-0.03	0.00	
0:25:00	8:41:23	2.02	-0.03	0.01	
0:25:30	8:41:53	2.03	-0.02	0.02	
0:26:00	8:42:23	2.03	-0.02	0.01	
0:26:30	8:42:53	2.02	-0.03	0.01	
0:27:00	8:43:23	2.03	-0.02	0.01	
0:27:30	8:43:53	2.03	-0.02	0.01	
0:28:00	8:44:23	2.02	-0.03	0.00	
0:28:30	8:44:53	2.00	-0.05	0.01	
0:29:00	8:45:23	2.02	-0.03	0.03	
0:29:30	8:45:53	2.04	-0.01	0.01	
0:30:00	8:46:23	2.03	-0.02	0.01	
0:30:30	8:46:53	2.02	-0.03	0.01	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3 MW-23			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	Comments
0:31:00	8:47:23	2.04	-0.01	0.01	
0:31:30	8:47:53	2.02	-0.03	0.01	
0:32:00	8:48:23	2.03	-0.02	0.01	
0:32:30	8:48:53	2.02	-0.03	0.02	
0:33:01	8:49:23	2.02	-0.03	0.02	
0:33:30	8:49:53	2.02	-0.03	0.02	
0:34:00	8:50:23	2.02	-0.03	0.01	
0:34:30	8:50:53	2.03	-0.02	0.02	
0:35:00	8:51:23	2.02	-0.03	0.01	
0:35:30	8:51:53	2.03	-0.02	0.02	
0:36:00	8:52:23	2.02	-0.03	0.02	
0:36:30	8:52:53	2.03	-0.02	0.01	
0:37:00	8:53:23	2.03	-0.02	0.00	Increased flow to 2 scfm
0:37:30	8:53:53	2.01	-0.04	0.01	
0:38:00	8:54:23	2.00	-0.05	0.01	
0:38:30	8:54:53	2.02	-0.03	0.01	
0:39:00	8:55:23	2.02	-0.03	0.01	
0:39:30	8:55:53	2.02	-0.03	0.01	
0:40:00	8:56:23	2.01	-0.04	0.02	
0:40:30	8:56:53	2.01	-0.04	0.02	
0:41:00	8:57:23	2.02	-0.03	0.01	
0:41:30	8:57:53	2.02	-0.03	0.01	
0:42:00	8:58:23	2.02	-0.03	0.02	
0:42:30	8:58:53	2.03	-0.02	0.02	
0:43:00	8:59:23	2.03	-0.02	0.01	
0:43:30	8:59:53	2.02	-0.03	0.02	
0:44:00	9:00:23	2.02	-0.03	0.02	
0:44:30	9:00:53	2.03	-0.02	0.02	
0:45:00	9:01:23	2.01	-0.04	0.02	
0:45:30	9:01:53	2.03	-0.02	0.02	
0:46:00	9:02:23	2.03	-0.02	0.01	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3 MW-23			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	Comments
0:46:30	9:02:53	2.02	-0.03	0.03	
0:47:00	9:03:23	2.02	-0.03	0.02	
0:47:30	9:03:53	2.01	-0.04	0.02	
0:48:00	9:04:23	2.02	-0.03	0.02	
0:48:30	9:04:53	2.02	-0.03	0.02	
0:49:00	9:05:23	2.02	-0.03	0.02	
0:49:30	9:05:53	2.02	-0.03	0.02	
0:50:00	9:06:23	1.99	-0.06	0.02	
0:50:32	9:06:54	2.03	-0.02	0.03	
0:51:01	9:07:24	2.00	-0.05	0.03	
0:51:30	9:07:53	2.03	-0.02	0.03	
0:52:00	9:08:23	2.02	-0.03	0.02	
0:52:31	9:08:53	2.03	-0.02	0.01	
0:53:01	9:09:23	2.01	-0.04	0.02	
0:53:31	9:09:53	2.02	-0.03	0.01	
0:54:04	9:10:27	2.03	-0.02	0.02	
0:54:31	9:10:53	2.01	-0.04	0.02	
0:55:01	9:11:23	2.03	-0.02	0.03	
0:55:31	9:11:53	2.01	-0.04	0.03	
0:56:01	9:12:23	2.02	-0.03	0.03	
0:56:31	9:12:53	2.03	-0.02	0.02	
0:57:01	9:13:23	2.02	-0.03	0.03	
0:57:31	9:13:53	2.03	-0.02	0.03	
0:58:01	9:14:23	2.03	-0.02	0.02	
0:58:31	9:14:53	2.02	-0.03	0.02	
0:59:01	9:15:23	2.02	-0.03	0.02	
0:59:31	9:15:53	2.03	-0.02	0.02	
1:00:01	9:16:23	2.03	-0.02	0.02	
1:00:31	9:16:53	2.02	-0.03	0.02	
1:01:01	9:17:23	2.02	-0.03	0.02	
1:01:31	9:17:53	2.03	-0.02	0.03	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3 MW-23 #REF!	L.L. Change - = ↓ + = ↑	RADIO 3 MW-23 #REF!	4
		#REF!		#REF!	Comments
1:02:01	9:18:23	2.02	-0.03	0.02	
1:02:31	9:18:53	2.03	-0.02	0.02	End step 2
1:03:01	9:19:23	2.02	-0.03	0.02	
1:03:31	9:19:53	2.05	0.00	0.03	
1:04:01	9:20:23	2.02	-0.03	0.03	
1:04:31	9:20:53	2.02	-0.03	0.03	
1:05:01	9:21:23	2.04	-0.01	0.04	
1:05:31	9:21:53	2.04	-0.01	0.04	
1:06:01	9:22:23	2.04	-0.01	0.05	
1:06:31	9:22:53	2.03	-0.02	0.04	
1:07:01	9:23:23	2.04	-0.01	0.05	
1:07:31	9:23:53	2.04	-0.01	0.04	
1:08:01	9:24:23	2.06	0.01	0.04	
1:08:31	9:24:53	2.04	-0.01	0.04	
1:09:01	9:25:23	2.06	0.01	0.05	
1:09:31	9:25:53	2.05	0.00	0.04	
1:10:01	9:26:23	2.05	0.00	0.05	
1:10:31	9:26:53	2.05	0.00	0.04	
1:11:01	9:27:23	2.05	0.00	0.04	
1:11:31	9:27:53	2.06	0.01	0.05	
1:12:01	9:28:23	2.07	0.02	0.04	
1:12:31	9:28:53	2.05	0.00	0.05	
1:13:01	9:29:23	2.06	0.01	0.04	
1:13:31	9:29:53	2.08	0.03	0.04	
1:14:01	9:30:23	2.07	0.02	0.04	
1:14:31	9:30:53	2.06	0.01	0.05	
1:15:01	9:31:23	2.07	0.02	0.04	
1:15:31	9:31:53	2.07	0.02	0.03	
1:16:01	9:32:23	2.08	0.03	0.05	
1:16:31	9:32:53	2.05	0.00	0.04	
1:17:01	9:33:23	2.08	0.03	0.04	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3 MW-23			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	Comments
1:17:31	9:33:53	2.08	0.03	0.04	
1:18:01	9:34:23	2.08	0.03	0.04	
1:18:31	9:34:53	2.07	0.02	0.05	
1:19:01	9:35:23	2.08	0.03	0.05	
1:19:31	9:35:53	2.07	0.02	0.04	
1:20:01	9:36:23	2.08	0.03	0.05	
1:20:31	9:36:53	2.09	0.04	0.05	
1:21:01	9:37:23	2.07	0.02	0.05	
1:21:31	9:37:53	2.08	0.03	0.05	
1:22:01	9:38:23	2.08	0.03	0.04	
1:22:31	9:38:53	2.09	0.04	0.05	
1:23:01	9:39:23	2.10	0.05	0.05	
1:23:31	9:39:53	2.09	0.04	0.05	
1:24:01	9:40:23	2.09	0.04	0.04	
1:24:31	9:40:53	2.08	0.03	0.04	
1:25:01	9:41:23	2.09	0.04	0.05	
1:25:31	9:41:53	2.09	0.04	0.04	
1:26:01	9:42:23	2.11	0.06	0.05	
1:26:31	9:42:53	2.07	0.02	0.05	
1:27:01	9:43:23	2.10	0.05	0.05	
1:27:31	9:43:53	2.09	0.04	0.05	
1:28:01	9:44:23	2.10	0.05	0.05	
1:28:31	9:44:53	2.10	0.05	0.05	
1:29:01	9:45:23	2.09	0.04	0.05	
1:29:31	9:45:53	2.11	0.06	0.06	
1:30:01	9:46:23	2.11	0.06	0.05	
1:30:31	9:46:53	2.11	0.06	0.05	
1:31:01	9:47:23	2.11	0.06	0.05	
1:31:31	9:47:53	2.11	0.06	0.05	
1:32:01	9:48:23	2.12	0.07	0.06	
1:32:31	9:48:53	2.10	0.05	0.05	

Table B-7

Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3 MW-23 #REF!	L.L. Change - = ↓ + = ↑	#REF!	4
		#REF!		#REF!	Comments
1:33:01	9:49:23	2.10	0.05	0.06	
1:33:31	9:49:53	2.11	0.06	0.05	
1:34:01	9:50:23	2.11	0.06	0.06	
1:34:31	9:50:53	2.11	0.06	0.05	
1:35:01	9:51:23	2.14	0.09	0.05	
1:35:31	9:51:53	2.11	0.06	0.05	
1:36:01	9:52:23	2.12	0.07	0.05	
1:36:31	9:52:53	2.13	0.08	0.06	
1:37:01	9:53:23	2.13	0.08	0.05	
1:37:31	9:53:53	2.13	0.08	0.06	
1:38:01	9:54:23	2.12	0.07	0.06	
1:38:31	9:54:53	2.13	0.08	0.06	
1:39:01	9:55:23	2.13	0.08	0.06	
1:39:31	9:55:53	2.13	0.08	0.06	
1:40:01	9:56:23	2.12	0.07	0.06	
1:40:31	9:56:53	2.13	0.08	0.06	
1:41:01	9:57:23	2.14	0.09	0.06	
1:41:31	9:57:53	2.15	0.10	0.07	
1:42:01	9:58:24	2.15	0.10	0.07	
1:42:31	9:58:54	2.13	0.08	0.03	
1:43:01	9:59:24	2.15	0.10	0.06	
1:43:31	9:59:54	2.15	0.10	0.06	
1:44:01	10:00:24	2.15	0.10	0.05	
1:44:31	10:00:54	2.17	0.12	0.06	
1:45:01	10:01:24	2.15	0.10	0.06	
1:45:31	10:01:54	2.15	0.10	0.05	Test complete
1:46:01	10:02:24	2.15	0.10	0.06	
1:46:31	10:02:54	2.15	0.10	0.06	
1:47:01	10:03:24	2.16	0.11	0.05	
1:47:31	10:03:54	2.15	0.10	0.05	
1:48:01	10:04:24	2.16	0.11	0.05	

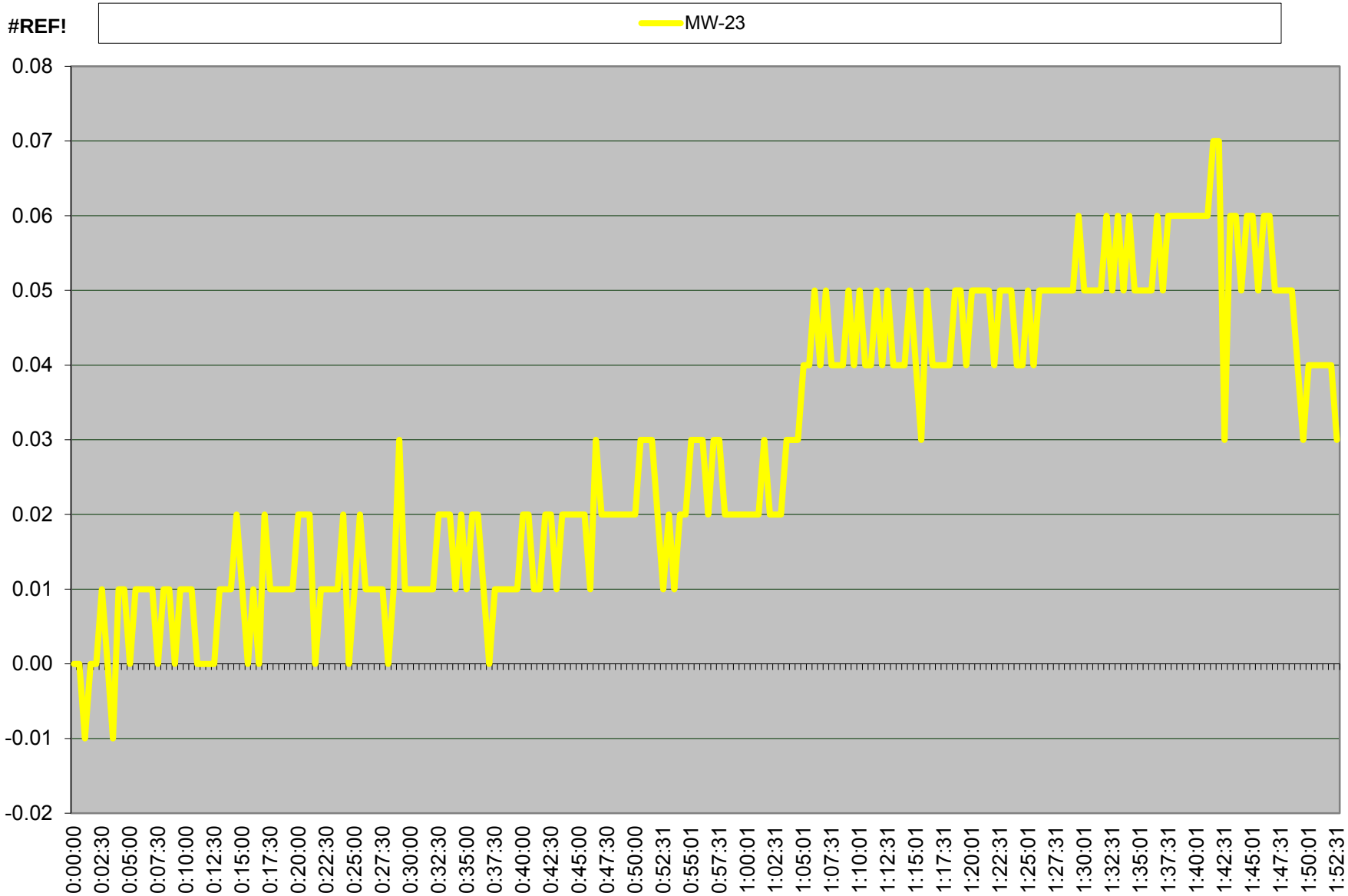
Table B-7

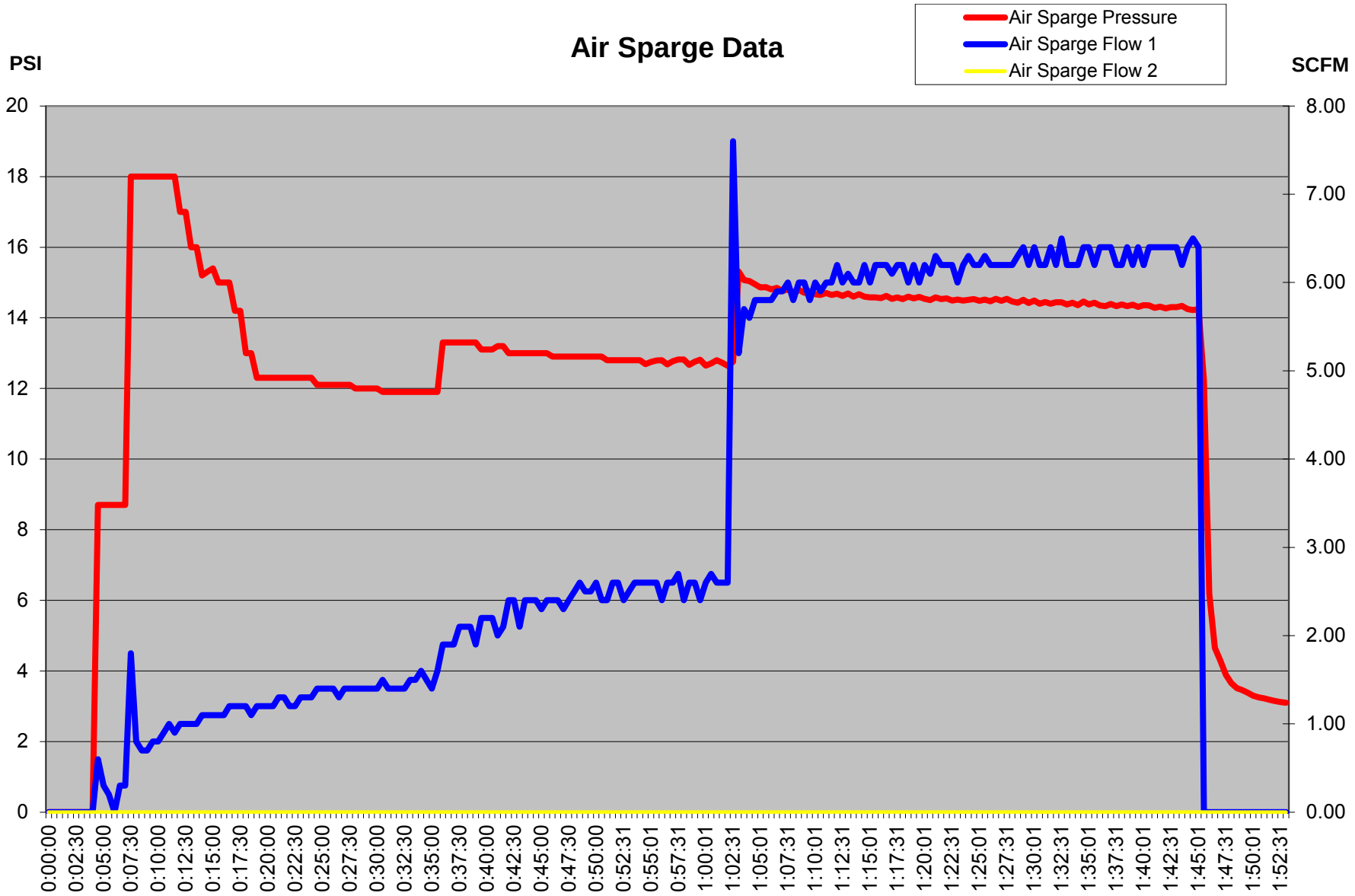
Air Injection at IP-2

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 3			4
		MW-23			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	Comments
1:48:31	10:04:54	2.16	0.11	0.05	
1:49:01	10:05:24	2.16	0.11	0.04	
1:49:31	10:05:54	2.16	0.11	0.03	
1:50:01	10:06:24	2.16	0.11	0.04	
1:50:31	10:06:54	2.15	0.10	0.04	
1:51:01	10:07:24	2.16	0.11	0.04	
1:51:31	10:07:54	2.16	0.11	0.04	
1:52:01	10:08:24	2.16	0.11	0.04	
1:52:31	10:08:54	2.17	0.12	0.03	
1:53:01	10:09:24	2.15	0.10	0.03	
1:53:07	10:09:29	2.15	0.10	0.03	

Satellite Well Pressure Response




Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
Air Sparge Flow 2
PSI
SCFM
20
18
16
14
12
10
8
6
4
2
0
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0:00:00
0:02:30
0:05:00
0:07:30
0:10:00
0:12:30
0:15:00
0:17:30
0:20:00
0:22:30
0:25:00
0:27:30
0:30:00
0:32:30
0:35:00
0:37:30
0:40:00
0:42:30
0:45:00
0:47:30
0:50:00
0:52:31
0:55:01
0:57:31
1:00:01
1:02:31
1:05:01
1:07:31
1:10:01
1:12:31
1:15:01
1:17:31
1:20:01
1:22:31
1:25:01
1:27:31
1:30:01
1:32:31
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1:47:31
1:50:01
1:52:31

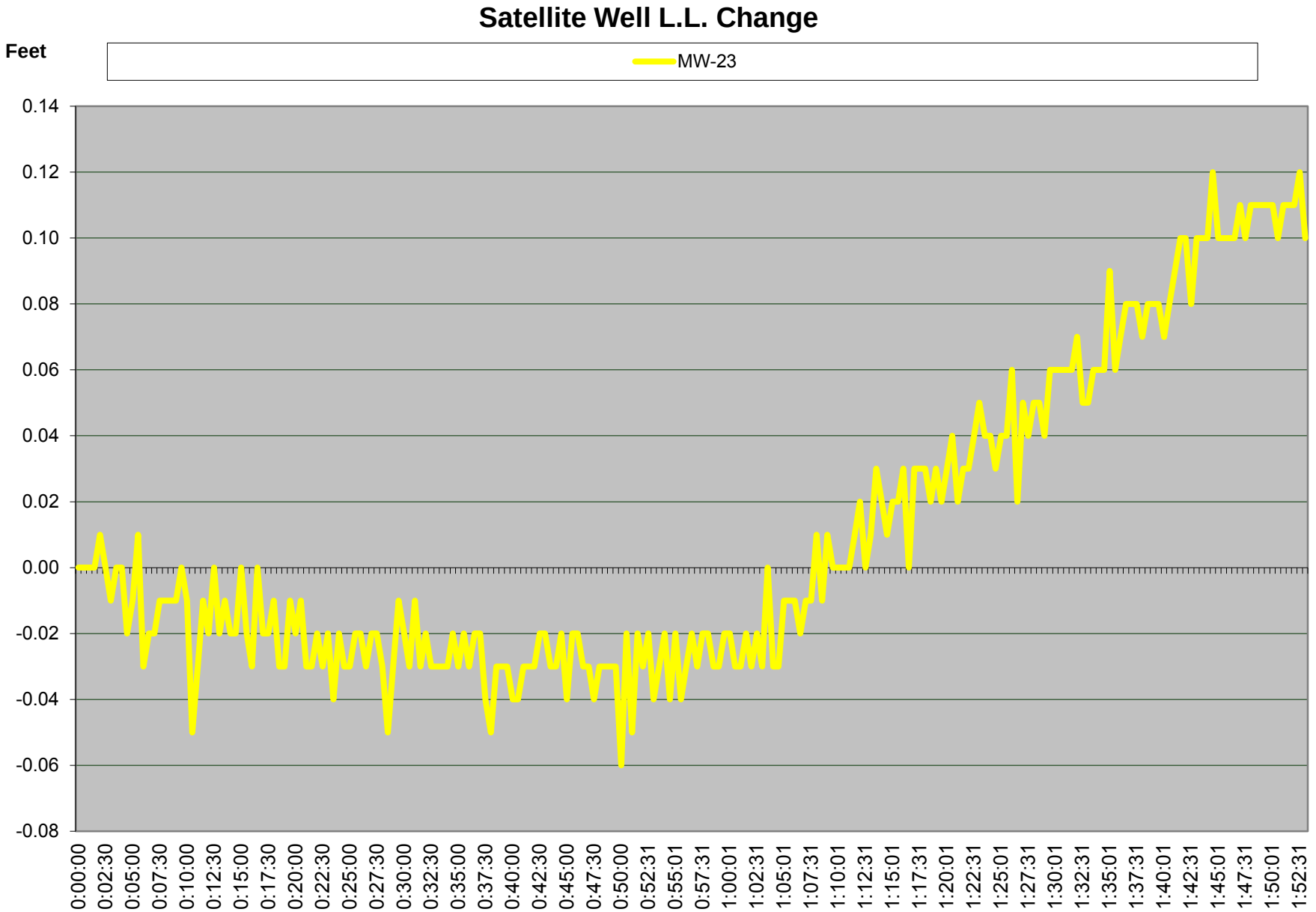

Satellite Well L.L. Change
Feet
MW-23
0.14
0.12
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
0:00:00
0:02:30
0:05:00
0:07:30
0:10:00
0:12:30
0:15:00
0:17:30
0:20:00
0:22:30
0:25:00
0:27:30
0:30:00
0:32:30
0:35:00
0:37:30
0:40:00
0:42:30
0:45:00
0:47:30
0:50:00
0:52:31
0:55:01
0:57:31
1:00:01
1:02:31
1:05:01
1:07:31
1:10:01
1:12:31
1:15:01
1:17:31
1:20:01
1:22:31
1:25:01
1:27:31
1:30:01
1:32:31
1:35:01
1:37:31
1:40:01
1:42:31
1:45:01
1:47:31
1:50:01
1:52:31

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	12:30:44	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.05	
0:00:11	12:30:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.05	
0:00:41	12:31:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.05	
0:01:11	12:31:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.05	
0:01:41	12:32:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.04	
0:02:11	12:32:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.04	
0:02:41	12:33:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.03	
0:03:11	12:33:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.03	
0:03:41	12:34:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	0.03	Start AS on IP3s
0:04:11	12:34:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	1.90	0	0.06	
0:04:41	12:35:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.20	0	6.1	
0:05:11	12:35:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.30	0	6.41	
0:05:41	12:36:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.00	0	9.04	
0:06:11	12:36:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.30	0	8.9	
0:06:41	12:37:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.53	
0:07:11	12:37:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.50	0	11.92	
0:07:41	12:38:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.89	
0:08:11	12:38:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.50	0	11.86	
0:08:41	12:39:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.50	0	11.83	
0:09:11	12:39:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.79	
0:09:41	12:40:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.77	
0:10:11	12:40:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.50	0	11.75	
0:10:41	12:41:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.50	0	11.73	
0:11:11	12:41:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.72	
0:11:41	12:42:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.70	0	11.72	
0:12:11	12:42:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.72	
0:12:41	12:43:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.60	0	11.46	
0:19:10	12:49:54	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.70	0	11.21	
0:19:11	12:49:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.70	0	11.21	
0:19:41	12:50:25	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.80	0	11.24	
0:20:11	12:50:55	0.00	0.00	#N/A	#DIV/0!	0.00	0.00	0.70	0	11.27	
0:20:41	12:51:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.28	
0:21:11	12:51:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.31	
0:21:41	12:52:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.33	
0:22:11	12:52:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.35	
0:22:41	12:53:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.37	
0:23:11	12:53:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.70	0	11.1	
0:23:41	12:54:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.06	
0:24:11	12:54:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.1	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:24:41	12:55:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.13	
0:25:11	12:55:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.16	
0:25:41	12:56:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	11.19	
0:26:11	12:56:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.21	
0:26:41	12:57:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.24	
0:27:11	12:57:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	11.27	
0:27:41	12:58:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.14	
0:28:11	12:58:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	10.96	
0:28:41	12:59:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.01	
0:29:11	12:59:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	11.04	
0:29:41	13:00:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.08	
0:30:11	13:00:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.12	
0:30:41	13:01:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	11.14	
0:31:11	13:01:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	11.18	end step 1
0:31:41	13:02:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	14.56	
0:32:11	13:02:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	14.27	
0:32:41	13:03:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	14.29	
0:33:11	13:03:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	14.3	
0:33:41	13:04:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.35	
0:34:11	13:04:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	14.38	
0:34:41	13:05:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	14.41	
0:35:11	13:05:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.1	
0:35:41	13:06:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.15	
0:36:11	13:06:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	14.19	
0:36:41	13:07:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.24	
0:37:11	13:07:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.29	
0:37:41	13:08:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.17	
0:38:11	13:08:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	14	
0:38:41	13:09:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.07	
0:39:11	13:09:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.11	
0:39:41	13:10:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	14.17	
0:40:11	13:10:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	14.21	
0:40:41	13:11:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	13.91	
0:41:11	13:11:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	13.97	
0:41:41	13:12:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	14.02	
0:42:11	13:12:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	14.08	
0:42:41	13:13:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	14.14	
0:43:11	13:13:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	13.83	
0:43:41	13:14:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	13.88	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:44:11	13:14:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	13.95	
0:44:42	13:15:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	13.99	
0:45:11	13:15:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	14.02	
0:45:42	13:16:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	13.76	
0:46:12	13:16:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	13.82	
0:46:42	13:17:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	13.9	
0:47:12	13:17:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.80	0	13.98	
0:47:42	13:18:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.60	0	13.88	
0:48:12	13:18:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.70	0	13.71	
0:48:42	13:19:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	13.8	
0:49:12	13:19:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.90	0	13.85	end step 2
0:49:42	13:20:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.00	0	16.29	
0:50:12	13:20:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	16.08	
0:50:42	13:21:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	16.17	
0:51:12	13:21:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	16.25	
0:51:42	13:22:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.10	0	16.27	
0:52:12	13:22:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	15.94	
0:52:42	13:23:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	16	
0:53:12	13:23:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	16.1	
0:53:42	13:24:25	0.00	0.00	########	#NUM!	0.00	0.00	2.60	0	15.82	
0:54:12	13:24:55	0.00	0.00	########	#NUM!	0.00	0.00	2.60	0	15.88	
0:54:42	13:25:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.70	0	15.99	
0:55:12	13:25:55	0.00	0.00	#REF!	#REF!	0.00	0.00	2.50	0	15.77	
0:55:42	13:26:25	0.00	0.00	#REF!	#REF!	0.00	0.00	2.80	0	15.78	
0:56:12	13:26:56	0.00	0.00	#REF!	#REF!	0.00	0.00	2.80	0	15.89	
0:56:42	13:27:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.80	0	15.98	
0:57:12	13:27:56	0.00	0.00	#REF!	#REF!	0.00	0.00	2.80	0	15.66	
0:57:42	13:28:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.80	0	15.79	
0:58:12	13:28:56	0.00	0.00	#REF!	#REF!	0.00	0.00	2.90	0	15.91	
0:58:42	13:29:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.90	0	15.6	
0:59:12	13:29:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.10	0	15.72	
0:59:42	13:30:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.00	0	15.84	
1:00:12	13:30:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.00	0	15.54	
1:00:42	13:31:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.00	0	15.65	
1:01:12	13:31:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.10	0	15.74	
1:01:42	13:32:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.10	0	15.47	
1:02:12	13:32:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.20	0	15.51	
1:02:42	13:33:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.40	0	15.61	
1:03:12	13:33:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.30	0	15.37	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:03:42	13:34:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.40	0	15.49	
1:04:12	13:34:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.40	0	15.58	
1:04:42	13:35:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.50	0	15.33	
1:05:12	13:35:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.30	0	15.47	
1:05:42	13:36:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	15.57	
1:06:12	13:36:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	15.28	
1:06:42	13:37:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	15.42	
1:07:12	13:37:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.30	0	15.46	
1:07:42	13:38:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.70	0	15.28	
1:08:12	13:38:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.80	0	15.43	
1:08:42	13:39:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.80	0	15.19	
1:09:12	13:39:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.80	0	15.3	
1:09:42	13:40:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.4	
1:10:12	13:40:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.80	0	15.14	
1:10:42	13:41:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.27	
1:11:12	13:41:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.50	0	15.36	
1:11:42	13:42:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.15	
1:12:12	13:42:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.3	
1:12:42	13:43:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.06	
1:13:12	13:43:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.00	0	15.18	
1:13:42	13:44:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.80	0	15.28	
1:14:12	13:44:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.07	
1:14:42	13:45:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	15.22	
1:15:12	13:45:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.00	0	14.98	
1:15:42	13:46:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	15.07	
1:16:12	13:46:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	15.02	
1:16:42	13:47:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	15.02	
1:17:12	13:47:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	15.13	
1:17:42	13:48:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	14.92	
1:18:12	13:48:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	15.03	
1:18:42	13:49:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.10	0	14.86	
1:19:12	13:49:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.30	0	14.99	
1:19:42	13:50:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	15.1	
1:20:12	13:50:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.30	0	14.85	
1:20:42	13:51:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.30	0	14.96	
1:21:12	13:51:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.40	0	14.78	
1:21:42	13:52:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.40	0	14.92	
1:22:12	13:52:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.30	0	14.87	
1:22:42	13:53:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.50	0	14.83	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:23:12	13:53:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.20	0	14.83	
1:23:42	13:54:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.50	0	14.75	
1:24:12	13:54:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.60	0	14.93	
1:24:42	13:55:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.50	0	14.69	
1:25:12	13:55:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.60	0	14.8	
1:25:42	13:56:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.50	0	14.66	
1:26:12	13:56:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.78	
1:26:42	13:57:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.40	0	14.77	
1:27:12	13:57:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.70	0	14.7	
1:27:42	13:58:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.40	0	14.65	
1:28:12	13:58:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.60	0	14.63	
1:28:42	13:59:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.82	
1:29:12	13:59:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.56	
1:29:42	14:00:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.7	
1:30:12	14:00:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.70	0	14.52	
1:30:42	14:01:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.64	
1:31:12	14:01:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.5	
1:31:42	14:02:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.64	
1:32:12	14:02:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.56	
1:32:42	14:03:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.58	
1:33:12	14:03:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.60	0	14.62	
1:33:42	14:04:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.46	
1:34:12	14:04:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.70	0	14.64	
1:34:42	14:05:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.46	
1:35:12	14:05:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.57	
1:35:42	14:06:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.4	
1:36:12	14:06:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	14.52	
1:36:42	14:07:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.34	
1:37:12	14:07:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.53	
1:37:42	14:08:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	14.34	
1:38:12	14:08:56	0.00	0.00	#REF!	#REF!	0.00	0.00	5.00	0	14.43	
1:38:42	14:09:26	0.00	0.00	#REF!	#REF!	0.00	0.00	5.00	0	14.27	
1:39:12	14:09:56	0.00	0.00	#REF!	#REF!	0.00	0.00	5.00	0	14.38	
1:39:42	14:10:26	0.00	0.00	#REF!	#REF!	0.00	0.00	5.10	0	14.28	
1:40:12	14:10:56	0.00	0.00	#REF!	#REF!	0.00	0.00	5.20	0	14.42	
1:40:42	14:11:26	0.00	0.00	#REF!	#REF!	0.00	0.00	5.10	0	14.27	
1:41:12	14:11:56	0.00	0.00	#REF!	#REF!	0.00	0.00	5.20	0	14.38	
1:41:42	14:12:26	0.00	0.00	#REF!	#REF!	0.00	0.00	5.10	0	14.25	
1:42:12	14:12:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	13.18	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:42:42	14:13:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.29	
1:43:12	14:13:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.15	Test Complete
1:43:42	14:14:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.09	
1:44:12	14:14:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.05	
1:44:42	14:15:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.03	
1:45:12	14:15:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.02	
1:45:42	14:16:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.01	
1:46:12	14:16:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:46:42	14:17:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:47:12	14:17:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:47:42	14:18:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:48:12	14:18:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:48:42	14:19:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:49:12	14:19:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:49:42	14:20:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:50:12	14:20:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:50:42	14:21:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:51:12	14:21:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:51:42	14:22:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:52:12	14:22:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:52:42	14:23:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:53:12	14:23:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:53:42	14:24:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:54:12	14:24:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:54:33	14:25:17	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	12:30:44	6.33	0.00	0.00	-8.02	0.00	0.00	
0:00:11	12:30:55	6.33	0.00	0.00	-8.02	0.00	0.00	
0:00:41	12:31:25	6.33	0.00	0.00	-8.02	0.00	0.00	
0:01:11	12:31:55	6.33	0.00	0.00	-8.02	0.00	0.00	
0:01:41	12:32:25	6.33	0.00	0.00	-8.02	0.00	-0.01	
0:02:11	12:32:55	6.33	0.00	0.00	-8.02	0.00	-0.01	
0:02:41	12:33:25	6.33	0.00	0.00	-8.02	0.00	-0.02	
0:03:11	12:33:55	6.33	0.00	0.00	-8.02	0.00	-0.02	
0:03:41	12:34:25	6.33	0.00	0.00	-8.02	0.00	-0.02	Start AS on IP3s
0:04:11	12:34:55	6.32	-0.01	0.00	-8.02	0.00	0.01	
0:04:41	12:35:25	6.32	-0.01	0.01	-8.02	0.00	6.05	
0:05:11	12:35:55	6.31	-0.02	0.00	-8.02	0.00	6.36	
0:05:41	12:36:25	6.31	-0.02	0.00	-8.02	0.00	8.99	
0:06:11	12:36:55	6.31	-0.02	0.00	-8.02	0.00	8.85	
0:06:41	12:37:25	6.31	-0.02	0.00	-8.02	0.00	11.48	
0:07:11	12:37:55	6.31	-0.02	0.01	-8.02	0.00	11.87	
0:07:41	12:38:25	6.31	-0.02	0.00	-8.02	0.00	11.84	
0:08:11	12:38:55	6.31	-0.02	0.00	-8.02	0.00	11.81	
0:08:41	12:39:25	6.31	-0.02	0.01	-8.02	0.00	11.78	
0:09:11	12:39:55	6.31	-0.02	0.01	-8.02	0.00	11.74	
0:09:41	12:40:25	6.31	-0.02	0.00	-8.02	0.00	11.72	
0:10:11	12:40:55	6.31	-0.02	0.00	-8.02	0.00	11.70	
0:10:41	12:41:25	6.31	-0.02	0.01	-8.02	0.00	11.68	
0:11:11	12:41:55	6.30	-0.03	0.00	-8.02	0.00	11.67	
0:11:41	12:42:25	6.30	-0.03	0.01	-8.02	0.00	11.67	
0:12:11	12:42:55	6.30	-0.03	0.01	-8.02	0.00	11.67	
0:12:41	12:43:25	6.30	-0.03	0.01	-8.02	0.00	11.41	
0:19:10	12:49:54	6.28	-0.05	0.01	-8.02	0.00	11.16	
0:19:11	12:49:55	6.28	-0.05	0.01	-8.02	0.00	11.16	
	13:49:55	6.28	-0.05	0.01	-8.02	0.00	11.16	
0:20:11	12:50:55	6.28	-0.05	0.01	-8.02	0.00	11.22	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:20:41	12:51:25	6.28	-0.05	0.01	-8.02	0.00	11.23	
0:21:11	12:51:55	6.28	-0.05	0.01	-8.02	0.00	11.26	
0:21:41	12:52:25	6.28	-0.05	0.01	-8.02	0.00	11.28	
0:22:11	12:52:55	6.28	-0.05	0.01	-8.02	0.00	11.30	
0:22:41	12:53:25	6.28	-0.05	0.01	-8.02	0.00	11.32	
0:23:11	12:53:55	6.28	-0.05	0.01	-8.02	0.00	11.05	
0:23:41	12:54:25	6.28	-0.05	0.01	-8.02	0.00	11.01	
0:24:11	12:54:55	6.28	-0.05	0.01	-8.02	0.00	11.05	
0:24:41	12:55:25	6.28	-0.05	0.01	-8.02	0.00	11.08	
0:25:11	12:55:55	6.28	-0.05	0.01	-8.02	0.00	11.11	
0:25:41	12:56:25	6.28	-0.05	0.01	-8.02	0.00	11.14	
0:26:11	12:56:55	6.27	-0.06	0.01	-8.02	0.00	11.16	
0:26:41	12:57:25	6.27	-0.06	0.01	-8.02	0.00	11.19	
0:27:11	12:57:55	6.27	-0.06	0.01	-8.02	0.00	11.22	
0:27:41	12:58:25	6.27	-0.06	0.01	-8.02	0.00	11.09	
0:28:11	12:58:55	6.27	-0.06	0.01	-8.02	0.00	10.91	
0:28:41	12:59:25	6.27	-0.06	0.01	-8.02	0.00	10.96	
0:29:11	12:59:55	6.27	-0.06	0.01	-8.02	0.00	10.99	
0:29:41	13:00:25	6.27	-0.06	0.01	-8.02	0.00	11.03	
0:30:11	13:00:55	6.27	-0.06	0.01	-8.02	0.00	11.07	
0:30:41	13:01:25	6.27	-0.06	0.00	-8.02	0.00	11.09	
0:31:11	13:01:55	6.27	-0.06	0.01	-8.02	0.00	11.13	
0:31:41	13:02:25	6.27	-0.06	0.01	-8.02	0.00	14.51	
0:32:11	13:02:55	6.27	-0.06	0.01	-8.02	0.00	14.22	
0:32:41	13:03:25	6.27	-0.06	0.01	-8.02	0.00	14.24	
0:33:11	13:03:55	6.27	-0.06	0.01	-8.02	0.00	14.25	
0:33:41	13:04:25	6.27	-0.06	0.01	-8.02	0.00	14.30	
0:34:11	13:04:55	6.27	-0.06	0.01	-8.02	0.00	14.33	
0:34:41	13:05:25	6.27	-0.06	0.01	-8.02	0.00	14.36	
0:35:11	13:05:55	6.27	-0.06	0.01	-8.02	0.00	14.05	
0:35:41	13:06:25	6.27	-0.06	0.01	-8.02	0.00	14.10	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:36:11	13:06:55	6.27	-0.06	0.01	-8.02	0.00	14.14	
0:36:41	13:07:25	6.27	-0.06	0.01	-8.02	0.00	14.19	
0:37:11	13:07:55	6.26	-0.07	0.00	-8.02	0.00	14.24	
0:37:41	13:08:25	6.26	-0.07	0.01	-8.02	0.00	14.12	
0:38:11	13:08:55	6.26	-0.07	0.01	-8.02	0.00	13.95	
0:38:41	13:09:25	6.26	-0.07	0.00	-8.02	0.00	14.02	
0:39:11	13:09:55	6.26	-0.07	0.00	-8.02	0.00	14.06	
0:39:41	13:10:25	6.26	-0.07	0.01	-8.02	0.00	14.12	
0:40:11	13:10:55	6.26	-0.07	0.01	-8.02	0.00	14.16	
0:40:41	13:11:25	6.26	-0.07	0.01	-8.02	0.00	13.86	
0:41:11	13:11:55	6.26	-0.07	0.01	-8.02	0.00	13.92	
0:41:41	13:12:25	6.26	-0.07	0.01	-8.02	0.00	13.97	
0:42:11	13:12:55	6.26	-0.07	0.01	-8.02	0.00	14.03	
0:42:41	13:13:25	6.26	-0.07	0.01	-8.02	0.00	14.09	
0:43:11	13:13:55	6.26	-0.07	0.00	-8.02	0.00	13.78	
0:43:41	13:14:25	6.26	-0.07	0.01	-8.02	0.00	13.83	
0:44:11	13:14:55	6.26	-0.07	0.01	-8.02	0.00	13.90	
0:44:41	13:15:25	6.26	-0.07	0.01	-8.02	0.00	13.94	
0:45:11	13:15:55	6.26	-0.07	0.01	-8.02	0.00	13.97	
0:45:42	13:16:25	6.26	-0.07	0.01	-8.02	0.00	13.71	
0:46:12	13:16:55	6.26	-0.07	0.01	-8.02	0.00	13.77	
0:46:42	13:17:25	6.26	-0.07	0.01	-8.02	0.00	13.85	
0:47:12	13:17:55	6.26	-0.07	0.01	-8.02	0.00	13.93	
0:47:42	13:18:25	6.26	-0.07	0.01	-8.02	0.00	13.83	
0:48:12	13:18:55	6.26	-0.07	0.01	-8.02	0.00	13.66	
0:48:42	13:19:25	6.26	-0.07	0.01	-8.02	0.00	13.75	
0:49:12	13:19:55	6.26	-0.07	0.01	-8.02	0.00	13.80	
0:49:42	13:20:25	6.26	-0.07	0.01	-8.02	0.00	16.24	
0:50:12	13:20:55	6.26	-0.07	0.01	-8.02	0.00	16.03	
0:50:42	13:21:25	6.26	-0.07	0.01	-8.02	0.00	16.12	
0:51:12	13:21:55	6.26	-0.07	0.01	-8.02	0.00	16.20	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:51:42	13:22:25	6.26	-0.07	0.01	-8.02	0.00	16.22	
0:52:12	13:22:55	6.25	-0.08	0.01	-8.02	0.00	15.89	
0:52:42	13:23:25	6.25	-0.08	0.01	-8.02	0.00	15.95	
0:53:12	13:23:55	6.25	-0.08	0.01	-8.02	0.00	16.05	
0:53:42	13:24:25	6.24	-0.09	0.01	-8.02	0.00	15.77	
0:54:12	13:24:55	6.25	-0.08	0.01	-8.02	0.00	15.83	
0:54:42	13:25:26	6.25	-0.08	0.01	-8.02	0.00	15.94	
0:55:12	13:25:55	6.25	-0.08	0.01	-8.02	0.00	15.72	
0:55:42	13:26:25	6.24	-0.09	0.01	-8.02	0.00	15.73	
0:56:12	13:26:56	6.24	-0.09	0.01	-8.02	0.00	15.84	
0:56:42	13:27:26	6.25	-0.08	0.01	-8.02	0.00	15.93	
0:57:12	13:27:56	6.25	-0.08	0.01	-8.02	0.00	15.61	
0:57:42	13:28:26	6.24	-0.09	0.01	-8.02	0.00	15.74	
0:58:12	13:28:56	6.25	-0.08	0.01	-8.02	0.00	15.86	
0:58:42	13:29:26	6.24	-0.09	0.01	-8.02	0.00	15.55	
0:59:12	13:29:56	6.24	-0.09	0.01	-8.02	0.00	15.67	
0:59:42	13:30:26	6.24	-0.09	0.01	-8.02	0.00	15.79	
1:00:12	13:30:56	6.24	-0.09	0.01	-8.02	0.00	15.49	
1:00:42	13:31:26	6.24	-0.09	0.01	-8.02	0.00	15.60	
1:01:12	13:31:56	6.24	-0.09	0.01	-8.02	0.00	15.69	
1:01:42	13:32:26	6.24	-0.09	0.01	-8.02	0.00	15.42	
1:02:12	13:32:56	6.24	-0.09	0.01	-8.02	0.00	15.46	
1:02:42	13:33:26	6.24	-0.09	0.01	-8.02	0.00	15.56	
1:03:12	13:33:56	6.24	-0.09	0.01	-8.02	0.00	15.32	
1:03:42	13:34:26	6.24	-0.09	0.01	-8.02	0.00	15.44	
1:04:12	13:34:56	6.24	-0.09	0.00	-8.02	0.00	15.53	
1:04:42	13:35:26	6.24	-0.09	0.01	-8.02	0.00	15.28	
1:05:12	13:35:56	6.24	-0.09	0.01	-8.02	0.00	15.42	
1:05:42	13:36:26	6.24	-0.09	0.01	-8.02	0.00	15.52	
1:06:12	13:36:56	6.24	-0.09	0.01	-8.02	0.00	15.23	
1:06:42	13:37:26	6.24	-0.09	0.01	-8.02	0.00	15.37	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:07:12	13:37:56	6.24	-0.09	0.01	-8.02	0.00	15.41	
1:07:42	13:38:26	6.24	-0.09	0.01	-8.02	0.00	15.23	
1:08:12	13:38:56	6.24	-0.09	0.01	-8.02	0.00	15.38	
1:08:42	13:39:26	6.24	-0.09	0.01	-8.02	0.00	15.14	
1:09:12	13:39:56	6.24	-0.09	0.01	-8.02	0.00	15.25	
1:09:42	13:40:26	6.24	-0.09	0.01	-8.02	0.00	15.35	
1:10:12	13:40:56	6.23	-0.10	0.01	-8.02	0.00	15.09	
1:10:42	13:41:26	6.23	-0.10	0.01	-8.02	0.00	15.22	
1:11:12	13:41:56	6.23	-0.10	0.01	-8.02	0.00	15.31	
1:11:42	13:42:26	6.23	-0.10	0.01	-8.02	0.00	15.10	
1:12:12	13:42:56	6.23	-0.10	0.01	-8.02	0.00	15.25	
1:12:42	13:43:26	6.23	-0.10	0.01	-8.02	0.00	15.01	
1:13:12	13:43:56	6.23	-0.10	0.01	-8.02	0.00	15.13	
1:13:42	13:44:26	6.23	-0.10	0.01	-8.02	0.00	15.23	
1:14:12	13:44:56	6.23	-0.10	0.01	-8.02	0.00	15.02	
1:14:42	13:45:26	6.23	-0.10	0.01	-8.02	0.00	15.17	
1:15:12	13:45:56	6.23	-0.10	0.01	-8.02	0.00	14.93	
1:15:42	13:46:26	6.23	-0.10	0.01	-8.02	0.00	15.02	
1:16:12	13:46:56	6.23	-0.10	0.01	-8.02	0.00	14.97	
1:16:42	13:47:26	6.23	-0.10	0.01	-8.02	0.00	14.97	
1:17:12	13:47:56	6.23	-0.10	0.01	-8.02	0.00	15.08	
1:17:42	13:48:26	6.23	-0.10	0.01	-8.02	0.00	14.87	
1:18:12	13:48:56	6.23	-0.10	0.01	-8.02	0.00	14.98	
1:18:42	13:49:26	6.23	-0.10	0.01	-8.02	0.00	14.81	
1:19:12	13:49:56	6.23	-0.10	0.01	-8.02	0.00	14.94	
1:19:42	13:50:26	6.23	-0.10	0.01	-8.02	0.00	15.05	
1:20:12	13:50:56	6.23	-0.10	0.01	-8.02	0.00	14.80	
1:20:42	13:51:26	6.23	-0.10	0.01	-8.02	0.00	14.91	
1:21:12	13:51:56	6.23	-0.10	0.01	-8.02	0.00	14.73	
1:21:42	13:52:26	6.23	-0.10	0.01	-8.02	0.00	14.87	
1:22:12	13:52:56	6.23	-0.10	0.01	-8.02	0.00	14.82	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:22:42	13:53:26	6.23	-0.10	0.01	-8.02	0.00	14.78	
1:23:12	13:53:56	6.23	-0.10	0.01	-8.02	0.00	14.78	
1:23:42	13:54:26	6.23	-0.10	0.01	-8.02	0.00	14.70	
1:24:12	13:54:56	6.23	-0.10	0.01	-8.02	0.00	14.88	
1:24:42	13:55:26	6.23	-0.10	0.01	-8.02	0.00	14.64	
1:25:12	13:55:56	6.23	-0.10	0.01	-8.02	0.00	14.75	
1:25:42	13:56:26	6.23	-0.10	0.01	-8.02	0.00	14.61	
1:26:12	13:56:56	6.23	-0.10	0.01	-8.02	0.00	14.73	
1:26:42	13:57:26	6.23	-0.10	0.01	-8.02	0.00	14.72	
1:27:12	13:57:56	6.23	-0.10	0.01	-8.02	0.00	14.65	
1:27:42	13:58:26	6.23	-0.10	0.00	-8.02	0.00	14.60	
1:28:12	13:58:56	6.23	-0.10	0.01	-8.02	0.00	14.58	
1:28:42	13:59:26	6.23	-0.10	0.02	-8.02	0.00	14.77	
1:29:12	13:59:56	6.23	-0.10	0.01	-8.02	0.00	14.51	
1:29:42	14:00:26	6.23	-0.10	0.01	-8.02	0.00	14.65	
1:30:12	14:00:56	6.23	-0.10	0.01	-8.02	0.00	14.47	
1:30:42	14:01:26	6.23	-0.10	0.01	-8.02	0.00	14.59	
1:31:12	14:01:56	6.22	-0.11	0.01	-8.02	0.00	14.45	
1:31:42	14:02:26	6.22	-0.11	0.01	-8.02	0.00	14.59	
1:32:12	14:02:56	6.22	-0.11	0.01	-8.02	0.00	14.51	
1:32:42	14:03:26	6.22	-0.11	0.01	-8.02	0.00	14.53	
1:33:12	14:03:56	6.22	-0.11	0.01	-8.02	0.00	14.57	
1:33:42	14:04:26	6.22	-0.11	0.01	-8.02	0.00	14.41	
1:34:12	14:04:56	6.22	-0.11	0.01	-8.02	0.00	14.59	
1:34:42	14:05:26	6.22	-0.11	0.01	-8.02	0.00	14.41	
1:35:12	14:05:56	6.22	-0.11	0.01	-8.02	0.00	14.52	
1:35:42	14:06:26	6.22	-0.11	0.01	-8.02	0.00	14.35	
1:36:12	14:06:56	6.22	-0.11	0.01	-8.02	0.00	14.47	
1:36:42	14:07:26	6.22	-0.11	0.01	-8.02	0.00	14.29	
1:37:12	14:07:56	6.22	-0.11	0.01	-8.02	0.00	14.48	
1:37:42	14:08:26	6.22	-0.11	0.01	-8.02	0.00	14.29	

Table B-8

Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

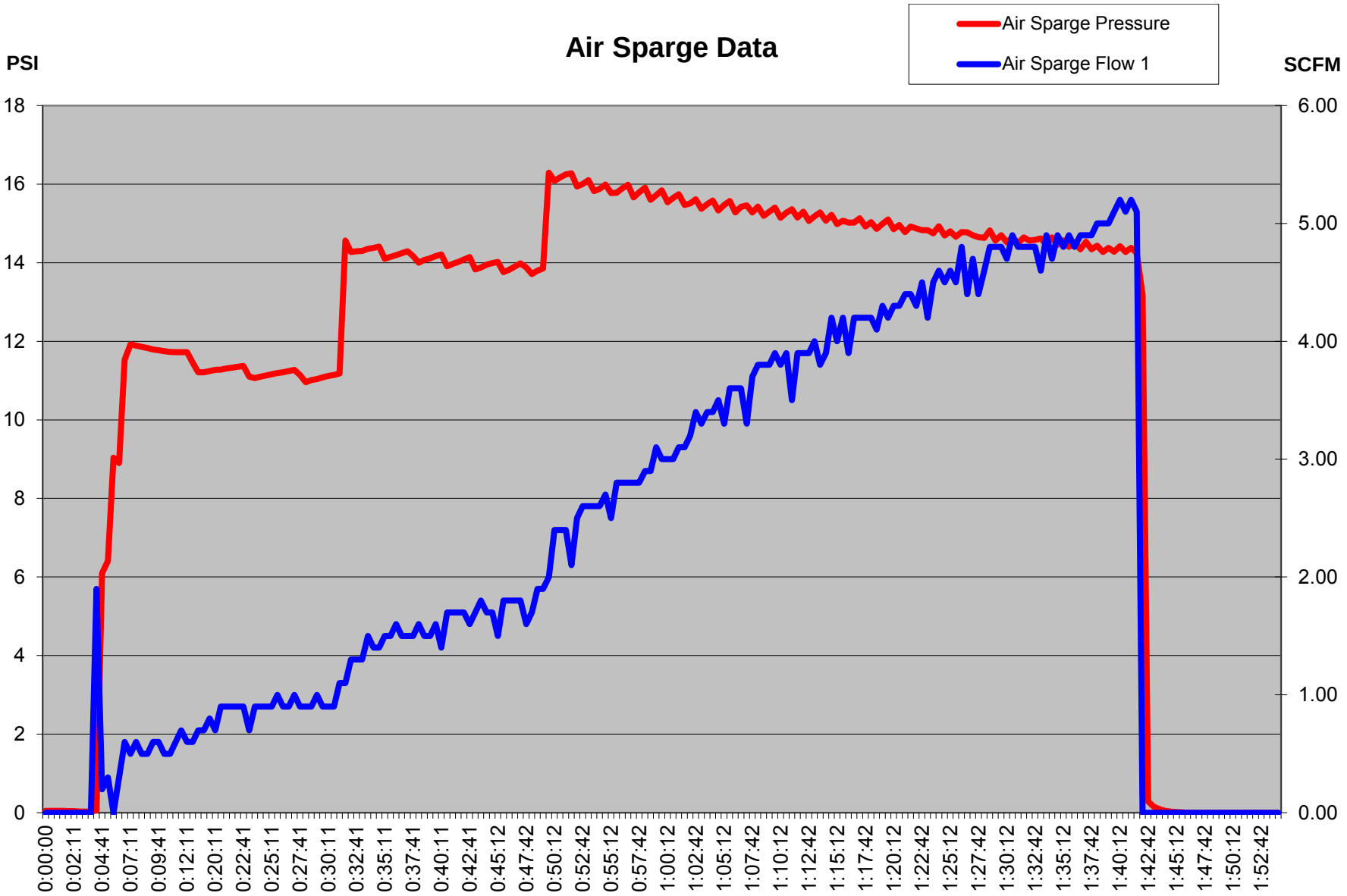
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:38:12	14:08:56	6.22	-0.11	0.01	-8.02	0.00	14.38	
1:38:42	14:09:26	6.22	-0.11	0.01	-8.02	0.00	14.22	
1:39:12	14:09:56	6.22	-0.11	0.01	-8.02	0.00	14.33	
1:39:42	14:10:26	6.22	-0.11	0.01	-8.02	0.00	14.23	
1:40:12	14:10:56	6.22	-0.11	0.01	-8.02	0.00	14.37	
1:40:42	14:11:26	6.22	-0.11	0.01	-8.02	0.00	14.22	
1:41:12	14:11:56	6.22	-0.11	0.01	-8.02	0.00	14.33	
1:41:42	14:12:26	6.22	-0.11	0.01	-8.02	0.00	14.20	
1:42:12	14:12:56	6.22	-0.11	0.01	-8.02	0.00	13.13	
1:42:42	14:13:26	6.22	-0.11	0.01	-8.02	0.00	0.24	
1:43:12	14:13:56	6.22	-0.11	0.01	-8.02	0.00	0.10	Test Complete
1:43:42	14:14:26	6.22	-0.11	0.01	-8.02	0.00	0.04	
1:44:12	14:14:56	6.22	-0.11	0.01	-8.02	0.00	0.00	
1:44:42	14:15:26	6.22	-0.11	0.01	-8.02	0.00	-0.02	
1:45:12	14:15:56	6.22	-0.11	0.01	-8.02	0.00	-0.03	
1:45:42	14:16:26	6.22	-0.11	0.01	-8.02	0.00	-0.04	
1:46:12	14:16:56	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:46:42	14:17:26	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:47:12	14:17:56	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:47:42	14:18:26	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:48:12	14:18:56	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:48:42	14:19:26	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:49:12	14:19:56	6.21	-0.12	0.01	-8.02	0.00	-0.05	
1:49:42	14:20:26	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:50:12	14:20:56	6.22	-0.11	0.01	-8.02	0.00	-0.05	
1:50:42	14:21:26	6.21	-0.12	0.01	-8.02	0.00	-0.05	
1:51:12	14:21:56	6.22	-0.11	0.00	-8.02	0.00	-0.05	
1:51:42	14:22:26	6.21	-0.12	0.01	-8.02	0.00	-0.05	
1:52:12	14:22:56	6.21	-0.12	0.01	-8.02	0.00	-0.05	
1:52:42	14:23:26	6.21	-0.12	0.01	-8.02	0.00	-0.05	
1:53:12	14:23:56	6.21	-0.12	0.01	-8.02	0.00	-0.05	

Table B-8

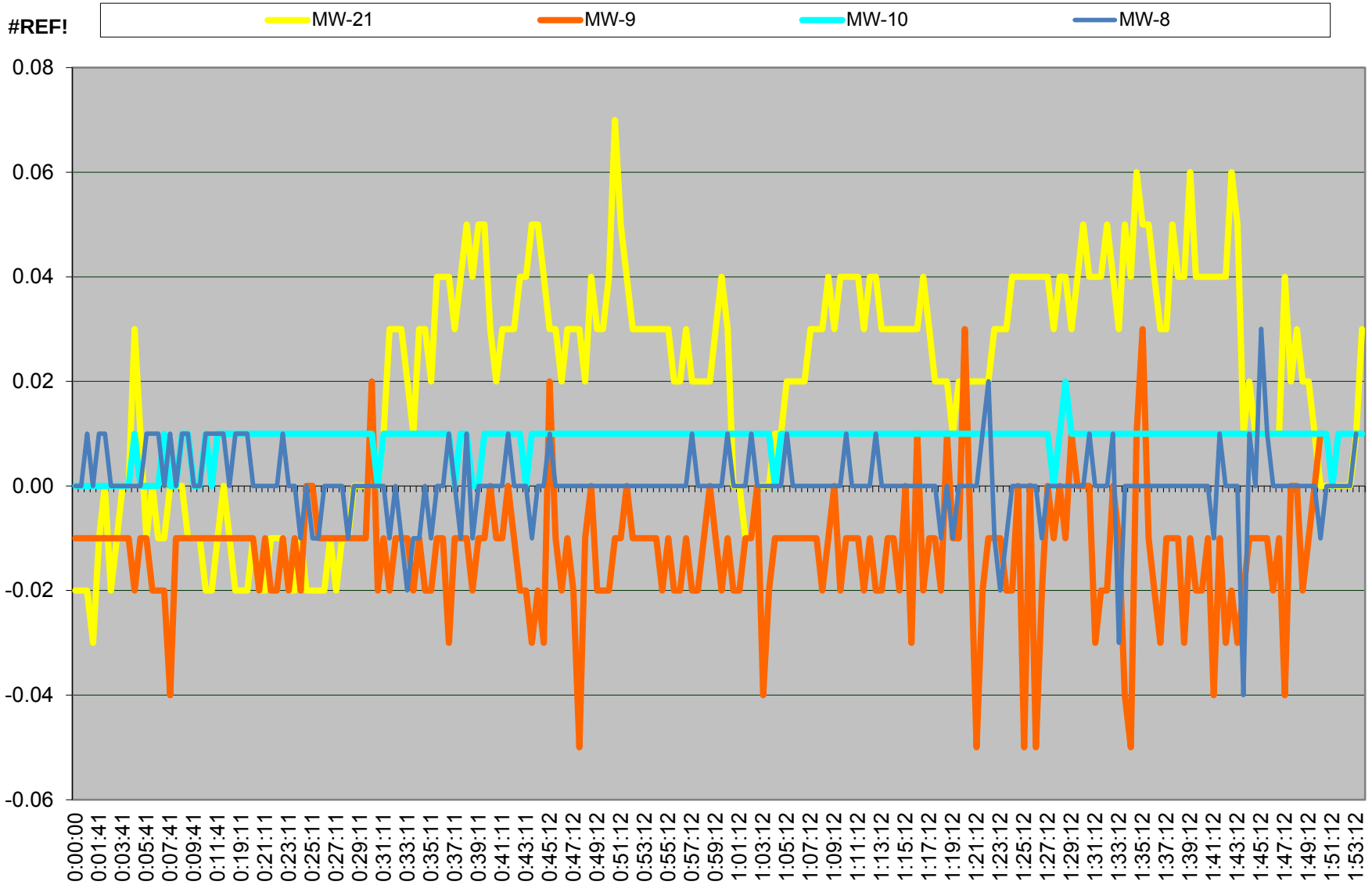
Air Injection at IP-3S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:53:42	14:24:26	6.21	-0.12	0.01	-8.02	0.00	-0.05	
1:54:12	14:24:56	6.20	-0.13	0.01	-8.02	0.00	-0.05	
1:54:33	14:25:17	6.20	-0.13	0.01	-8.02	0.00	-0.05	


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
18
16
14
12
10
8
6
4
2
0
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0:00:00
0:02:11
0:04:41
0:07:11
0:09:41
0:12:11
0:20:11
0:22:41
0:25:11
0:27:41
0:30:11
0:32:41
0:35:11
0:37:41
0:40:11
0:42:41
0:45:12
0:47:42
0:50:12
0:52:42
0:55:12
0:57:42
1:00:12
1:02:42
1:05:12
1:07:42
1:10:12
1:12:42
1:15:12
1:17:42
1:20:12
1:22:42
1:25:12
1:27:42
1:30:12
1:32:42
1:35:12
1:37:42
1:40:12
1:42:42
1:45:12
1:47:42
1:50:12
1:52:42

Satellite Well Vacuum Response



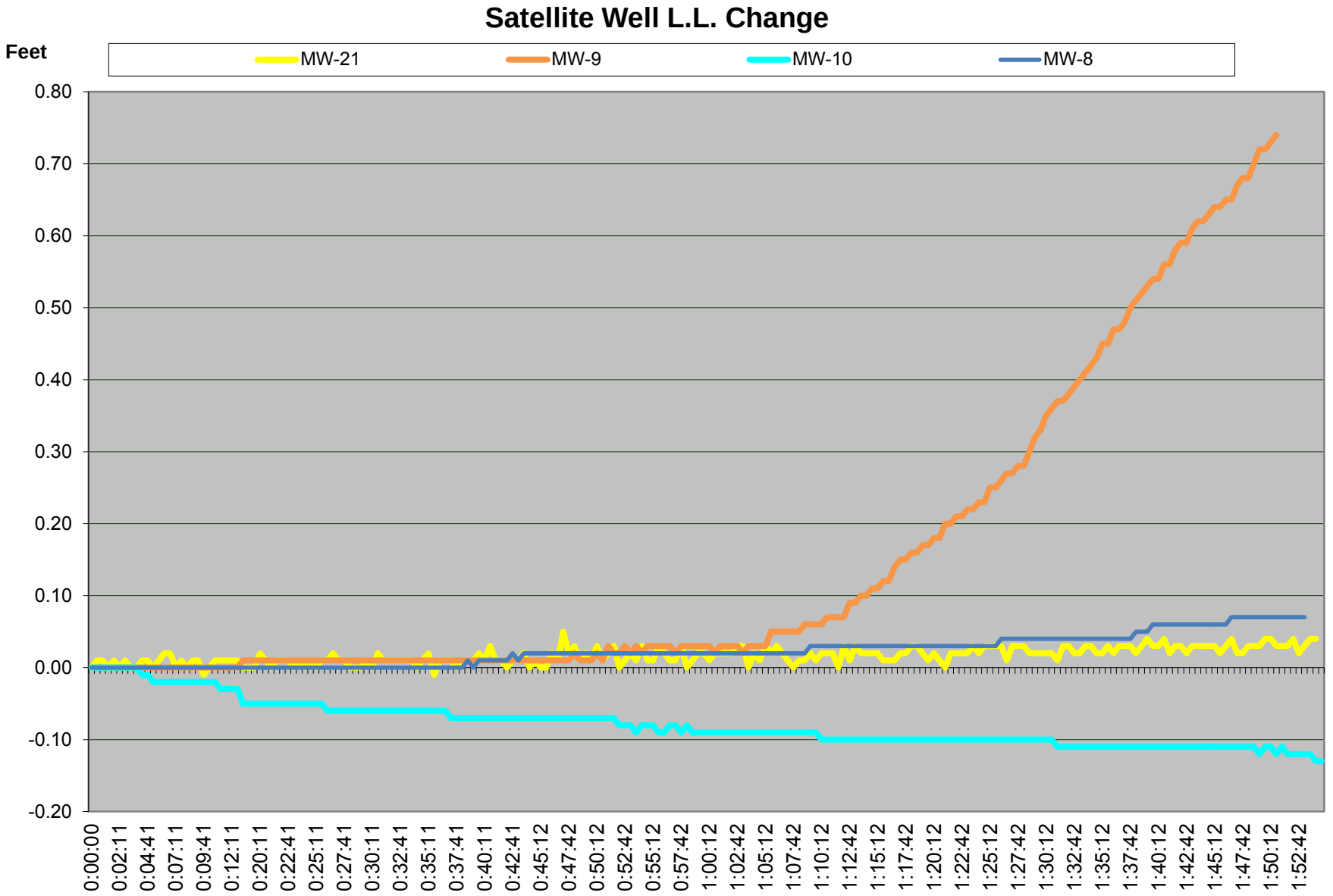

Satellite Well L.L. Change
Feet
MW-21
MW-9
MW-10
MW-8
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
-0.20
0:00:00
0:02:11
0:04:41
0:07:11
0:09:41
0:12:11
0:20:11
0:22:41
0:25:11
0:27:41
0:30:11
0:32:41
0:35:11
0:37:41
0:40:11
0:42:41
0:45:12
0:47:42
0:50:12
0:52:42
0:55:12
0:57:42
1:00:12
1:02:42
1:05:12
1:07:42
1:10:12
1:12:42
1:15:12
1:17:42
1:20:12
1:22:42
1:25:12
1:27:42
1:30:12
1:32:42
1:35:12
1:37:42
1:40:12
1:42:42
1:45:12
1:47:42
1:50:12
1:52:42

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	14:27:14	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:00:12	14:27:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:00:42	14:27:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:01:12	14:28:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:01:42	14:28:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	0	
0:02:12	14:29:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	11.76	
0:02:42	14:29:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	12.25	
0:03:12	14:30:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	14.72	
0:03:42	14:30:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	17.94	
0:04:12	14:31:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	18.5	
0:04:42	14:31:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	21.18	
0:05:12	14:32:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.40	0	21.39	
0:05:42	14:32:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.49	
0:06:12	14:33:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.5	
0:06:42	14:33:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.5	
0:07:12	14:34:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.52	
0:07:42	14:34:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.53	
0:08:12	14:35:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.51	
0:08:42	14:35:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.55	
0:09:12	14:36:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.56	
0:09:42	14:36:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.57	
0:10:12	14:37:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.6	
0:10:42	14:37:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.62	
0:11:42	14:38:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.32	
0:12:12	14:39:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.34	
0:12:42	14:39:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.36	
0:13:12	14:40:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.38	
0:13:42	14:40:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.39	
0:14:12	14:41:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.42	
0:14:42	14:41:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.43	
0:15:12	14:42:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.43	
0:15:42	14:42:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.45	
0:16:12	14:43:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	21.46	
0:16:42	14:43:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.10	0	21.47	
0:17:12	14:44:26	0.00	0.00	#REF!	#REF!	0.00	0.00	0.20	0	21.49	end step 1
0:17:42	14:44:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	26.01	
0:18:12	14:45:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	26.05	
0:18:43	14:45:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.90	0	26	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:19:13	14:46:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.68	
0:19:43	14:46:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.00	0	25.72	
0:20:13	14:47:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.00	0	25.78	
0:20:43	14:47:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.82	
0:21:13	14:48:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.00	0	25.86	
0:21:43	14:48:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.9	
0:22:13	14:49:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.00	0	25.93	
0:22:43	14:49:56	0.00	0.00	#REF!	#REF!	0.00	0.00	0.90	0	25.94	
0:23:13	14:50:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.69	
0:23:43	14:50:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.00	0	25.73	
0:24:13	14:51:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.78	
0:24:43	14:51:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.83	
0:25:13	14:52:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.86	
0:25:43	14:52:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.9	
0:26:13	14:53:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.93	
0:26:43	14:53:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.96	
0:27:13	14:54:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.68	
0:27:43	14:54:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.72	
0:28:13	14:55:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.7	
0:28:43	14:55:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.7	
0:29:13	14:56:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.72	
0:29:43	14:56:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.79	
0:30:13	14:57:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.87	
0:30:43	14:57:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.00	0	25.71	
0:31:13	14:58:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.66	
0:31:43	14:58:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.73	
0:32:13	14:59:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.77	
0:32:43	14:59:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.82	
0:33:13	15:00:26	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	25.86	end step 2
0:33:43	15:00:56	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	29.58	
0:34:13	15:01:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	29.13	
0:34:43	15:01:56	0.00	0.00	#REF!	#REF!	0.00	0.00	2.40	0	29.2	
0:35:13	15:02:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.40	0	29.22	
0:35:43	15:02:56	0.00	0.00	#REF!	#REF!	0.00	0.00	2.50	0	28.98	
0:36:13	15:03:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.70	0	28.93	
0:36:43	15:03:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.00	0	28.98	
0:37:13	15:04:26	0.00	0.00	#REF!	#REF!	0.00	0.00	2.70	0	29.01	
0:37:43	15:04:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.00	0	28.7	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:38:13	15:05:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.20	0	28.78	
0:38:43	15:05:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.30	0	28.85	
0:39:13	15:06:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.30	0	28.55	
0:39:43	15:06:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.40	0	28.65	
0:40:13	15:07:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	28.71	
0:40:43	15:07:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	28.43	
0:41:13	15:08:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.70	0	28.53	
0:41:43	15:08:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	28.39	
0:42:13	15:09:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	28.35	
0:42:43	15:09:56	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	28.43	
0:43:13	15:10:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.80	0	28.18	
0:43:43	15:10:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.00	0	28.2	
0:44:13	15:11:26	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	28.28	
0:44:43	15:11:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.30	0	28.07	
0:45:13	15:12:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.10	0	28.13	
0:45:43	15:12:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.40	0	27.95	
0:46:13	15:13:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.60	0	28	
0:46:43	15:13:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.40	0	27.89	
0:47:13	15:14:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	27.91	
0:47:43	15:14:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.50	0	27.97	
0:48:13	15:15:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	27.75	
0:48:43	15:15:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	27.85	
0:49:13	15:16:27	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	27.67	
0:49:43	15:16:56	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	27.75	
0:50:13	15:17:26	0.00	0.00	#REF!	#REF!	0.00	0.00	4.90	0	27.63	
0:50:43	15:17:56	0.00	0.00	#REF!	#REF!	0.00	0.00	5.20	0	27.67	
0:51:13	15:18:26	0.00	0.00	#REF!	#REF!	0.00	0.00	5.20	0	27.51	
0:51:43	15:18:56	0.00	0.00	#REF!	#REF!	0.00	0.00	5.40	0	27.53	
0:52:13	15:19:26	0.00	0.00	#REF!	#REF!	0.00	0.00	5.40	0	27.33	
0:52:43	15:19:57	0.00	0.00	#REF!	#REF!	0.00	0.00	5.60	0	27.29	
0:53:13	15:20:27	0.00	0.00	#REF!	#REF!	0.00	0.00	5.60	0	27.14	
0:53:43	15:20:57	0.00	0.00	#REF!	#REF!	0.00	0.00	5.80	0	27.15	
0:54:13	15:21:27	0.00	0.00	#REF!	#REF!	0.00	0.00	5.80	0	27.03	
0:54:43	15:21:57	0.00	0.00	#REF!	#REF!	0.00	0.00	6.10	0	26.94	
0:55:13	15:22:27	0.00	0.00	#REF!	#REF!	0.00	0.00	6.20	0	26.78	
0:55:43	15:22:57	0.00	0.00	#REF!	#REF!	0.00	0.00	6.40	0	26.63	
0:56:13	15:23:27	0.00	0.00	#REF!	#REF!	0.00	0.00	6.90	0	26.5	
0:56:43	15:23:57	0.00	0.00	#REF!	#REF!	0.00	0.00	6.60	0	26.53	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:57:13	15:24:27	0.00	0.00	#REF!	#REF!	0.00	0.00	7.00	0	26.4	
0:57:43	15:24:57	0.00	0.00	#REF!	#REF!	0.00	0.00	7.20	0	26.31	
0:58:13	15:25:27	0.00	0.00	#REF!	#REF!	0.00	0.00	7.20	0	26.33	
0:58:43	15:25:57	0.00	0.00	#REF!	#REF!	0.00	0.00	7.30	0	26.2	
0:59:13	15:26:27	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	26.16	
0:59:43	15:26:57	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	26.18	
1:00:13	15:27:27	0.00	0.00	#REF!	#REF!	0.00	0.00	7.50	0	26.03	
1:00:43	15:27:57	0.00	0.00	#REF!	#REF!	0.00	0.00	7.80	0	26.04	
1:01:13	15:28:27	0.00	0.00	#REF!	#REF!	0.00	0.00	7.80	0	25.92	
1:01:43	15:28:57	0.00	0.00	#REF!	#REF!	0.00	0.00	7.80	0	25.84	
1:02:13	15:29:27	0.00	0.00	#REF!	#REF!	0.00	0.00	8.00	0	25.79	
1:02:43	15:29:57	0.00	0.00	#REF!	#REF!	0.00	0.00	8.20	0	25.55	
1:03:13	15:30:27	0.00	0.00	#REF!	#REF!	0.00	0.00	8.70	0	25.37	
1:03:43	15:30:57	0.00	0.00	#REF!	#REF!	0.00	0.00	8.80	0	25.13	
1:04:13	15:31:27	0.00	0.00	#REF!	#REF!	0.00	0.00	9.50	0	24.83	
1:04:43	15:31:57	0.00	0.00	#REF!	#REF!	0.00	0.00	9.60	0	24.6	
1:05:13	15:32:27	0.00	0.00	#REF!	#REF!	0.00	0.00	9.60	0	24.26	
1:05:43	15:32:57	0.00	0.00	#REF!	#REF!	0.00	0.00	10.20	0	23.96	
1:06:13	15:33:27	0.00	0.00	#REF!	#REF!	0.00	0.00	10.50	0	23.72	
1:06:43	15:33:57	0.00	0.00	#REF!	#REF!	0.00	0.00	11.00	0	23.21	
1:07:13	15:34:27	0.00	0.00	#REF!	#REF!	0.00	0.00	11.80	0	22.19	
1:07:43	15:34:57	0.00	0.00	#REF!	#REF!	0.00	0.00	12.70	0	21.47	
1:08:13	15:35:27	0.00	0.00	#REF!	#REF!	0.00	0.00	13.40	0	20.72	End test
1:08:43	15:35:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	20.4	
1:09:13	15:36:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	16.1	
1:09:43	15:36:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	5.88	
1:10:13	15:37:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	1.53	
1:10:43	15:37:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	3.86	
1:11:13	15:38:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.16	
1:11:43	15:38:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:12:13	15:39:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.15	
1:12:43	15:39:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.14	
1:13:13	15:40:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.13	
1:13:43	15:40:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.12	
1:14:13	15:41:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.12	
1:14:43	15:41:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.11	
1:15:13	15:42:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.1	
1:15:14	15:42:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.1	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	14:27:14	5.28	0.00	0.01	7.29	0.00	0.04	17.81	0.00	-0.03	
0:00:12	14:27:26	5.30	0.02	0.00	7.30	0.01	0.04	17.81	0.00	-0.03	
0:00:42	14:27:56	5.30	0.02	0.00	7.30	0.01	0.02	17.81	0.00	-0.01	
0:01:12	14:28:26	5.30	0.02	0.00	7.29	0.00	0.03	17.83	0.02	-0.01	
0:01:42	14:28:56	5.30	0.02	0.00	7.29	0.00	0.03	17.84	0.03	-0.01	
0:02:12	14:29:26	5.30	0.02	0.00	7.29	0.00	0.03	17.85	0.04	-0.02	
0:02:42	14:29:56	5.30	0.02	0.00	7.29	0.00	0.04	17.85	0.04	-0.05	
0:03:12	14:30:26	5.31	0.03	0.00	7.29	0.00	0.02	17.87	0.06	-0.02	
0:03:42	14:30:56	5.31	0.03	0.00	7.29	0.00	0.04	17.88	0.07	-0.03	
0:04:12	14:31:26	5.31	0.03	0.00	7.29	0.00	0.05	17.88	0.07	-0.02	
0:04:42	14:31:56	5.31	0.03	0.00	7.29	0.00	0.05	17.89	0.08	0.00	
0:05:12	14:32:26	5.31	0.03	0.00	7.30	0.01	0.04	17.89	0.08	-0.02	
0:05:42	14:32:56	5.31	0.03	0.00	7.31	0.02	0.04	17.90	0.09	-0.01	
0:06:12	14:33:26	5.31	0.03	0.00	7.27	-0.02	0.04	17.90	0.09	-0.04	
0:06:42	14:33:56	5.31	0.03	0.00	7.29	0.00	0.04	17.91	0.10	-0.01	
0:07:12	14:34:26	5.31	0.03	0.00	7.29	0.00	0.04	17.91	0.10	-0.01	
0:07:42	14:34:56	5.31	0.03	0.00	7.30	0.01	0.03	17.91	0.10	-0.02	
0:08:12	14:35:26	5.32	0.04	0.00	7.28	-0.01	0.05	17.93	0.12	-0.01	
0:08:42	14:35:56	5.34	0.06	0.00	7.31	0.02	0.03	17.92	0.11	-0.01	
0:09:12	14:36:26	5.34	0.06	0.00	7.28	-0.01	0.04	17.93	0.12	-0.03	
0:09:42	14:36:56	5.34	0.06	0.00	7.29	0.00	0.04	17.94	0.13	-0.02	
0:10:12	14:37:26	5.34	0.06	0.00	7.29	0.00	0.04	17.94	0.13	-0.02	
0:10:42	14:37:56	5.34	0.06	0.00	7.30	0.01	0.05	17.94	0.13	0.00	
0:11:42	14:38:56	5.34	0.06	0.00	7.31	0.02	0.03	17.95	0.14	-0.02	
0:12:12	14:39:26	5.34	0.06	0.00	7.29	0.00	0.04	17.96	0.15	-0.01	
0:12:42	14:39:56	5.34	0.06	0.00	7.29	0.00	0.03	17.96	0.15	-0.02	
0:13:12	14:40:26	5.34	0.06	0.00	7.31	0.02	0.04	17.96	0.15	-0.02	
0:13:42	14:40:56	5.34	0.06	0.00	7.30	0.01	0.05	17.97	0.16	-0.02	
0:14:12	14:41:26	5.34	0.06	0.01	7.28	-0.01	0.04	17.97	0.16	-0.01	
0:14:42	14:41:56	5.34	0.06	0.00	7.29	0.00	0.03	17.97	0.16	-0.02	
0:15:12	14:42:26	5.34	0.06	0.00	7.29	0.00	0.06	17.97	0.16	-0.02	
0:15:42	14:42:56	5.34	0.06	0.00	7.29	0.00	0.04	17.98	0.17	-0.01	
0:16:12	14:43:26	5.35	0.07	0.00	7.30	0.01	0.05	17.98	0.17	-0.02	
0:16:42	14:43:56	5.35	0.07	0.00	7.30	0.01	0.05	17.99	0.18	-0.02	
0:17:12	14:44:26	5.35	0.07	0.01	7.30	0.01	0.04	18.00	0.19	-0.01	
0:17:42	14:44:56	5.35	0.07	0.00	7.30	0.01	0.05	18.00	0.19	-0.02	end step 1

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:18:12	14:45:26	5.35	0.07	0.00	7.28	-0.01	0.04	18.00	0.19	-0.01	
0:18:43	14:45:56	5.35	0.07	0.00	7.30	0.01	0.06	18.00	0.19	0.02	
0:19:13	14:46:26	5.35	0.07	0.00	7.29	0.00	0.06	18.01	0.20	-0.01	
0:19:43	14:46:56	5.35	0.07	0.00	7.28	-0.01	0.06	18.01	0.20	0.00	
0:20:13	14:47:26	5.35	0.07	0.01	7.29	0.00	0.07	18.01	0.20	-0.04	
0:20:43	14:47:56	5.35	0.07	0.00	7.30	0.01	0.07	18.02	0.21	-0.03	
0:21:13	14:48:26	5.35	0.07	0.00	7.29	0.00	0.08	18.02	0.21	0.00	
0:21:43	14:48:56	5.35	0.07	0.00	7.30	0.01	0.09	18.02	0.21	-0.02	
0:22:13	14:49:26	5.36	0.08	0.00	7.30	0.01	0.09	18.03	0.22	0.00	
0:22:43	14:49:56	5.36	0.08	0.00	7.30	0.01	0.07	18.03	0.22	-0.01	
0:23:13	14:50:26	5.36	0.08	-0.01	7.30	0.01	0.08	18.05	0.24	-0.03	
0:23:43	14:50:56	5.36	0.08	0.01	7.29	0.00	0.09	18.04	0.23	-0.01	
0:24:13	14:51:26	5.36	0.08	0.00	7.30	0.01	0.08	18.06	0.25	-0.04	
0:24:43	14:51:56	5.36	0.08	0.00	7.29	0.00	0.06	18.06	0.25	-0.02	
0:25:13	14:52:26	5.36	0.08	-0.01	7.30	0.01	0.06	18.06	0.25	-0.03	
0:25:43	14:52:56	5.36	0.08	0.00	7.30	0.01	0.06	18.07	0.26	0.00	
0:26:13	14:53:26	5.36	0.08	0.00	7.31	0.02	0.07	18.07	0.26	-0.01	
0:26:43	14:53:56	5.36	0.08	0.00	7.30	0.01	0.07	18.07	0.26	-0.01	
0:27:13	14:54:26	5.36	0.08	0.00	7.29	0.00	0.07	18.09	0.28	-0.01	
0:27:43	14:54:56	5.36	0.08	0.00	7.30	0.01	0.06	18.09	0.28	-0.02	
0:28:13	14:55:26	5.36	0.08	0.00	7.29	0.00	0.06	18.09	0.28	-0.01	
0:28:43	14:55:56	5.36	0.08	0.00	7.31	0.02	0.05	18.10	0.29	-0.01	
0:29:13	14:56:26	5.36	0.08	0.00	7.29	0.00	0.05	18.10	0.29	-0.01	
0:29:43	14:56:56	5.36	0.08	0.00	7.29	0.00	0.05	18.10	0.29	-0.01	
0:30:13	14:57:26	5.36	0.08	0.00	7.29	0.00	0.06	18.10	0.29	-0.01	
0:30:43	14:57:56	5.36	0.08	0.00	7.29	0.00	0.06	18.11	0.30	-0.01	
0:31:13	14:58:26	5.36	0.08	0.00	7.29	0.00	0.05	18.12	0.31	-0.01	
0:31:43	14:58:56	5.37	0.09	0.00	7.30	0.01	0.04	18.12	0.31	-0.01	
0:32:13	14:59:26	5.37	0.09	0.00	7.30	0.01	0.04	18.12	0.31	-0.01	
0:32:43	14:59:56	5.37	0.09	0.00	7.29	0.00	0.04	18.12	0.31	-0.01	
0:33:13	15:00:26	5.38	0.10	0.00	7.30	0.01	0.04	18.13	0.32	-0.01	
0:33:43	15:00:56	5.38	0.10	0.00	7.30	0.01	0.03	18.13	0.32	-0.01	
0:34:13	15:01:26	5.38	0.10	0.00	7.30	0.01	0.03	18.13	0.32	-0.01	
0:34:43	15:01:56	5.38	0.10	-0.01	7.31	0.02	0.02	18.14	0.33	-0.02	
0:35:13	15:02:26	5.38	0.10	0.00	7.31	0.02	0.02	18.14	0.33	0.00	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:35:43	15:02:56	5.38	0.10	0.00	7.30	0.01	0.03	18.14	0.33	-0.02	
0:36:13	15:03:26	5.38	0.10	0.01	7.29	0.00	0.02	18.15	0.34	-0.01	
0:36:43	15:03:56	5.38	0.10	-0.01	7.31	0.02	0.01	18.15	0.34	-0.01	
0:37:13	15:04:26	5.38	0.10	0.00	7.29	0.00	0.01	18.15	0.34	-0.01	
0:37:43	15:04:56	5.38	0.10	0.00	7.28	-0.01	0.02	18.15	0.34	-0.01	
0:38:13	15:05:26	5.38	0.10	0.00	7.30	0.01	0.04	18.15	0.34	-0.01	
0:38:43	15:05:56	5.38	0.10	0.00	7.29	0.00	0.04	18.16	0.35	-0.01	
0:39:13	15:06:26	5.38	0.10	0.00	7.30	0.01	0.03	18.16	0.35	-0.01	
0:39:43	15:06:56	5.38	0.10	0.00	7.29	0.00	0.04	18.16	0.35	-0.01	
0:40:13	15:07:26	5.38	0.10	0.00	7.32	0.03	0.04	18.16	0.35	-0.02	
0:40:43	15:07:56	5.38	0.10	0.00	7.29	0.00	0.04	18.18	0.37	-0.03	
0:41:13	15:08:26	5.38	0.10	0.00	7.29	0.00	0.03	18.18	0.37	-0.02	
0:41:43	15:08:56	5.38	0.10	0.00	7.29	0.00	0.04	18.18	0.37	-0.01	
0:42:13	15:09:26	5.39	0.11	0.00	7.29	0.00	0.03	18.17	0.36	-0.03	
0:42:43	15:09:56	5.39	0.11	0.00	7.30	0.01	0.03	18.17	0.36	-0.01	
0:43:13	15:10:26	5.39	0.11	0.00	7.29	0.00	0.03	18.18	0.37	-0.01	
0:43:43	15:10:56	5.39	0.11	0.00	7.29	0.00	0.03	18.19	0.38	-0.01	
0:44:13	15:11:26	5.39	0.11	0.00	7.30	0.01	0.03	18.19	0.38	-0.02	
0:44:43	15:11:56	5.39	0.11	-0.01	7.31	0.02	0.04	18.19	0.38	-0.01	
0:45:13	15:12:26	5.39	0.11	-0.01	7.31	0.02	0.04	18.20	0.39	-0.02	
0:45:43	15:12:56	5.39	0.11	0.00	7.29	0.00	0.05	18.20	0.39	-0.01	
0:46:13	15:13:26	5.39	0.11	0.00	7.30	0.01	0.04	18.20	0.39	-0.01	
0:46:43	15:13:56	5.39	0.11	0.00	7.30	0.01	0.04	18.20	0.39	-0.01	
0:47:13	15:14:26	5.39	0.11	0.00	7.30	0.01	0.04	18.20	0.39	-0.01	
0:47:43	15:14:56	5.40	0.12	0.00	7.30	0.01	0.05	18.21	0.40	0.00	
0:48:13	15:15:26	5.40	0.12	0.00	7.28	-0.01	0.04	18.21	0.40	-0.02	
0:48:43	15:15:56	5.40	0.12	0.00	7.29	0.00	0.04	18.22	0.41	-0.02	
0:49:13	15:16:27	5.40	0.12	0.00	7.31	0.02	0.04	18.22	0.41	-0.03	
0:49:43	15:16:56	5.40	0.12	0.00	7.30	0.01	0.04	18.22	0.41	-0.02	
0:50:13	15:17:26	5.40	0.12	-0.01	7.31	0.02	0.05	18.24	0.43	-0.03	
0:50:43	15:17:56	5.40	0.12	0.00	7.29	0.00	0.03	18.24	0.43	-0.02	
0:51:13	15:18:26	5.40	0.12	-0.01	7.31	0.02	0.03	18.24	0.43	-0.04	
0:51:43	15:18:56	5.41	0.13	-0.01	7.30	0.01	0.04	18.24	0.43	-0.01	
0:52:13	15:19:26	5.42	0.14	-0.01	7.30	0.01	0.03	18.25	0.44	-0.02	
0:52:43	15:19:57	5.42	0.14	0.00	7.30	0.01	0.03	18.25	0.44	-0.01	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:53:13	15:20:27	5.42	0.14	0.00	7.31	0.02	0.03	18.25	0.44	-0.02	
0:53:43	15:20:57	5.42	0.14	0.00	7.30	0.01	0.03	18.26	0.45	-0.02	
0:54:13	15:21:27	5.42	0.14	0.00	7.31	0.02	0.03	18.26	0.45	-0.03	
0:54:43	15:21:57	5.43	0.15	0.00	7.31	0.02	0.03	18.27	0.46	-0.01	
0:55:13	15:22:27	5.43	0.15	0.00	7.31	0.02	0.03	18.27	0.46	-0.02	
0:55:43	15:22:57	5.43	0.15	0.00	7.30	0.01	0.02	18.29	0.48	-0.02	
0:56:13	15:23:27	5.43	0.15	0.00	7.30	0.01	0.03	18.29	0.48	-0.02	
0:56:43	15:23:57	5.44	0.16	-0.01	7.30	0.01	0.02	18.30	0.49	-0.03	
0:57:13	15:24:27	5.44	0.16	0.00	7.30	0.01	0.03	18.31	0.50	-0.01	
0:57:43	15:24:57	5.44	0.16	-0.01	7.31	0.02	0.03	18.32	0.51	-0.02	
0:58:13	15:25:27	5.44	0.16	-0.01	7.29	0.00	0.04	18.32	0.51	-0.02	
0:58:43	15:25:57	5.45	0.17	0.00	7.30	0.01	0.03	18.33	0.52	-0.03	
0:59:13	15:26:27	5.45	0.17	0.00	7.30	0.01	0.03	18.35	0.54	-0.01	
0:59:43	15:26:57	5.46	0.18	0.00	7.31	0.02	0.04	18.35	0.54	-0.04	
1:00:13	15:27:27	5.47	0.19	0.00	7.30	0.01	0.05	18.37	0.56	-0.01	
1:00:43	15:27:57	5.47	0.19	-0.01	7.30	0.01	0.04	18.38	0.57	-0.01	
1:01:13	15:28:27	5.47	0.19	0.00	7.31	0.02	0.03	18.38	0.57	-0.01	
1:01:43	15:28:57	5.48	0.20	0.00	7.31	0.02	0.04	18.40	0.59	-0.02	
1:02:13	15:29:27	5.48	0.20	0.00	7.31	0.02	0.04	18.41	0.60	-0.02	
1:02:43	15:29:57	5.48	0.20	0.00	7.32	0.03	0.04	18.42	0.61	0.00	
1:03:13	15:30:27	5.49	0.21	0.00	7.30	0.01	0.04	18.42	0.61	-0.01	
1:03:43	15:30:57	5.49	0.21	0.00	7.32	0.03	0.05	18.44	0.63	-0.02	
1:04:13	15:31:27	5.49	0.21	0.00	7.31	0.02	0.05	18.45	0.64	-0.04	
1:04:43	15:31:57	5.49	0.21	-0.01	7.30	0.01	0.05	18.45	0.64	-0.01	
1:05:13	15:32:27	5.50	0.22	0.00	7.30	0.01	0.05	18.46	0.65	0.01	
1:05:43	15:32:57	5.50	0.22	-0.01	7.30	0.01	0.05	18.47	0.66	0.00	
1:06:13	15:33:27	5.50	0.22	0.00	7.30	0.01	0.05	18.48	0.67	-0.01	
1:06:43	15:33:57	5.50	0.22	0.00	7.30	0.01	0.06	18.48	0.67	-0.04	
1:07:13	15:34:27	5.52	0.24	-0.01	7.31	0.02	0.06	18.48	0.67	-0.06	
1:07:43	15:34:57	5.52	0.24	-0.01	7.31	0.02	0.07	18.50	0.69	-0.01	
1:08:13	15:35:27	5.52	0.24	0.00	7.31	0.02	0.07	18.49	0.68	-0.01	
1:08:43	15:35:57	5.52	0.24	-0.01	7.31	0.02	0.07	18.49	0.68	-0.02	
1:09:13	15:36:27	5.53	0.25	-0.01	7.30	0.01	0.07	18.48	0.67	-0.01	
1:09:43	15:36:57	5.54	0.26	0.00	7.31	0.02	0.06	18.45	0.64	0.00	
1:10:13	15:37:27	5.54	0.26	-0.01	7.29	0.00	0.04	18.43	0.62	-0.02	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2			RADIO 3			RADIO 4			4
		MW-8			MW-21			MW-9			
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
1:10:43	15:37:57	5.55	0.27	0.00	7.31	0.02	0.05	18.43	0.62	-0.01	
1:11:13	15:38:27	5.54	0.26	0.00	7.32	0.03	0.05	18.44	0.63	0.00	
1:11:43	15:38:57	5.55	0.27	0.00	7.32	0.03	0.03	18.45	0.64	0.00	
1:12:13	15:39:27	5.56	0.28	-0.01	7.32	0.03	0.03	18.47	0.66	0.00	
1:12:43	15:39:57	5.56	0.28	-0.01	7.29	0.00	0.04	18.48	0.67	-0.01	
1:13:13	15:40:27	5.56	0.28	-0.01	7.30	0.01	0.03	18.50	0.69	0.04	
1:13:43	15:40:57	5.56	0.28	0.00	7.31	0.02	0.03	18.51	0.70	-0.01	
1:14:13	15:41:27	5.56	0.28	-0.01	7.30	0.01	0.02	18.54	0.73	-0.01	
1:14:43	15:41:57	5.57	0.29	-0.01	7.31	0.02	0.02	18.57	0.76	-0.02	
1:15:13	15:42:27	5.57	0.29	-0.01	7.31	0.02	0.03	18.58	0.77	-0.01	
1:15:14	15:42:27	5.57	0.29	-0.01	7.31	0.02	0.03	18.58	0.77	-0.01	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	14:27:14	6.20	0.00	0.01	-8.02	0.00	-0.05	
0:00:12	14:27:26	6.21	0.01	0.01	-8.02	0.00	-0.05	
0:00:42	14:27:56	6.20	0.00	0.01	-8.02	0.00	-0.05	
0:01:12	14:28:26	6.20	0.00	0.01	-8.02	0.00	-0.05	
0:01:42	14:28:56	6.20	0.00	0.01	-8.02	0.00	-0.05	
0:02:12	14:29:26	6.20	0.00	0.01	-8.02	0.00	11.71	
0:02:42	14:29:56	6.20	0.00	0.01	-8.02	0.00	12.20	
0:03:12	14:30:26	6.20	0.00	0.01	-8.02	0.00	14.67	
0:03:42	14:30:56	6.20	0.00	0.01	-8.02	0.00	17.89	
0:04:12	14:31:26	6.20	0.00	0.00	-8.02	0.00	18.45	
0:04:42	14:31:56	6.20	0.00	0.01	-8.02	0.00	21.13	
0:05:12	14:32:26	6.20	0.00	0.01	-8.02	0.00	21.34	
0:05:42	14:32:56	6.20	0.00	0.01	-8.02	0.00	21.44	
0:06:12	14:33:26	6.20	0.00	0.01	-8.02	0.00	21.45	
0:06:42	14:33:56	6.20	0.00	0.01	-8.02	0.00	21.45	
0:07:12	14:34:26	6.20	0.00	0.01	-8.02	0.00	21.47	
0:07:42	14:34:56	6.20	0.00	0.00	-8.02	0.00	21.48	
0:08:12	14:35:26	6.20	0.00	0.01	-8.02	0.00	21.46	
0:08:42	14:35:56	6.20	0.00	0.00	-8.02	0.00	21.50	
0:09:12	14:36:26	6.20	0.00	0.00	-8.02	0.00	21.51	
0:09:42	14:36:56	6.20	0.00	0.01	-8.02	0.00	21.52	
0:10:12	14:37:26	6.20	0.00	0.01	-8.02	0.00	21.55	
0:10:42	14:37:56	6.20	0.00	0.01	-8.02	0.00	21.57	
0:11:42	14:38:56	6.20	0.00	0.01	-8.02	0.00	21.27	
0:12:12	14:39:26	6.20	0.00	0.01	-8.02	0.00	21.29	
0:12:42	14:39:56	6.20	0.00	0.00	-8.02	0.00	21.31	
0:13:12	14:40:26	6.20	0.00	0.01	-8.02	0.00	21.33	
0:13:42	14:40:56	6.20	0.00	0.01	-8.02	0.00	21.34	
0:14:12	14:41:26	6.20	0.00	0.00	-8.02	0.00	21.37	
0:14:42	14:41:56	6.20	0.00	0.01	-8.02	0.00	21.38	
0:15:12	14:42:26	6.20	0.00	0.01	-8.02	0.00	21.38	
0:15:42	14:42:56	6.20	0.00	0.01	-8.02	0.00	21.40	
0:16:12	14:43:26	6.20	0.00	0.01	-8.02	0.00	21.41	
0:16:42	14:43:56	6.20	0.00	0.01	-8.02	0.00	21.42	
0:17:12	14:44:26	6.20	0.00	0.00	-8.02	0.00	21.44	
0:17:42	14:44:56	6.20	0.00	0.01	-8.02	0.00	25.96	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:18:12	14:45:26	6.20	0.00	0.01	-8.02	0.00	26.00	
0:18:43	14:45:56	6.20	0.00	0.01	-8.02	0.00	25.95	
0:19:13	14:46:26	6.20	0.00	0.01	-8.02	0.00	25.63	
0:19:43	14:46:56	6.20	0.00	0.01	-8.02	0.00	25.67	
0:20:13	14:47:26	6.20	0.00	0.01	-8.02	0.00	25.73	
0:20:43	14:47:56	6.19	-0.01	0.01	-8.02	0.00	25.77	
0:21:13	14:48:26	6.19	-0.01	0.01	-8.02	0.00	25.81	
0:21:43	14:48:56	6.19	-0.01	0.01	-8.02	0.00	25.85	
0:22:13	14:49:26	6.20	0.00	0.01	-8.02	0.00	25.88	
0:22:43	14:49:56	6.19	-0.01	0.01	-8.02	0.00	25.89	
0:23:13	14:50:26	6.19	-0.01	0.01	-8.02	0.00	25.64	
0:23:43	14:50:56	6.20	0.00	0.01	-8.02	0.00	25.68	
0:24:13	14:51:26	6.19	-0.01	0.01	-8.02	0.00	25.73	
0:24:43	14:51:56	6.20	0.00	0.00	-8.02	0.00	25.78	
0:25:13	14:52:26	6.19	-0.01	0.01	-8.02	0.00	25.81	
0:25:43	14:52:56	6.19	-0.01	0.01	-8.02	0.00	25.85	
0:26:13	14:53:26	6.19	-0.01	0.00	-8.02	0.00	25.88	
0:26:43	14:53:56	6.19	-0.01	0.01	-8.02	0.00	25.91	
0:27:13	14:54:26	6.19	-0.01	0.01	-8.02	0.00	25.63	
0:27:43	14:54:56	6.19	-0.01	0.01	-8.02	0.00	25.67	
0:28:13	14:55:26	6.19	-0.01	0.01	-8.02	0.00	25.65	
0:28:43	14:55:56	6.19	-0.01	0.01	-8.02	0.00	25.65	
0:29:13	14:56:26	6.19	-0.01	0.01	-8.02	0.00	25.67	
0:29:43	14:56:56	6.19	-0.01	0.01	-8.02	0.00	25.74	
0:30:13	14:57:26	6.19	-0.01	0.01	-8.02	0.00	25.82	
0:30:43	14:57:56	6.19	-0.01	0.00	-8.02	0.00	25.66	
0:31:13	14:58:26	6.19	-0.01	0.01	-8.02	0.00	25.61	
0:31:43	14:58:56	6.19	-0.01	0.01	-8.02	0.00	25.68	
0:32:13	14:59:26	6.19	-0.01	0.01	-8.02	0.00	25.72	
0:32:43	14:59:56	6.19	-0.01	0.01	-8.02	0.00	25.77	
0:33:13	15:00:26	6.19	-0.01	0.00	-8.02	0.00	25.81	
0:33:43	15:00:56	6.19	-0.01	0.01	-8.02	0.00	29.53	
0:34:13	15:01:26	6.19	-0.01	0.00	-8.02	0.00	29.08	
0:34:43	15:01:56	6.19	-0.01	0.01	-8.02	0.00	29.15	
0:35:13	15:02:26	6.19	-0.01	0.01	-8.02	0.00	29.17	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:35:43	15:02:56	6.19	-0.01	0.00	-8.02	0.00	28.93	
0:36:13	15:03:26	6.19	-0.01	0.00	-8.02	0.00	28.88	
0:36:43	15:03:56	6.19	-0.01	0.01	-8.02	0.00	28.93	
0:37:13	15:04:26	6.19	-0.01	0.01	-8.02	0.00	28.96	
0:37:43	15:04:56	6.19	-0.01	0.01	-8.02	0.00	28.65	
0:38:13	15:05:26	6.19	-0.01	0.01	-8.02	0.00	28.73	
0:38:43	15:05:56	6.19	-0.01	0.01	-8.02	0.00	28.80	
0:39:13	15:06:26	6.19	-0.01	-0.01	-8.02	0.00	28.50	
0:39:43	15:06:56	6.19	-0.01	0.01	-8.02	0.00	28.60	
0:40:13	15:07:26	6.19	-0.01	0.01	-8.02	0.00	28.66	
0:40:43	15:07:56	6.19	-0.01	0.00	-8.02	0.00	28.38	
0:41:13	15:08:26	6.19	-0.01	0.01	-8.02	0.00	28.48	
0:41:43	15:08:56	6.19	-0.01	0.01	-8.02	0.00	28.34	
0:42:13	15:09:26	6.19	-0.01	0.01	-8.02	0.00	28.30	
0:42:43	15:09:56	6.19	-0.01	0.00	-8.02	0.00	28.38	
0:43:13	15:10:26	6.19	-0.01	0.00	-8.02	0.00	28.13	
0:43:43	15:10:56	6.19	-0.01	0.01	-8.02	0.00	28.15	
0:44:13	15:11:26	6.19	-0.01	0.01	-8.02	0.00	28.23	
0:44:43	15:11:56	6.19	-0.01	0.00	-8.02	0.00	28.02	
0:45:13	15:12:26	6.19	-0.01	0.01	-8.02	0.00	28.08	
0:45:43	15:12:56	6.19	-0.01	0.00	-8.02	0.00	27.90	
0:46:13	15:13:26	6.19	-0.01	0.01	-8.02	0.00	27.95	
0:46:43	15:13:56	6.19	-0.01	0.01	-8.02	0.00	27.84	
0:47:13	15:14:26	6.19	-0.01	0.01	-8.02	0.00	27.86	
0:47:43	15:14:56	6.19	-0.01	0.01	-8.02	0.00	27.92	
0:48:13	15:15:26	6.19	-0.01	0.01	-8.02	0.00	27.70	
0:48:43	15:15:56	6.19	-0.01	0.01	-8.02	0.00	27.80	
0:49:13	15:16:27	6.19	-0.01	0.01	-8.02	0.00	27.62	
0:49:43	15:16:56	6.19	-0.01	0.01	-8.02	0.00	27.70	
0:50:13	15:17:26	6.18	-0.02	0.00	-8.02	0.00	27.58	
0:50:43	15:17:56	6.19	-0.01	0.00	-8.02	0.00	27.62	
0:51:13	15:18:26	6.19	-0.01	0.00	-8.02	0.00	27.46	
0:51:43	15:18:56	6.19	-0.01	0.01	-8.02	0.00	27.48	
0:52:13	15:19:26	6.19	-0.01	0.01	-8.02	0.00	27.28	
0:52:43	15:19:57	6.19	-0.01	0.00	-8.02	0.00	27.24	

Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

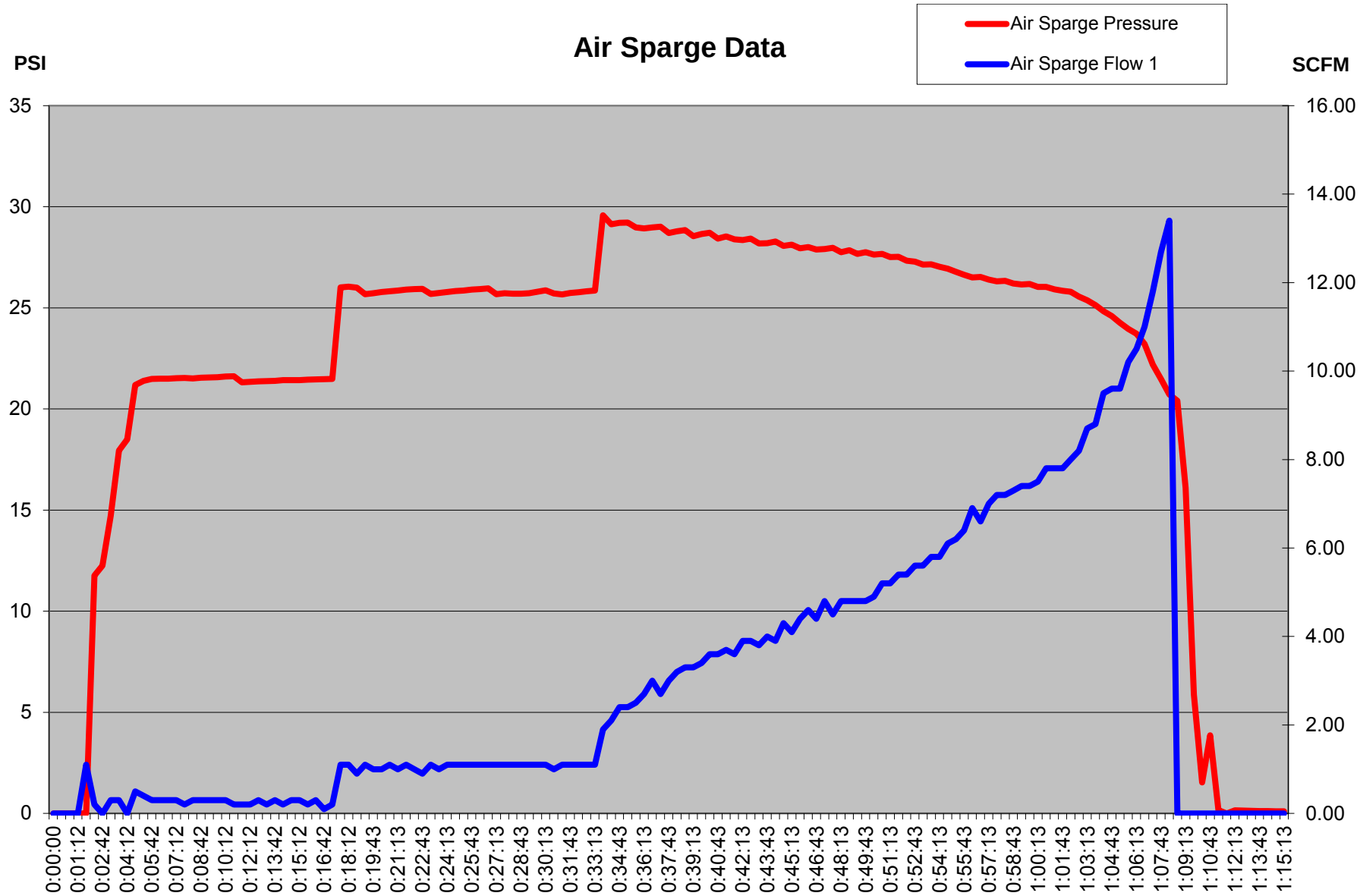
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:53:13	15:20:27	6.19	-0.01	0.00	-8.02	0.00	27.09	
0:53:43	15:20:57	6.19	-0.01	0.00	-8.02	0.00	27.10	
0:54:13	15:21:27	6.19	-0.01	0.00	-8.02	0.00	26.98	
0:54:43	15:21:57	6.18	-0.02	0.00	-8.02	0.00	26.89	
0:55:13	15:22:27	6.18	-0.02	0.00	-8.02	0.00	26.73	
0:55:43	15:22:57	6.18	-0.02	0.00	-8.02	0.00	26.58	
0:56:13	15:23:27	6.18	-0.02	0.00	-8.02	0.00	26.45	
0:56:43	15:23:57	6.18	-0.02	0.01	-8.02	0.00	26.48	
0:57:13	15:24:27	6.18	-0.02	0.00	-8.02	0.00	26.35	
0:57:43	15:24:57	6.18	-0.02	0.01	-8.02	0.00	26.26	
0:58:13	15:25:27	6.18	-0.02	0.01	-8.02	0.00	26.28	
0:58:43	15:25:57	6.18	-0.02	0.00	-8.02	0.00	26.15	
0:59:13	15:26:27	6.18	-0.02	0.00	-8.02	0.00	26.11	
0:59:43	15:26:57	6.18	-0.02	0.01	-8.02	0.00	26.13	
1:00:13	15:27:27	6.18	-0.02	0.00	-8.02	0.00	25.98	
1:00:43	15:27:57	6.18	-0.02	0.00	-8.02	0.00	25.99	
1:01:13	15:28:27	6.18	-0.02	0.01	-8.02	0.00	25.87	
1:01:43	15:28:57	6.18	-0.02	0.01	-8.02	0.00	25.79	
1:02:13	15:29:27	6.18	-0.02	0.00	-8.02	0.00	25.74	
1:02:43	15:29:57	6.18	-0.02	0.01	-8.02	0.00	25.50	
1:03:13	15:30:27	6.17	-0.03	0.00	-8.02	0.00	25.32	
1:03:43	15:30:57	6.18	-0.02	0.01	-8.02	0.00	25.08	
1:04:13	15:31:27	6.18	-0.02	0.01	-8.02	0.00	24.78	
1:04:43	15:31:57	6.18	-0.02	0.00	-8.02	0.00	24.55	
1:05:13	15:32:27	6.19	-0.01	0.00	-8.02	0.00	24.21	
1:05:43	15:32:57	6.18	-0.02	0.00	-8.02	0.00	23.91	
1:06:13	15:33:27	6.18	-0.02	0.01	-8.02	0.00	23.67	
1:06:43	15:33:57	6.19	-0.01	0.00	-8.02	0.00	23.16	
1:07:13	15:34:27	6.19	-0.01	0.00	-8.02	0.00	22.14	
1:07:43	15:34:57	6.19	-0.01	0.00	-8.02	0.00	21.42	
1:08:13	15:35:27	6.19	-0.01	0.00	-8.02	0.00	20.67	
1:08:43	15:35:57	6.19	-0.01	0.01	-8.02	0.00	20.35	
1:09:13	15:36:27	6.19	-0.01	0.00	-8.02	0.00	16.05	
1:09:43	15:36:57	6.19	-0.01	0.00	-8.02	0.00	5.83	
1:10:13	15:37:27	6.19	-0.01	0.00	-8.02	0.00	1.48	

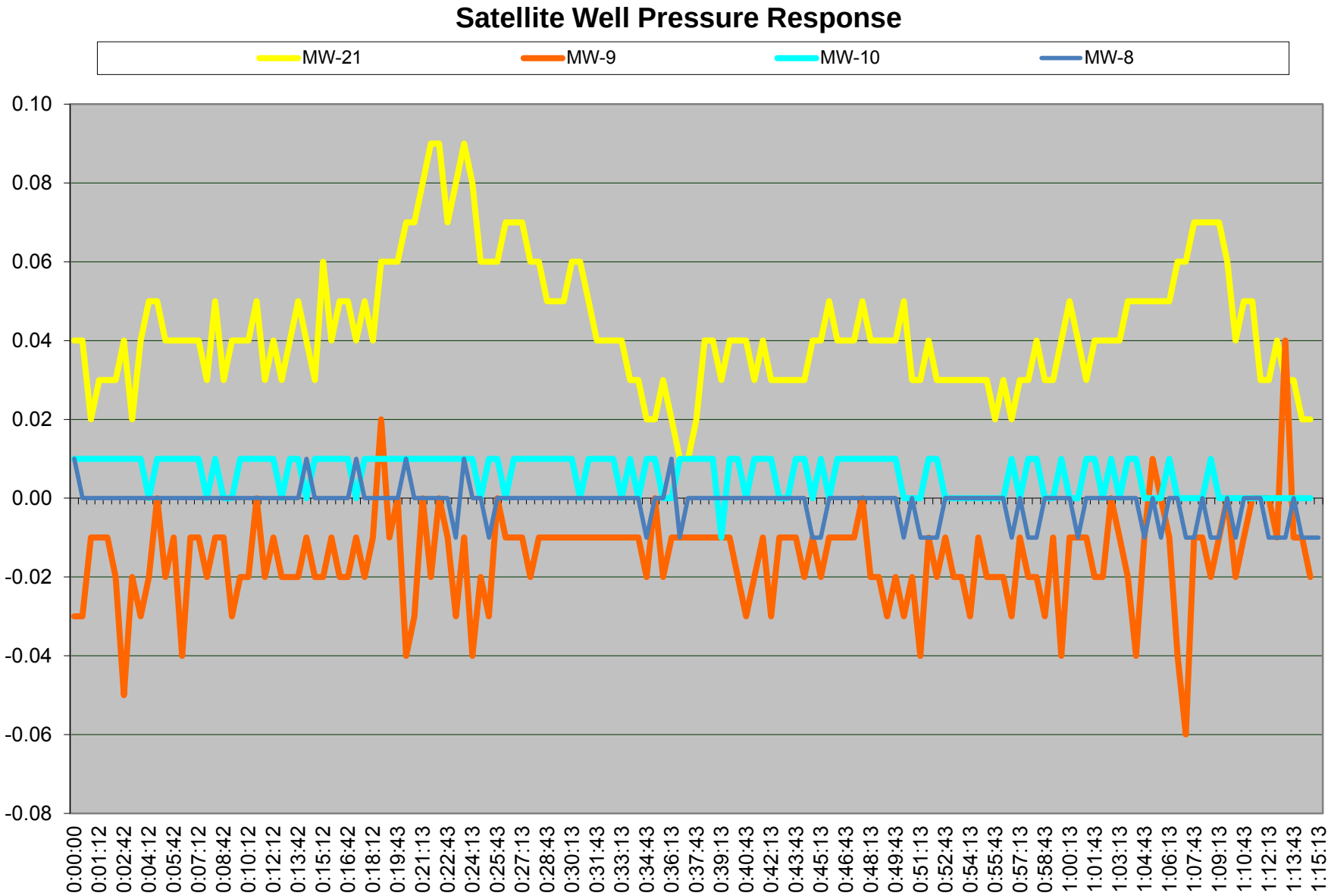
Table B-9

Air Injection at IP-3D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-3D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:10:43	15:37:57	6.19	-0.01	0.00	-8.02	0.00	3.81	
1:11:13	15:38:27	6.19	-0.01	0.00	-8.02	0.00	0.11	
1:11:43	15:38:57	6.18	-0.02	0.00	-8.02	0.00	-0.05	
1:12:13	15:39:27	6.18	-0.02	0.00	-8.02	0.00	0.10	
1:12:43	15:39:57	6.18	-0.02	0.00	-8.02	0.00	0.09	
1:13:13	15:40:27	6.17	-0.03	0.00	-8.02	0.00	0.08	
1:13:43	15:40:57	6.17	-0.03	0.00	-8.02	0.00	0.07	
1:14:13	15:41:27	6.17	-0.03	0.00	-8.02	0.00	0.07	
1:14:43	15:41:57	6.18	-0.02	0.00	-8.02	0.00	0.06	
1:15:13	15:42:27	6.17	-0.03	0.00	-8.02	0.00	0.05	
1:15:14	15:42:27	6.17	-0.03	0.00	-8.02	0.00	0.05	


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
35
30
25
20
15
10
5
0
16.00
14.00
12.00
10.00
8.00
6.00
4.00
2.00
0.00
0:00:00
0:01:12
0:02:42
0:04:12
0:05:42
0:07:12
0:08:42
0:10:12
0:12:12
0:13:42
0:15:12
0:16:42
0:18:12
0:19:43
0:21:13
0:22:43
0:24:13
0:25:43
0:27:13
0:28:43
0:30:13
0:31:43
0:33:13
0:34:43
0:36:13
0:37:43
0:39:13
0:40:43
0:42:13
0:43:43
0:45:13
0:46:43
0:48:13
0:49:43
0:51:13
0:52:43
0:54:13
0:55:43
0:57:13
0:58:43
1:00:13
1:01:43
1:03:13
1:04:43
1:06:13
1:07:43
1:09:13
1:10:43
1:12:13
1:13:43
1:15:13


Satellite Well Pressure Response
MW-21
MW-9
MW-10
MW-8
0.10
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
0:00:00
0:01:12
0:02:42
0:04:12
0:05:42
0:07:12
0:08:42
0:10:12
0:12:12
0:13:42
0:15:12
0:16:42
0:18:12
0:19:43
0:21:13
0:22:43
0:24:13
0:25:43
0:27:13
0:28:43
0:30:13
0:31:43
0:33:13
0:34:43
0:36:13
0:37:43
0:39:13
0:40:43
0:42:13
0:43:43
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0:54:13
0:55:43
0:57:13
0:58:43
1:00:13
1:01:43
1:03:13
1:04:43
1:06:13
1:07:43
1:09:13
1:10:43
1:12:13
1:13:43
1:15:13

Satellite Well L.L. Change

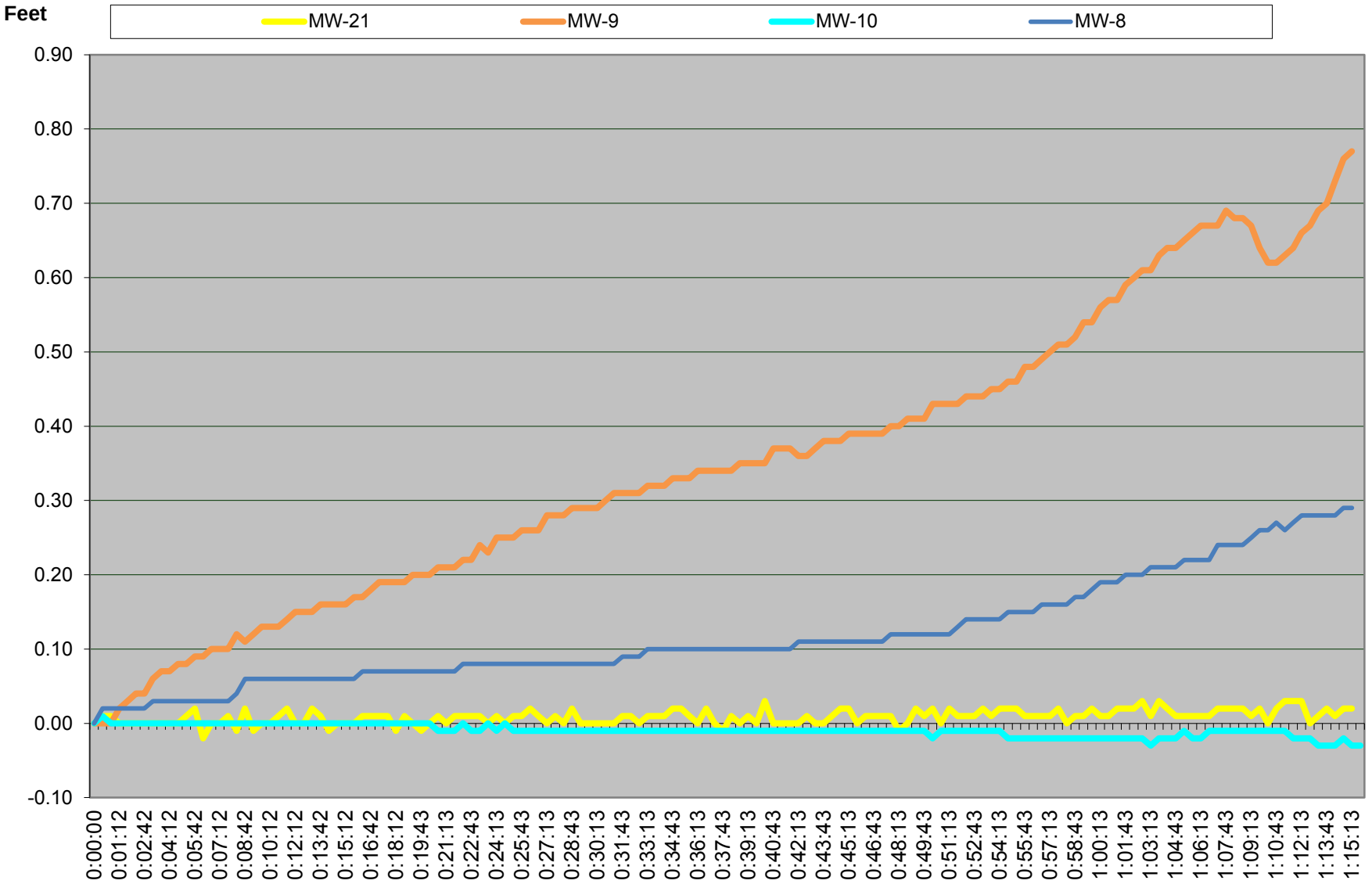


Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	17:00:00	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:00:27	17:00:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:00:57	17:00:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:01:27	17:01:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:01:57	17:01:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:02:27	17:02:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:02:58	17:02:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-0.02	Start Test
0:03:27	17:03:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-0.03	
0:03:57	17:03:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	8.72	
0:04:27	17:04:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	9.41	
0:04:57	17:04:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	11.27	
0:05:27	17:05:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.49	
0:05:57	17:05:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.44	
0:06:27	17:06:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.40	0	11.25	
0:06:57	17:06:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.02	
0:07:27	17:07:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.97	
0:07:57	17:07:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.98	
0:08:27	17:08:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	11	
0:08:57	17:08:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11	
0:09:27	17:09:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	11.01	
0:09:57	17:09:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.02	
0:10:27	17:10:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.04	
0:10:57	17:10:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.04	
0:11:28	17:11:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.06	
0:11:58	17:11:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.08	
0:12:28	17:12:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.09	
0:12:58	17:12:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.11	
0:13:28	17:13:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.12	
0:13:58	17:13:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.84	
0:14:28	17:14:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.83	
0:14:58	17:14:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.85	
0:15:28	17:15:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.87	
0:15:58	17:15:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.9	
0:16:28	17:16:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.91	
0:16:58	17:16:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.94	
0:17:28	17:17:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	10.95	
0:17:58	17:17:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.97	
0:18:28	17:18:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.98	
0:18:58	17:18:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	11	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:19:28	17:19:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.02	
0:19:58	17:19:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	11.03	
0:20:28	17:20:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.93	
0:20:58	17:20:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.78	
0:21:28	17:21:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.78	
0:21:58	17:21:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	10.79	
0:22:28	17:22:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.83	
0:22:58	17:22:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.84	
0:23:28	17:23:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.87	
0:23:58	17:23:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.89	
0:24:28	17:24:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	10.91	
0:24:58	17:24:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	10.93	End Step 1
0:25:28	17:25:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.40	0	14.67	
0:25:58	17:25:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.10	0	15.53	
0:26:28	17:26:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.36	
0:26:58	17:26:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.4	
0:27:28	17:27:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.42	
0:27:58	17:27:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.46	
0:28:28	17:28:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.5	
0:28:58	17:28:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.54	
0:29:28	17:29:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.34	
0:29:58	17:29:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.20	0	15.29	
0:30:28	17:30:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.40	0	15.35	
0:30:58	17:30:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.39	
0:31:28	17:31:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.44	
0:31:58	17:31:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.48	
0:32:28	17:32:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.36	
0:32:58	17:32:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.24	
0:33:28	17:33:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.40	0	15.3	
0:33:58	17:33:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.34	
0:34:28	17:34:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.4	
0:34:58	17:34:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	15.44	
0:35:28	17:35:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.20	0	15.41	
0:35:58	17:35:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.2	
0:36:28	17:36:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.27	
0:36:58	17:36:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.33	
0:37:28	17:37:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.40	0	15.37	
0:37:58	17:37:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.43	
0:38:28	17:38:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.43	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:38:58	17:38:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.2	
0:39:28	17:39:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	15.25	MW-10 pressure transducer is at maximum
0:39:58	17:39:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.40	0	15.32	
0:40:28	17:40:28	0.00	0.00	#REF!	#REF!	0.00	0.00	1.40	0	15.36	
0:40:58	17:40:58	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	15.42	End Step 2
0:41:28	17:41:28	0.00	0.00	#REF!	#REF!	0.00	0.00	2.80	0	19.35	
0:41:58	17:41:58	0.00	0.00	#REF!	#REF!	0.00	0.00	3.20	0	18.88	
0:42:28	17:42:28	0.00	0.00	#REF!	#REF!	0.00	0.00	3.50	0	18.79	
0:42:58	17:42:58	0.00	0.00	#REF!	#REF!	0.00	0.00	3.60	0	18.46	
0:43:28	17:43:28	0.00	0.00	#REF!	#REF!	0.00	0.00	4.00	0	18.45	
0:43:58	17:43:58	0.00	0.00	#REF!	#REF!	0.00	0.00	3.90	0	18.46	
0:44:28	17:44:28	0.00	0.00	#REF!	#REF!	0.00	0.00	4.50	0	18.14	
0:44:58	17:44:58	0.00	0.00	#REF!	#REF!	0.00	0.00	4.70	0	18.16	
0:45:28	17:45:28	0.00	0.00	#REF!	#REF!	0.00	0.00	4.80	0	17.87	
0:45:58	17:45:58	0.00	0.00	#REF!	#REF!	0.00	0.00	5.00	0	17.88	
0:46:28	17:46:28	0.00	0.00	#REF!	#REF!	0.00	0.00	5.10	0	17.62	
0:46:58	17:46:58	0.00	0.00	#REF!	#REF!	0.00	0.00	5.50	0	17.58	
0:47:28	17:47:28	0.00	0.00	#REF!	#REF!	0.00	0.00	5.40	0	17.35	
0:47:58	17:47:58	0.00	0.00	#REF!	#REF!	0.00	0.00	5.60	0	17.34	
0:48:28	17:48:28	0.00	0.00	#REF!	#REF!	0.00	0.00	5.80	0	17.12	
0:48:58	17:48:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.00	0	17.19	
0:49:28	17:49:28	0.00	0.00	#REF!	#REF!	0.00	0.00	5.90	0	16.97	
0:49:58	17:49:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.20	0	17.01	
0:50:28	17:50:28	0.00	0.00	#REF!	#REF!	0.00	0.00	6.60	0	16.68	
0:50:58	17:50:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.50	0	16.74	
0:51:28	17:51:28	0.00	0.00	#REF!	#REF!	0.00	0.00	6.60	0	16.55	
0:51:58	17:51:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.60	0	16.54	
0:52:28	17:52:28	0.00	0.00	#REF!	#REF!	0.00	0.00	6.80	0	16.57	
0:52:58	17:52:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.70	0	16.48	
0:53:28	17:53:28	0.00	0.00	#REF!	#REF!	0.00	0.00	6.80	0	16.59	
0:53:58	17:53:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.80	0	16.49	
0:54:28	17:54:28	0.00	0.00	#REF!	#REF!	0.00	0.00	6.80	0	16.55	
0:54:58	17:54:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.90	0	16.5	
0:55:28	17:55:28	0.00	0.00	#REF!	#REF!	0.00	0.00	6.90	0	16.35	
0:55:58	17:55:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.90	0	16.45	
0:56:28	17:56:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.10	0	16.33	
0:56:58	17:56:58	0.00	0.00	#REF!	#REF!	0.00	0.00	6.90	0	16.4	
0:57:28	17:57:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.20	0	16.31	
0:57:58	17:57:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.10	0	16.15	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:58:28	17:58:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.00	0	16.24	
0:58:58	17:58:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	16.1	
0:59:28	17:59:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.20	0	16.21	
0:59:58	17:59:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.30	0	16.04	
1:00:28	18:00:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	15.97	
1:00:58	18:00:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.60	0	16.07	
1:01:28	18:01:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.50	0	15.99	
1:01:58	18:01:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	15.93	
1:02:28	18:02:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	16.05	
1:02:58	18:02:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.50	0	15.98	
1:03:28	18:03:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.50	0	16.1	
1:03:58	18:03:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	15.95	
1:04:28	18:04:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.40	0	16.01	
1:04:58	18:04:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.50	0	16.02	
1:05:28	18:05:28	0.00	0.00	#REF!	#REF!	0.00	0.00	7.60	0	15.89	
1:05:58	18:05:58	0.00	0.00	#REF!	#REF!	0.00	0.00	7.50	0	15.91	Test complete
1:06:28	18:06:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	10.35	
1:06:58	18:06:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	3.77	
1:07:28	18:07:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	4.02	
1:07:58	18:07:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:08:28	18:08:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:08:58	18:08:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:09:28	18:09:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:09:58	18:09:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:10:28	18:10:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:10:58	18:10:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:11:28	18:11:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:11:58	18:11:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:12:28	18:12:28	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:12:58	18:12:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	
1:13:11	18:13:11	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	-8	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	17:00:00	5.75	0.00	-0.01	7.33	0.00	-0.01	19.46	0.00	-0.01	
0:00:27	17:00:27	5.75	0.00	-0.01	7.31	-0.02	-0.01	19.46	0.00	-0.01	
0:00:57	17:00:57	5.75	0.00	-0.02	7.32	-0.01	0.00	19.46	0.00	-0.01	
0:01:27	17:01:28	5.76	0.01	-0.01	7.31	-0.02	0.00	19.46	0.00	-0.01	
0:01:57	17:01:58	5.76	0.01	0.00	7.32	-0.01	0.00	19.46	0.00	-0.01	
0:02:27	17:02:28	5.76	0.01	-0.01	7.34	0.01	0.01	19.47	0.01	-0.02	
0:02:58	17:02:58	5.76	0.01	-0.01	7.33	0.00	0.02	19.47	0.01	-0.02	Start Test
0:03:27	17:03:28	5.76	0.01	-0.01	7.33	0.00	0.01	19.48	0.02	0.00	
0:03:57	17:03:58	5.76	0.01	-0.01	7.32	-0.01	0.01	19.48	0.02	-0.02	
0:04:27	17:04:28	5.76	0.01	0.00	7.32	-0.01	0.01	19.49	0.03	-0.01	
0:04:57	17:04:58	5.76	0.01	-0.01	7.31	-0.02	0.01	19.49	0.03	-0.02	
0:05:27	17:05:28	5.76	0.01	0.00	7.31	-0.02	0.01	19.49	0.03	-0.01	
0:05:57	17:05:58	5.76	0.01	-0.01	7.33	0.00	0.01	19.50	0.04	-0.03	
0:06:27	17:06:28	5.76	0.01	-0.01	7.32	-0.01	0.01	19.50	0.04	-0.02	
0:06:57	17:06:58	5.76	0.01	-0.01	7.32	-0.01	0.01	19.50	0.04	-0.03	
0:07:27	17:07:28	5.76	0.01	-0.01	7.33	0.00	0.02	19.50	0.04	-0.04	
0:07:57	17:07:58	5.76	0.01	-0.01	7.31	-0.02	0.01	19.51	0.05	-0.02	
0:08:27	17:08:28	5.76	0.01	-0.01	7.32	-0.01	0.00	19.51	0.05	-0.04	
0:08:57	17:08:58	5.77	0.02	-0.01	7.33	0.00	0.01	19.51	0.05	-0.02	
0:09:27	17:09:28	5.77	0.02	-0.01	7.33	0.00	0.00	19.52	0.06	-0.02	
0:09:57	17:09:58	5.77	0.02	-0.01	7.32	-0.01	0.01	19.51	0.05	-0.02	
0:10:27	17:10:28	5.77	0.02	-0.01	7.34	0.01	0.01	19.53	0.07	0.00	
0:10:57	17:10:58	5.77	0.02	-0.01	7.32	-0.01	0.00	19.53	0.07	-0.02	
0:11:28	17:11:28	5.77	0.02	-0.01	7.31	-0.02	0.01	19.53	0.07	-0.02	
0:11:58	17:11:58	5.77	0.02	-0.01	7.33	0.00	0.01	19.53	0.07	-0.02	
0:12:28	17:12:28	5.77	0.02	-0.01	7.31	-0.02	0.00	19.53	0.07	-0.02	
0:12:58	17:12:58	5.77	0.02	-0.01	7.31	-0.02	0.01	19.54	0.08	-0.02	
0:13:28	17:13:28	5.77	0.02	-0.01	7.33	0.00	0.00	19.54	0.08	-0.02	
0:13:58	17:13:58	5.77	0.02	-0.02	7.34	0.01	0.01	19.54	0.08	-0.02	
0:14:28	17:14:28	5.77	0.02	-0.01	7.32	-0.01	0.01	19.54	0.08	-0.02	
0:14:58	17:14:58	5.77	0.02	-0.01	7.33	0.00	0.01	19.54	0.08	-0.02	
0:15:28	17:15:28	5.77	0.02	-0.01	7.31	-0.02	0.01	19.55	0.09	-0.02	
0:15:58	17:15:58	5.78	0.03	-0.01	7.33	0.00	0.02	19.55	0.09	-0.02	
0:16:28	17:16:28	5.78	0.03	-0.01	7.33	0.00	0.02	19.55	0.09	-0.02	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:16:58	17:16:58	5.78	0.03	-0.01	7.34	0.01	0.03	19.55	0.09	-0.02	
0:17:28	17:17:28	5.78	0.03	-0.01	7.32	-0.01	0.02	19.55	0.09	-0.02	
0:17:58	17:17:58	5.78	0.03	-0.01	7.33	0.00	0.03	19.56	0.10	-0.02	
0:18:28	17:18:28	5.78	0.03	-0.01	7.32	-0.01	0.03	19.56	0.10	-0.02	
0:18:58	17:18:58	5.78	0.03	-0.01	7.32	-0.01	0.03	19.56	0.10	-0.03	
0:19:28	17:19:28	5.78	0.03	-0.01	7.33	0.00	0.03	19.57	0.11	-0.02	
0:19:58	17:19:58	5.78	0.03	-0.01	7.31	-0.02	0.01	19.57	0.11	-0.02	
0:20:28	17:20:28	5.78	0.03	-0.01	7.34	0.01	0.02	19.57	0.11	-0.02	
0:20:58	17:20:58	5.78	0.03	-0.01	7.33	0.00	0.01	19.57	0.11	-0.02	
0:21:28	17:21:28	5.78	0.03	-0.01	7.33	0.00	0.01	19.57	0.11	-0.02	
0:21:58	17:21:58	5.78	0.03	-0.01	7.31	-0.02	0.01	19.57	0.11	-0.02	
0:22:28	17:22:28	5.79	0.04	-0.01	7.32	-0.01	0.02	19.57	0.11	-0.02	
0:22:58	17:22:58	5.79	0.04	-0.01	7.32	-0.01	0.01	19.57	0.11	-0.02	
0:23:28	17:23:28	5.79	0.04	-0.01	7.33	0.00	0.01	19.58	0.12	-0.02	
0:23:58	17:23:58	5.79	0.04	-0.01	7.33	0.00	0.01	19.59	0.13	-0.02	
0:24:28	17:24:28	5.79	0.04	-0.01	7.32	-0.01	0.01	19.58	0.12	-0.02	
0:24:58	17:24:58	5.79	0.04	-0.01	7.32	-0.01	0.01	19.58	0.12	-0.03	End Step 1
0:25:28	17:25:28	5.79	0.04	-0.01	7.33	0.00	0.01	19.59	0.13	-0.02	
0:25:58	17:25:58	5.79	0.04	-0.01	7.32	-0.01	0.00	19.58	0.12	-0.03	
0:26:28	17:26:28	5.79	0.04	-0.01	7.33	0.00	0.01	19.58	0.12	-0.02	
0:26:58	17:26:58	5.79	0.04	-0.01	7.33	0.00	0.01	19.60	0.14	-0.02	
0:27:28	17:27:28	5.79	0.04	-0.01	7.32	-0.01	0.00	19.60	0.14	-0.02	
0:27:58	17:27:58	5.79	0.04	-0.02	7.34	0.01	0.00	19.60	0.14	-0.02	
0:28:28	17:28:28	5.79	0.04	-0.01	7.32	-0.01	0.01	19.60	0.14	-0.02	
0:28:58	17:28:58	5.79	0.04	-0.02	7.33	0.00	0.00	19.60	0.14	-0.02	
0:29:28	17:29:28	5.79	0.04	-0.01	7.32	-0.01	0.01	19.60	0.14	-0.02	
0:29:58	17:29:58	5.80	0.05	-0.01	7.32	-0.01	0.01	19.60	0.14	-0.02	
0:30:28	17:30:28	5.80	0.05	-0.01	7.33	0.00	0.02	19.60	0.14	-0.02	
0:30:58	17:30:58	5.80	0.05	-0.01	7.33	0.00	0.02	19.60	0.14	-0.02	
0:31:28	17:31:28	5.80	0.05	-0.02	7.32	-0.01	0.02	19.61	0.15	-0.02	
0:31:58	17:31:58	5.80	0.05	-0.01	7.34	0.01	0.02	19.61	0.15	-0.02	
0:32:28	17:32:28	5.80	0.05	-0.02	7.33	0.00	0.02	19.61	0.15	-0.02	
0:32:58	17:32:58	5.80	0.05	-0.02	7.32	-0.01	0.02	19.61	0.15	-0.02	
0:33:28	17:33:28	5.80	0.05	-0.01	7.34	0.01	0.02	19.61	0.15	-0.02	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:33:58	17:33:58	5.80	0.05	-0.01	7.33	0.00	0.02	19.61	0.15	-0.02	
0:34:28	17:34:28	5.80	0.05	-0.01	7.34	0.01	0.02	19.62	0.16	-0.02	
0:34:58	17:34:58	5.80	0.05	-0.01	7.31	-0.02	0.02	19.62	0.16	-0.02	
0:35:28	17:35:28	5.80	0.05	-0.01	7.33	0.00	0.02	19.62	0.16	-0.02	
0:35:58	17:35:58	5.80	0.05	-0.01	7.32	-0.01	0.02	19.62	0.16	-0.02	
0:36:28	17:36:28	5.80	0.05	-0.02	7.33	0.00	0.01	19.62	0.16	-0.02	
0:36:58	17:36:58	5.81	0.06	-0.01	7.32	-0.01	0.01	19.62	0.16	-0.02	
0:37:28	17:37:28	5.81	0.06	-0.01	7.31	-0.02	0.01	19.62	0.16	-0.02	
0:37:58	17:37:58	5.81	0.06	-0.01	7.34	0.01	0.02	19.63	0.17	-0.02	
0:38:28	17:38:28	5.81	0.06	-0.02	7.35	0.02	0.01	19.63	0.17	-0.02	
0:38:58	17:38:58	5.81	0.06	-0.01	7.33	0.00	0.01	19.63	0.17	-0.02	
0:39:28	17:39:28	5.81	0.06	-0.01	7.33	0.00	0.01	19.63	0.17	-0.02	MW-10 pressure transducer is at maximum
0:39:58	17:39:58	5.81	0.06	-0.01	7.33	0.00	0.01	19.63	0.17	-0.02	
0:40:28	17:40:28	5.81	0.06	-0.01	7.33	0.00	0.01	19.63	0.17	-0.02	End Step 2
0:40:58	17:40:58	5.81	0.06	-0.01	7.34	0.01	0.00	19.63	0.17	-0.02	
0:41:28	17:41:28	5.81	0.06	-0.02	7.32	-0.01	0.01	19.64	0.18	-0.02	
0:41:58	17:41:58	5.81	0.06	-0.01	7.33	0.00	0.00	19.64	0.18	-0.02	
0:42:28	17:42:28	5.81	0.06	-0.01	7.34	0.01	0.01	19.64	0.18	-0.02	
0:42:58	17:42:58	5.81	0.06	-0.01	7.33	0.00	0.01	19.64	0.18	-0.02	
0:43:28	17:43:28	5.81	0.06	-0.01	7.33	0.00	0.01	19.64	0.18	-0.02	
0:43:58	17:43:58	5.81	0.06	-0.01	7.32	-0.01	0.01	19.64	0.18	-0.02	
0:44:28	17:44:28	5.82	0.07	-0.02	7.34	0.01	0.01	19.64	0.18	-0.02	
0:44:58	17:44:58	5.82	0.07	-0.01	7.33	0.00	0.02	19.64	0.18	-0.02	
0:45:28	17:45:28	5.82	0.07	-0.01	7.32	-0.01	0.02	19.65	0.19	-0.02	
0:45:58	17:45:58	5.82	0.07	-0.01	7.33	0.00	0.02	19.67	0.21	-0.02	
0:46:28	17:46:28	5.82	0.07	-0.01	7.32	-0.01	0.01	19.67	0.21	-0.02	
0:46:58	17:46:58	5.82	0.07	-0.01	7.32	-0.01	0.01	19.67	0.21	-0.02	
0:47:28	17:47:28	5.82	0.07	-0.01	7.31	-0.02	0.01	19.67	0.21	-0.02	
0:47:58	17:47:58	5.82	0.07	-0.01	7.34	0.01	0.01	19.67	0.21	-0.02	
0:48:28	17:48:28	5.82	0.07	-0.01	7.34	0.01	0.01	19.67	0.21	-0.02	
0:48:58	17:48:58	5.82	0.07	-0.01	7.33	0.00	0.02	19.67	0.21	-0.02	
0:49:28	17:49:28	5.83	0.08	-0.01	7.32	-0.01	0.02	19.67	0.21	-0.02	
0:49:58	17:49:58	5.83	0.08	-0.01	7.32	-0.01	0.02	19.67	0.21	-0.02	
0:50:28	17:50:28	5.83	0.08	-0.02	7.31	-0.02	0.03	19.68	0.22	-0.02	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:50:58	17:50:58	5.83	0.08	-0.02	7.34	0.01	0.03	19.68	0.22	-0.02	
0:51:28	17:51:28	5.83	0.08	-0.01	7.34	0.01	0.04	19.68	0.22	-0.02	
0:51:58	17:51:58	5.83	0.08	-0.01	7.33	0.00	0.03	19.68	0.22	-0.02	
0:52:28	17:52:28	5.83	0.08	-0.01	7.32	-0.01	0.03	19.68	0.22	-0.02	
0:52:58	17:52:58	5.83	0.08	-0.02	7.33	0.00	0.03	19.68	0.22	-0.02	
0:53:28	17:53:28	5.83	0.08	-0.01	7.33	0.00	0.04	19.69	0.23	-0.02	
0:53:58	17:53:58	5.83	0.08	-0.02	7.32	-0.01	0.03	19.69	0.23	-0.02	
0:54:28	17:54:28	5.83	0.08	-0.01	7.32	-0.01	0.03	19.69	0.23	-0.02	
0:54:58	17:54:58	5.83	0.08	-0.02	7.32	-0.01	0.03	19.69	0.23	-0.02	
0:55:28	17:55:28	5.83	0.08	-0.02	7.32	-0.01	0.03	19.69	0.23	-0.02	
0:55:58	17:55:58	5.83	0.08	-0.01	7.34	0.01	0.03	19.69	0.23	-0.02	
0:56:28	17:56:28	5.83	0.08	-0.01	7.33	0.00	0.04	19.70	0.24	-0.02	
0:56:58	17:56:58	5.84	0.09	-0.02	7.33	0.00	0.04	19.70	0.24	-0.02	
0:57:28	17:57:28	5.84	0.09	-0.01	7.33	0.00	0.03	19.70	0.24	-0.02	
0:57:58	17:57:58	5.84	0.09	-0.02	7.35	0.02	0.04	19.70	0.24	-0.02	
0:58:28	17:58:28	5.84	0.09	-0.01	7.33	0.00	0.04	19.70	0.24	-0.02	
0:58:58	17:58:58	5.84	0.09	-0.02	7.33	0.00	0.03	19.71	0.25	-0.02	
0:59:28	17:59:28	5.84	0.09	-0.01	7.32	-0.01	0.04	19.71	0.25	-0.02	
0:59:58	17:59:58	5.84	0.09	-0.01	7.33	0.00	0.04	19.71	0.25	-0.02	
1:00:28	18:00:28	5.84	0.09	-0.02	7.32	-0.01	0.04	19.71	0.25	-0.02	
1:00:58	18:00:58	5.84	0.09	-0.02	7.34	0.01	0.03	19.71	0.25	-0.02	
1:01:28	18:01:28	5.84	0.09	-0.02	7.34	0.01	0.03	19.72	0.26	-0.02	
1:01:58	18:01:58	5.84	0.09	-0.02	7.33	0.00	0.03	19.72	0.26	-0.02	
1:02:28	18:02:28	5.84	0.09	-0.02	7.33	0.00	0.02	19.73	0.27	-0.02	
1:02:58	18:02:58	5.84	0.09	-0.01	7.32	-0.01	0.03	19.73	0.27	-0.02	
1:03:28	18:03:28	5.84	0.09	-0.02	7.34	0.01	0.03	19.73	0.27	-0.02	
1:03:58	18:03:58	5.85	0.10	-0.02	7.35	0.02	0.03	19.73	0.27	-0.02	
1:04:28	18:04:28	5.85	0.10	-0.02	7.33	0.00	0.03	19.73	0.27	-0.02	
1:04:58	18:04:58	5.85	0.10	-0.01	7.32	-0.01	0.04	19.73	0.27	-0.02	
1:05:28	18:05:28	5.85	0.10	-0.02	7.33	0.00	0.03	19.74	0.28	-0.02	
1:05:58	18:05:58	5.85	0.10	-0.02	7.33	0.00	0.04	19.74	0.28	-0.02	Test complete
1:06:28	18:06:28	5.85	0.10	-0.02	7.35	0.02	0.02	19.74	0.28	-0.03	
1:06:58	18:06:58	5.85	0.10	-0.01	7.35	0.02	0.03	19.74	0.28	-0.02	
1:07:28	18:07:28	5.85	0.10	-0.02	7.34	0.01	0.03	19.74	0.28	-0.03	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
1:07:58	18:07:58	5.85	0.10	-0.02	7.34	0.01	0.02				
1:08:28	18:08:28	5.85	0.10	-0.02	7.35	0.02	0.03				
1:08:58	18:08:58	5.85	0.10	-0.02	7.35	0.02	0.02				
1:09:28	18:09:28	5.85	0.10	-0.02	7.34	0.01	0.02				
1:09:58	18:09:58	5.85	0.10	-0.02	7.33	0.00	0.03				
1:10:28	18:10:28	5.85	0.10	-0.02	7.34	0.01	0.02				
1:10:58	18:10:58	5.86	0.11	-0.01	7.32	-0.01	0.02				
1:11:28	18:11:28	5.86	0.11	-0.02	7.36	0.03	0.02				
1:11:58	18:11:58	5.86	0.11	-0.02	7.34	0.01	0.02				
1:12:28	18:12:28	5.86	0.11	-0.02	7.34	0.01	0.02				
1:12:58	18:12:58	5.86	0.11	-0.01	7.34	0.01	0.02				
1:13:11	18:13:11	5.86	0.11	-0.02	7.35	0.02	0.01				

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	17:00:00	6.12	0.00	0.00			0.00	
0:00:27	17:00:27	6.12	0.00	-0.01			0.00	
0:00:57	17:00:57	6.12	0.00	-0.01			0.05	
0:01:27	17:01:28	6.12	0.00	-0.01			0.05	
0:01:57	17:01:58	6.12	0.00	-0.02			0.04	
0:02:27	17:02:28	6.12	0.00	-0.02			0.04	
0:02:58	17:02:58	6.12	0.00	-0.02			0.02	Start Test
0:03:27	17:03:28	6.12	0.00	-0.02			0.01	
0:03:57	17:03:58	6.12	0.00	-0.02			8.76	
0:04:27	17:04:28	6.12	0.00	-0.02			9.45	
0:04:57	17:04:58	6.12	0.00	-0.02			11.31	
0:05:27	17:05:28	6.12	0.00	-0.01			11.53	
0:05:57	17:05:58	6.12	0.00	0.00			11.48	
0:06:27	17:06:28	6.12	0.00	0.01			11.29	
0:06:57	17:06:58	6.12	0.00	0.01			11.06	
0:07:27	17:07:28	6.12	0.00	0.02			11.01	
0:07:57	17:07:58	6.12	0.00	0.02			11.02	
0:08:27	17:08:28	6.12	0.00	0.03			11.04	
0:08:57	17:08:58	6.12	0.00	0.04			11.04	
0:09:27	17:09:28	6.12	0.00	0.05			11.05	
0:09:57	17:09:58	6.12	0.00	0.06			11.06	
0:10:27	17:10:28	6.12	0.00	0.07			11.08	
0:10:57	17:10:58	6.12	0.00	0.08			11.08	
0:11:28	17:11:28	6.12	0.00	0.08			11.10	
0:11:58	17:11:58	6.12	0.00	0.09			11.12	
0:12:28	17:12:28	6.12	0.00	0.10			11.13	
0:12:58	17:12:58	6.12	0.00	0.11			11.15	
0:13:28	17:13:28	6.12	0.00	0.13			11.16	
0:13:58	17:13:58	6.11	-0.01	0.15			10.88	
0:14:28	17:14:28	6.11	-0.01	0.15			10.87	
0:14:58	17:14:58	6.11	-0.01	0.16			10.89	
0:15:28	17:15:28	6.11	-0.01	0.17			10.91	
0:15:58	17:15:58	6.11	-0.01	0.17			10.94	
0:16:28	17:16:28	6.11	-0.01	0.19			10.95	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:16:58	17:16:58	6.11	-0.01	0.19			10.98	
0:17:28	17:17:28	6.11	-0.01	0.21			10.99	
0:17:58	17:17:58	6.11	-0.01	0.21			11.01	
0:18:28	17:18:28	6.11	-0.01	0.24			11.02	
0:18:58	17:18:58	6.11	-0.01	0.24			11.04	
0:19:28	17:19:28	6.11	-0.01	0.25			11.06	
0:19:58	17:19:58	6.11	-0.01	0.28			11.07	
0:20:28	17:20:28	6.11	-0.01	0.33			10.97	
0:20:58	17:20:58	6.11	-0.01	0.35			10.82	
0:21:28	17:21:28	6.11	-0.01	0.36			10.82	
0:21:58	17:21:58	6.11	-0.01	0.39			10.83	
0:22:28	17:22:28	6.11	-0.01	0.39			10.87	
0:22:58	17:22:58	6.10	-0.02	0.38			10.88	
0:23:28	17:23:28	6.11	-0.01	0.39			10.91	
0:23:58	17:23:58	6.11	-0.01	0.40			10.93	
0:24:28	17:24:28	6.11	-0.01	0.40			10.95	End Step 1
0:24:58	17:24:58	6.11	-0.01	0.41			10.97	
0:25:28	17:25:28	6.11	-0.01	0.44			14.71	
0:25:58	17:25:58	6.11	-0.01	0.48			15.57	
0:26:28	17:26:28	6.11	-0.01	0.52			15.40	
0:26:58	17:26:58	6.11	-0.01	0.57			15.44	
0:27:28	17:27:28	6.11	-0.01	0.78			15.46	
0:27:58	17:27:58	6.11	-0.01	0.90			15.50	
0:28:28	17:28:28	6.09	-0.03	1.27			15.54	
0:28:58	17:28:58	6.10	-0.02	1.59			15.58	
0:29:28	17:29:28	6.09	-0.03	1.64			15.38	
0:29:58	17:29:58	6.09	-0.03	2.30			15.33	
0:30:28	17:30:28	6.09	-0.03	2.61			15.39	
0:30:58	17:30:58	6.09	-0.03	3.31			15.43	
0:31:28	17:31:28	6.12	0.00	5.24			15.48	
0:31:58	17:31:58	6.09	-0.03	7.87			15.52	
0:32:28	17:32:28	6.08	-0.04	9.40			15.40	
0:32:58	17:32:58	6.07	-0.05	9.66			15.28	
0:33:28	17:33:28	6.06	-0.06	9.31			15.34	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:33:58	17:33:58	6.06	-0.06	9.47			15.38	
0:34:28	17:34:28	6.07	-0.05	9.60			15.44	
0:34:58	17:34:58	6.05	-0.07	9.48			15.48	
0:35:28	17:35:28	6.05	-0.07	9.57			15.45	
0:35:58	17:35:58	6.06	-0.06	11.43			15.24	
0:36:28	17:36:28	6.05	-0.07	11.98			15.31	
0:36:58	17:36:58	6.04	-0.08	12.50			15.37	
0:37:28	17:37:28	6.04	-0.08	12.50			15.41	
0:37:58	17:37:58	6.04	-0.08	12.50			15.47	
0:38:28	17:38:28	6.02	-0.10	12.50			15.47	
0:38:58	17:38:58	6.02	-0.10	12.50			15.24	
0:39:28	17:39:28	6.02	-0.10	12.50			15.29	MW-10 pressure transducer is at maximum
0:39:58	17:39:58	6.04	-0.08	12.50			15.36	
0:40:28	17:40:28	6.01	-0.11	12.50			15.40	
0:40:58	17:40:58	6.00	-0.12	12.50			15.46	End step 2
0:41:28	17:41:28	6.00	-0.12	12.50			19.39	
0:41:58	17:41:58	6.00	-0.12	12.50			18.92	
0:42:28	17:42:28	6.01	-0.11	12.50			18.83	
0:42:58	17:42:58	6.00	-0.12	12.50			18.50	
0:43:28	17:43:28	6.00	-0.12	12.50			18.49	
0:43:58	17:43:58	6.01	-0.11	12.50			18.50	
0:44:28	17:44:28	5.97	-0.15	12.50			18.18	
0:44:58	17:44:58	5.96	-0.16	12.50			18.20	
0:45:28	17:45:28	5.96	-0.16	12.50			17.91	
0:45:58	17:45:58	5.92	-0.20	12.50			17.92	
0:46:28	17:46:28	5.92	-0.20	12.50			17.66	
0:46:58	17:46:58	5.87	-0.25	12.50			17.62	
0:47:28	17:47:28	5.85	-0.27	12.50			17.39	
0:47:58	17:47:58	5.82	-0.30	12.50			17.38	
0:48:28	17:48:28	5.80	-0.32	12.50			17.16	
0:48:58	17:48:58	5.76	-0.36	12.50			17.23	
0:49:28	17:49:28	5.72	-0.40	12.50			17.01	
0:49:58	17:49:58	5.69	-0.43	12.50			17.05	
0:50:28	17:50:28	5.68	-0.44	12.50			16.72	

Table B-10

Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

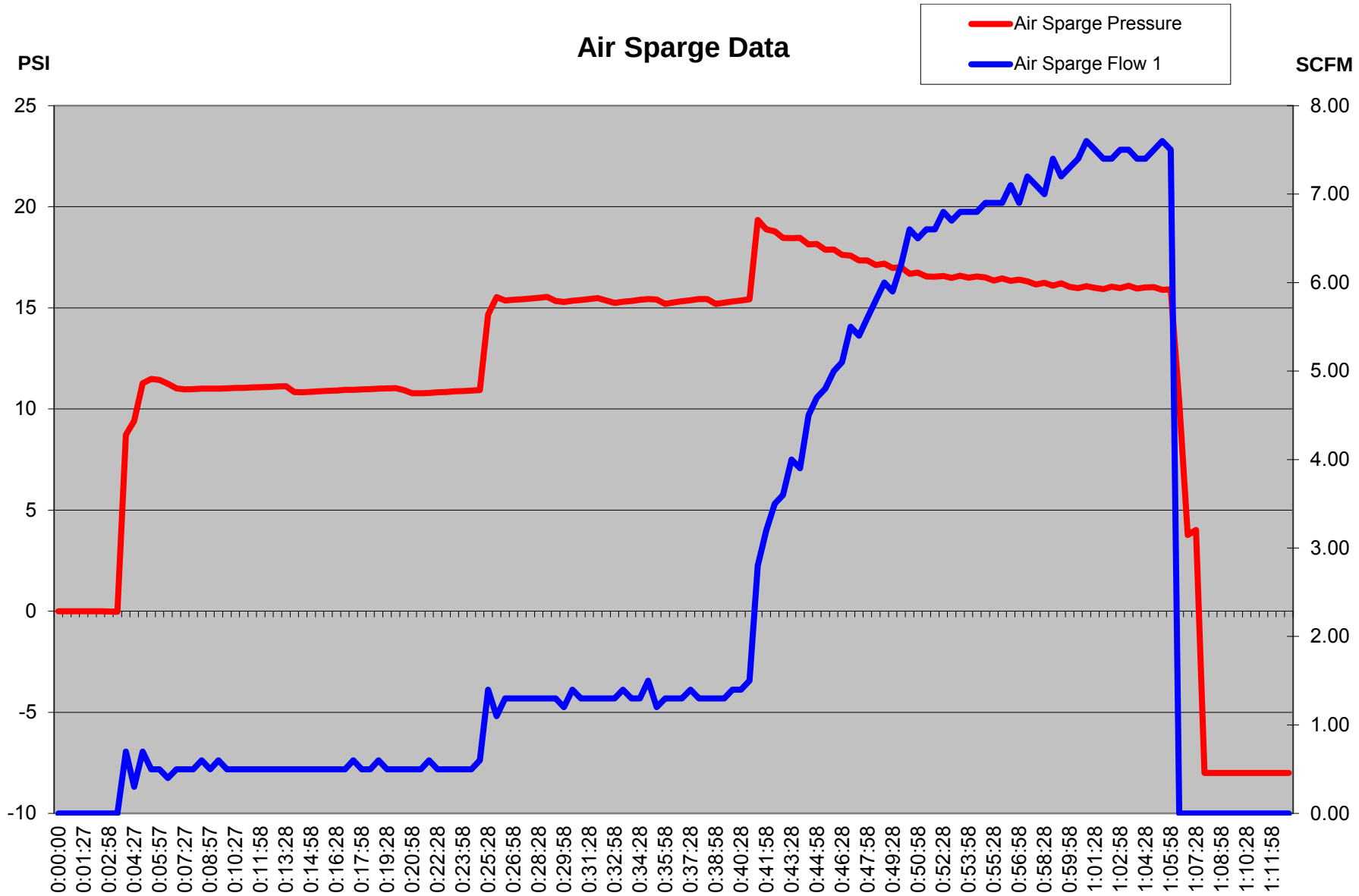
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:50:58	17:50:58	5.61	-0.51	12.50			16.78	
0:51:28	17:51:28	5.60	-0.52	12.50			16.59	
0:51:58	17:51:58	5.61	-0.51	12.50			16.58	
0:52:28	17:52:28	5.62	-0.50	12.50			16.61	
0:52:58	17:52:58	5.63	-0.49	12.50			16.52	
0:53:28	17:53:28	5.64	-0.48	12.50			16.63	
0:53:58	17:53:58	5.65	-0.47	12.50			16.53	
0:54:28	17:54:28	5.68	-0.44	12.50			16.59	
0:54:58	17:54:58	5.66	-0.46	12.50			16.54	
0:55:28	17:55:28	5.73	-0.39	12.50			16.39	
0:55:58	17:55:58	5.66	-0.46	12.50			16.49	
0:56:28	17:56:28	5.62	-0.50	12.50			16.37	
0:56:58	17:56:58	5.59	-0.53	12.50			16.44	
0:57:28	17:57:28	5.59	-0.53	12.50			16.35	
0:57:58	17:57:58	5.58	-0.54	12.50			16.19	
0:58:28	17:58:28	5.56	-0.56	12.50			16.28	
0:58:58	17:58:58	5.58	-0.54	12.50			16.14	
0:59:28	17:59:28	5.57	-0.55	12.50			16.25	
0:59:58	17:59:58	5.57	-0.55	12.50			16.08	
1:00:28	18:00:28	5.54	-0.58	12.50			16.01	
1:00:58	18:00:58	5.52	-0.60	12.50			16.11	
1:01:28	18:01:28	5.51	-0.61	12.50			16.03	
1:01:58	18:01:58	5.49	-0.63	12.50			15.97	
1:02:28	18:02:28	5.48	-0.64	12.50			16.09	
1:02:58	18:02:58	5.48	-0.64	12.50			16.02	
1:03:28	18:03:28	5.47	-0.65	12.50			16.14	
1:03:58	18:03:58	5.47	-0.65	12.50			15.99	
1:04:28	18:04:28	5.45	-0.67	12.50			16.05	
1:04:58	18:04:58	5.45	-0.67	12.50			16.06	
1:05:28	18:05:28	5.43	-0.69	12.50			15.93	
1:05:58	18:05:58	5.45	-0.67	12.50			15.95	Test complete
1:06:28	18:06:28	5.28	-0.84	12.50			10.39	
1:06:58	18:06:58	5.60	-0.52	9.33			3.81	
1:07:28	18:07:28	5.72	-0.40	6.44			4.06	

Table B-10

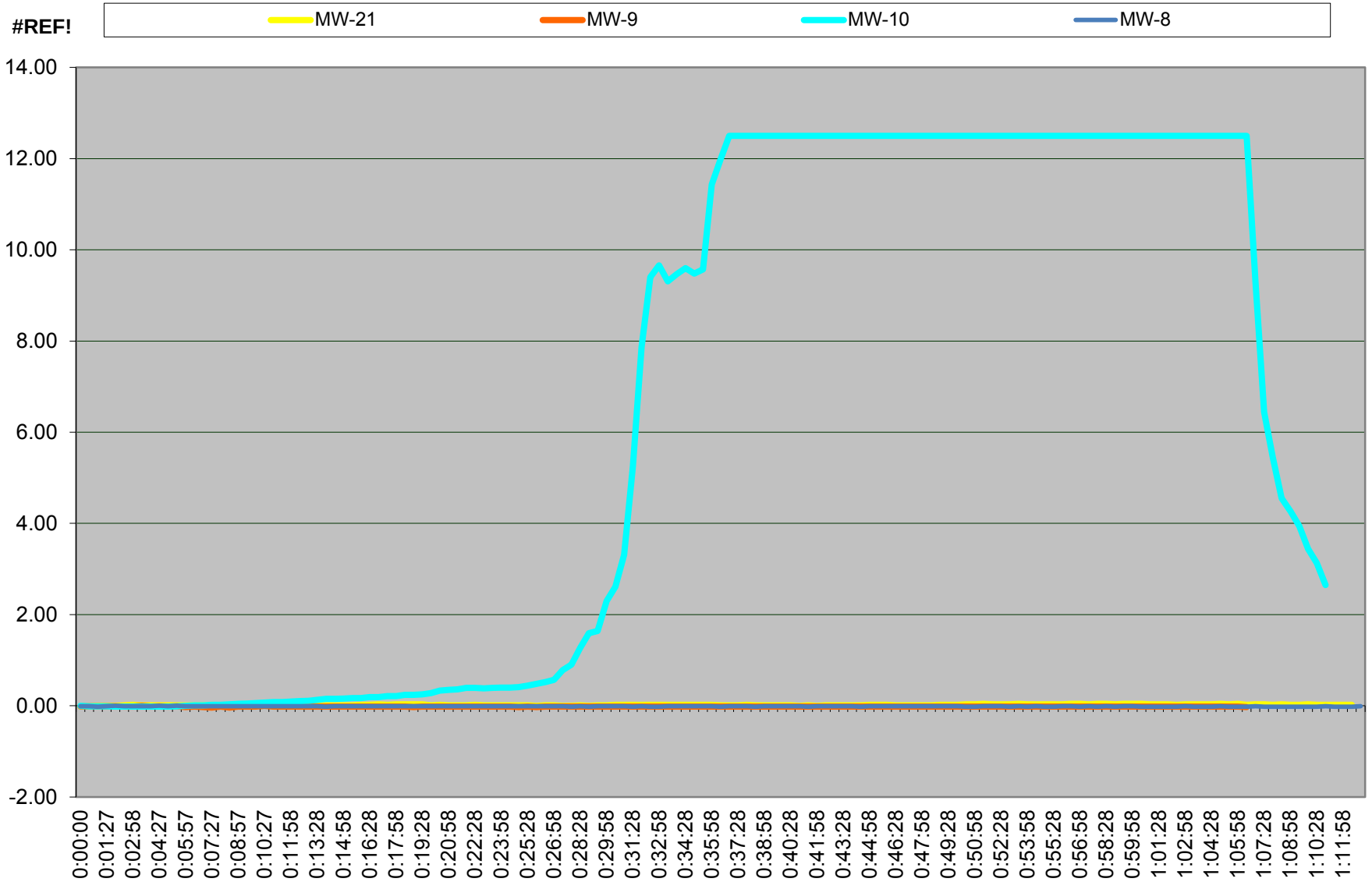
Air Injection at IP-4S

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4S			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:07:58	18:07:58	5.73	-0.39	5.44				
1:08:28	18:08:28	5.75	-0.37	4.55				
1:08:58	18:08:58	5.76	-0.36	4.26				
1:09:28	18:09:28	5.76	-0.36	3.94				
1:09:58	18:09:58	5.75	-0.37	3.44				
1:10:28	18:10:28	5.77	-0.35	3.13				
1:10:58	18:10:58	5.77	-0.35	2.65				
1:11:28	18:11:28	5.16	-0.96	-0.11				
1:11:58	18:11:58	5.26	-0.86	-15.01				
1:12:28	18:12:28							
1:12:58	18:12:58							
1:13:11	18:13:11							


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
25
20
15
10
5
0
-5
-10
8.00
7.00
6.00
5.00
4.00
3.00
2.00
1.00
0.00
0:00:00
0:01:27
0:02:58
0:04:27
0:05:57
0:07:27
0:08:57
0:10:27
0:11:58
0:13:28
0:14:58
0:16:28
0:17:58
0:19:28
0:20:58
0:22:28
0:23:58
0:25:28
0:26:58
0:28:28
0:29:58
0:31:28
0:32:58
0:34:28
0:35:58
0:37:28
0:38:58
0:40:28
0:41:58
0:43:28
0:44:58
0:46:28
0:47:58
0:49:28
0:50:58
0:52:28
0:53:58
0:55:28
0:56:58
0:58:28
0:59:58
1:01:28
1:02:58
1:04:28
1:05:58
1:07:28
1:08:58
1:10:28
1:11:58

Satellite Well Pressure Response



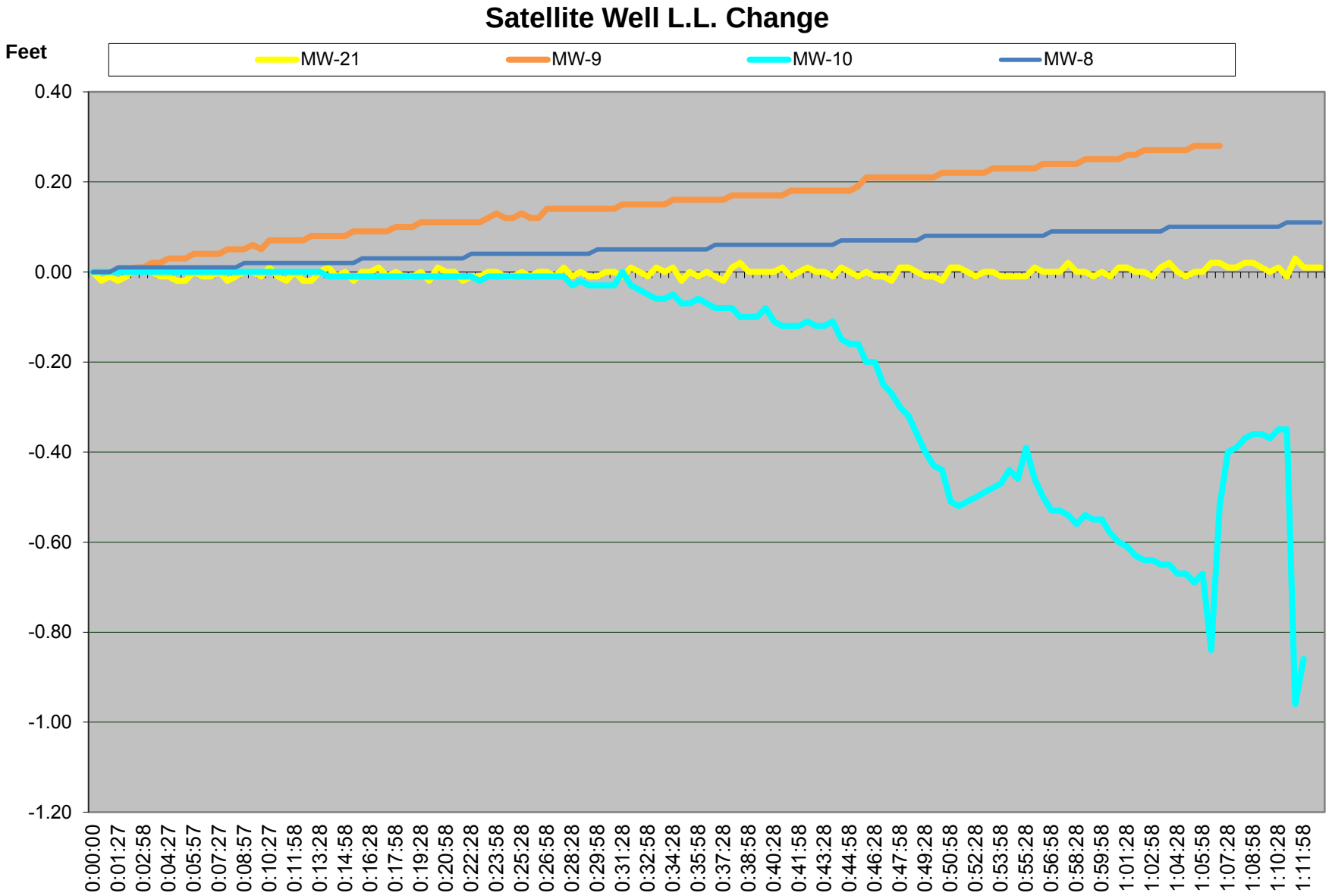

Satellite Well L.L. Change
Feet
MW-21
MW-9
MW-10
MW-8
0.40
0.20
0.00
-0.20
-0.40
-0.60
-0.80
-1.00
-1.20
0:00:00
0:01:27
0:02:58
0:04:27
0:05:57
0:07:27
0:08:57
0:10:27
0:11:58
0:13:28
0:14:58
0:16:28
0:17:58
0:19:28
0:20:58
0:22:28
0:23:58
0:25:28
0:26:58
0:28:28
0:29:58
0:31:28
0:32:58
0:34:28
0:35:58
0:37:28
0:38:58
0:40:28
0:41:58
0:43:28
0:44:58
0:46:28
0:47:58
0:49:28
0:50:58
0:52:28
0:53:58
0:55:28
0:56:58
0:58:28
0:59:58
1:01:28
1:02:58
1:04:28
1:05:58
1:07:28
1:08:58
1:10:28
1:11:58

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	15:43:29	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.09	
0:01:03	15:44:32	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.09	
0:01:12	15:44:41	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.08	
0:01:28	15:44:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.08	
0:01:58	15:45:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.07	
0:02:28	15:45:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.07	
0:02:58	15:46:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.06	
0:03:28	15:46:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.06	
0:03:58	15:47:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.06	
0:04:28	15:47:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.06	Start Test
0:04:58	15:48:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	7.71	
0:05:28	15:48:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	9.79	
0:05:58	15:49:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	10.12	
0:06:28	15:49:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	13.98	
0:06:58	15:50:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	15.29	
0:07:28	15:50:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.30	0	14.94	
0:07:58	15:51:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.58	
0:08:28	15:51:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.66	
0:08:58	15:52:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.59	
0:09:28	15:52:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.55	
0:09:58	15:53:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.51	
0:10:28	15:53:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	15.5	
0:10:58	15:54:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.49	
0:11:28	15:54:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	15.47	
0:11:58	15:55:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.47	
0:12:28	15:55:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.47	
0:12:58	15:56:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.47	
0:13:28	15:56:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	15.47	
0:13:58	15:57:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.21	
0:14:28	15:57:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	15.16	
0:14:58	15:58:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.18	
0:15:29	15:58:58	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.19	
0:15:58	15:59:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	15.21	
0:16:28	15:59:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.21	
0:16:58	16:00:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.60	0	15.23	
0:17:28	16:00:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.50	0	15.24	
0:17:58	16:01:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.26	
0:18:28	16:01:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.27	
0:18:58	16:02:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.29	
0:19:28	16:02:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.3	
0:19:58	16:03:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.01	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:20:28	16:03:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.02	
0:20:58	16:04:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.04	
0:21:28	16:04:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.07	
0:21:58	16:05:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.80	0	15.09	
0:22:28	16:05:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.1	
0:22:58	16:06:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.70	0	15.13	End Step 1
0:23:28	16:06:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	20.3	
0:23:58	16:07:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.30	0	20.19	
0:24:28	16:07:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.77	
0:24:58	16:08:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.79	
0:25:28	16:08:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.83	
0:25:58	16:09:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.88	
0:26:28	16:09:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.91	
0:26:58	16:10:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.72	
0:27:28	16:10:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.66	
0:27:58	16:11:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.71	
0:28:28	16:11:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.77	
0:28:58	16:12:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.84	
0:29:28	16:12:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.88	
0:29:58	16:13:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.6	
0:30:28	16:13:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.68	
0:30:58	16:14:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.73	
0:31:28	16:14:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.8	
0:31:58	16:15:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.84	
0:32:28	16:15:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.55	
0:32:58	16:16:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.64	
0:33:28	16:16:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.69	
0:33:58	16:17:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.76	
0:34:28	16:17:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.83	
0:34:58	16:18:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.54	
0:35:28	16:18:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.62	
0:35:58	16:19:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.60	0	19.7	
0:36:28	16:19:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.75	
0:36:58	16:20:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.82	
0:37:28	16:20:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.50	0	19.53	
0:37:58	16:21:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	19.56	End Step 2
0:38:28	16:21:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.60	0	24.32	
0:38:58	16:22:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.50	0	24.33	
0:39:28	16:22:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.60	0	24.04	
0:39:58	16:23:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.70	0	24.16	
0:40:28	16:23:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.70	0	24.24	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:40:58	16:24:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.60	0	24.06	
0:41:28	16:24:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.60	0	24.14	
0:41:58	16:25:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.50	0	24.26	
0:42:28	16:25:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.30	0	24.45	
0:42:58	16:26:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.20	0	24.28	
0:43:28	16:26:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.3	
0:43:58	16:27:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.38	
0:44:28	16:27:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.5	
0:44:58	16:28:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.29	
0:45:28	16:28:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.32	
0:45:58	16:29:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.42	
0:46:28	16:29:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.49	
0:46:58	16:30:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.42	
0:47:28	16:30:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.3	
0:47:58	16:31:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.38	
0:48:28	16:31:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.48	
0:48:58	16:32:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.53	
0:49:28	16:32:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.28	
0:49:58	16:33:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.39	
0:50:28	16:33:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.46	
0:50:58	16:34:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.55	
0:51:28	16:34:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.28	
0:51:59	16:35:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.35	
0:52:28	16:35:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.46	
0:52:58	16:36:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.55	
0:53:28	16:36:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.27	
0:53:58	16:37:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.38	
0:54:28	16:37:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.44	
0:54:58	16:38:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.54	
0:55:28	16:38:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.3	
0:55:58	16:39:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.34	
0:56:28	16:39:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.10	0	24.44	
0:56:58	16:40:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.54	
0:57:28	16:40:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.42	
0:57:58	16:41:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.35	
0:58:28	16:41:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.45	
0:58:58	16:42:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.51	
0:59:28	16:42:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.80	0	24.6	
0:59:59	16:43:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.33	
1:00:29	16:43:57	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.4	
1:00:59	16:44:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.5	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
1:01:29	16:44:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.59	
1:01:59	16:45:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.31	
1:02:29	16:45:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.4	
1:02:59	16:46:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.47	
1:03:29	16:46:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.56	
1:03:59	16:47:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.39	
1:04:29	16:47:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.34	
1:04:59	16:48:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.44	
1:05:29	16:48:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.53	
1:05:59	16:49:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.80	0	24.59	
1:06:29	16:49:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.33	
1:06:59	16:50:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.43	
1:07:29	16:50:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.49	
1:07:59	16:51:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.58	
1:08:29	16:51:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.90	0	24.32	
1:08:59	16:52:27	0.00	0.00	#REF!	#REF!	0.00	0.00	1.80	0	24.36	
1:09:29	16:52:57	0.00	0.00	#REF!	#REF!	0.00	0.00	1.70	0	24.46	
1:09:59	16:53:27	0.00	0.00	#REF!	#REF!	0.00	0.00	2.00	0	24.52	End of test.
1:10:29	16:53:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	24.62	
1:10:59	16:54:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.38	
1:11:29	16:54:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.29	
1:11:59	16:55:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.18	
1:12:29	16:55:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.1	DO readings taken on MW 10 so pressure is lost
1:12:59	16:56:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.06	
1:13:29	16:56:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.01	
1:13:59	16:57:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:14:29	16:57:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:14:59	16:58:27	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
1:15:29	16:58:57	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.29	
1:15:55	16:59:24	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0.4	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	15:43:29	5.58	0.00	-0.01	7.31	0.00	0.02	18.64	0.00	-0.01	
0:01:03	15:44:32	5.58	0.00	-0.01	7.32	0.01	0.03	18.65	0.01	-0.01	
0:01:12	15:44:41	5.58	0.00	-0.01	7.29	-0.02	0.03	18.65	0.01	-0.01	
0:01:28	15:44:57	5.58	0.00	-0.01	7.30	-0.01	0.02	18.65	0.01	-0.01	
0:01:58	15:45:27	5.59	0.01	-0.01	7.30	-0.01	0.03	18.65	0.01	-0.01	
0:02:28	15:45:57	5.60	0.02	0.00	7.32	0.01	0.03	18.65	0.01	-0.01	
0:02:58	15:46:27	5.60	0.02	-0.01	7.31	0.00	0.03	18.65	0.01	-0.01	
0:03:28	15:46:57	5.60	0.02	-0.01	7.32	0.01	0.03	18.68	0.04	-0.01	
0:03:58	15:47:27	5.60	0.02	-0.01	7.30	-0.01	0.03	18.72	0.08	-0.01	
0:04:28	15:47:57	5.60	0.02	-0.01	7.30	-0.01	0.03	18.73	0.09	-0.01	Start Test
0:04:58	15:48:27	5.60	0.02	-0.01	7.31	0.00	0.04	18.76	0.12	-0.02	
0:05:28	15:48:57	5.55	-0.03	-0.01	7.31	0.00	0.03	18.77	0.13	-0.01	
0:05:58	15:49:27	5.55	-0.03	-0.01	7.32	0.01	0.04	18.78	0.14	-0.01	
0:06:28	15:49:57	5.56	-0.02	-0.01	7.31	0.00	0.04	18.80	0.16	-0.01	
0:06:58	15:50:27	5.56	-0.02	-0.01	7.31	0.00	0.04	18.81	0.17	-0.01	
0:07:28	15:50:57	5.57	-0.01	-0.01	7.31	0.00	0.04	18.82	0.18	-0.01	
0:07:58	15:51:27	5.57	-0.01	-0.01	7.30	-0.01	0.04	18.84	0.20	-0.02	
0:08:28	15:51:57	5.58	0.00	-0.02	7.30	-0.01	0.04	18.84	0.20	-0.02	
0:08:58	15:52:27	5.58	0.00	-0.01	7.31	0.00	0.04	18.86	0.22	-0.01	
0:09:28	15:52:57	5.58	0.00	0.00	7.31	0.00	0.05	18.88	0.24	-0.01	
0:09:58	15:53:27	5.60	0.02	-0.01	7.31	0.00	0.04	18.89	0.25	-0.02	
0:10:28	15:53:57	5.60	0.02	-0.03	7.32	0.01	0.05	18.91	0.27	-0.02	
0:10:58	15:54:27	5.60	0.02	-0.01	7.31	0.00	0.05	18.92	0.28	-0.02	
0:11:28	15:54:57	5.60	0.02	-0.01	7.32	0.01	0.05	18.92	0.28	-0.02	
0:11:58	15:55:27	5.61	0.03	0.00	7.31	0.00	0.05	18.94	0.30	-0.02	
0:12:28	15:55:57	5.61	0.03	-0.01	7.32	0.01	0.05	18.95	0.31	-0.01	
0:12:58	15:56:27	5.61	0.03	-0.01	7.33	0.02	0.05	18.94	0.30	-0.02	
0:13:28	15:56:57	5.61	0.03	-0.01	7.30	-0.01	0.06	18.96	0.32	-0.01	
0:13:58	15:57:27	5.62	0.04	0.00	7.30	-0.01	0.06	18.97	0.33	-0.02	
0:14:28	15:57:57	5.62	0.04	-0.01	7.30	-0.01	0.05	18.98	0.34	-0.01	
0:14:58	15:58:27	5.62	0.04	0.00	7.31	0.00	0.06	18.98	0.34	-0.01	
0:15:29	15:58:58	5.62	0.04	-0.01	7.31	0.00	0.05	19.00	0.36	-0.01	
0:15:58	15:59:27	5.62	0.04	-0.01	7.32	0.01	0.05	19.00	0.36	-0.02	
0:16:28	15:59:57	5.63	0.05	-0.01	7.32	0.01	0.04	19.02	0.38	-0.02	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:16:58	16:00:27	5.63	0.05	-0.01	7.31	0.00	0.03	19.02	0.38	-0.01	
0:17:28	16:00:57	5.63	0.05	-0.01	7.32	0.01	0.03	19.03	0.39	-0.01	
0:17:58	16:01:27	5.63	0.05	-0.01	7.31	0.00	0.03	19.03	0.39	-0.01	
0:18:28	16:01:57	5.63	0.05	-0.01	7.31	0.00	0.03	19.05	0.41	-0.02	
0:18:58	16:02:27	5.63	0.05	-0.01	7.32	0.01	0.03	19.05	0.41	-0.02	
0:19:28	16:02:57	5.64	0.06	-0.01	7.33	0.02	0.03	19.06	0.42	-0.02	
0:19:58	16:03:27	5.64	0.06	-0.01	7.31	0.00	0.04	19.07	0.43	-0.02	
0:20:28	16:03:57	5.64	0.06	-0.01	7.33	0.02	0.04	19.09	0.45	-0.02	
0:20:58	16:04:27	5.64	0.06	-0.01	7.30	-0.01	0.03	19.09	0.45	-0.02	
0:21:28	16:04:57	5.64	0.06	-0.01	7.32	0.01	0.04	19.09	0.45	-0.02	
0:21:58	16:05:27	5.64	0.06	-0.01	7.30	-0.01	0.04	19.10	0.46	-0.02	
0:22:28	16:05:57	5.64	0.06	-0.01	7.31	0.00	0.04	19.10	0.46	-0.02	
0:22:58	16:06:27	5.64	0.06	-0.01	7.31	0.00	0.04	19.11	0.47	-0.02	End Step 1
0:23:28	16:06:57	5.65	0.07	-0.01	7.32	0.01	0.04	19.12	0.48	-0.02	
0:23:58	16:07:27	5.65	0.07	-0.01	7.30	-0.01	0.03	19.12	0.48	-0.02	
0:24:28	16:07:57	5.65	0.07	0.00	7.32	0.01	0.03	19.13	0.49	-0.02	
0:24:58	16:08:27	5.65	0.07	-0.01	7.32	0.01	0.04	19.15	0.51	-0.01	
0:25:28	16:08:57	5.65	0.07	-0.01	7.31	0.00	0.04	19.15	0.51	-0.02	
0:25:58	16:09:27	5.65	0.07	-0.01	7.31	0.00	0.04	19.16	0.52	-0.01	
0:26:28	16:09:57	5.65	0.07	-0.01	7.32	0.01	0.04	19.16	0.52	-0.01	
0:26:58	16:10:27	5.65	0.07	-0.01	7.32	0.01	0.04	19.16	0.52	-0.06	
0:27:28	16:10:57	5.66	0.08	-0.01	7.31	0.00	0.04	19.17	0.53	-0.02	
0:27:58	16:11:27	5.66	0.08	-0.01	7.32	0.01	0.04	19.17	0.53	0.01	
0:28:28	16:11:57	5.66	0.08	0.00	7.32	0.01	0.04	19.18	0.54	-0.04	
0:28:58	16:12:27	5.66	0.08	0.00	7.31	0.00	0.04	19.18	0.54	-0.01	
0:29:28	16:12:57	5.66	0.08	-0.01	7.33	0.02	0.04	19.20	0.56	-0.02	
0:29:58	16:13:27	5.66	0.08	-0.01	7.34	0.03	0.03	19.20	0.56	-0.02	
0:30:28	16:13:57	5.67	0.09	-0.01	7.30	-0.01	0.04	19.20	0.56	0.00	
0:30:58	16:14:27	5.67	0.09	-0.01	7.32	0.01	0.04	19.20	0.56	-0.02	
0:31:28	16:14:57	5.67	0.09	-0.01	7.32	0.01	0.03	19.21	0.57	-0.02	
0:31:58	16:15:27	5.67	0.09	-0.01	7.31	0.00	0.03	19.22	0.58	-0.01	
0:32:28	16:15:57	5.67	0.09	-0.01	7.32	0.01	0.02	19.22	0.58	-0.02	
0:32:58	16:16:27	5.67	0.09	-0.01	7.33	0.02	0.02	19.22	0.58	-0.01	
0:33:28	16:16:57	5.67	0.09	-0.01	7.33	0.02	0.03	19.24	0.60	-0.04	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:33:58	16:17:27	5.67	0.09	-0.01	7.33	0.02	0.03	19.24	0.60	-0.02	
0:34:28	16:17:57	5.67	0.09	-0.01	7.31	0.00	0.03	19.25	0.61	-0.02	
0:34:58	16:18:27	5.67	0.09	-0.01	7.31	0.00	0.03	19.25	0.61	-0.02	
0:35:28	16:18:57	5.68	0.10	-0.01	7.31	0.00	0.02	19.25	0.61	-0.02	
0:35:58	16:19:27	5.68	0.10	-0.01	7.30	-0.01	0.02	19.25	0.61	-0.02	
0:36:28	16:19:57	5.68	0.10	-0.01	7.31	0.00	0.02	19.26	0.62	-0.01	
0:36:58	16:20:27	5.68	0.10	0.00	7.32	0.01	0.02	19.26	0.62	-0.02	
0:37:28	16:20:57	5.68	0.10	-0.01	7.32	0.01	0.01	19.26	0.62	-0.02	
0:37:58	16:21:27	5.68	0.10	-0.01	7.33	0.02	0.02	19.27	0.63	-0.02	End Step 2
0:38:28	16:21:57	5.68	0.10	0.00	7.32	0.01	0.02	19.27	0.63	0.00	
0:38:58	16:22:27	5.68	0.10	-0.01	7.30	-0.01	0.02	19.29	0.65	-0.01	
0:39:28	16:22:57	5.68	0.10	0.00	7.33	0.02	0.02	19.29	0.65	-0.02	
0:39:58	16:23:27	5.68	0.10	-0.01	7.31	0.00	0.01	19.29	0.65	-0.05	
0:40:28	16:23:57	5.69	0.11	-0.01	7.32	0.01	0.02	19.30	0.66	-0.02	
0:40:58	16:24:27	5.69	0.11	-0.01	7.31	0.00	0.02	19.30	0.66	-0.02	
0:41:28	16:24:57	5.69	0.11	0.00	7.33	0.02	0.02	19.30	0.66	-0.02	
0:41:58	16:25:27	5.69	0.11	-0.01	7.32	0.01	0.02	19.30	0.66	0.01	
0:42:28	16:25:57	5.69	0.11	-0.01	7.30	-0.01	0.02	19.31	0.67	-0.02	
0:42:58	16:26:27	5.69	0.11	-0.01	7.33	0.02	0.03	19.31	0.67	-0.02	
0:43:28	16:26:57	5.69	0.11	-0.01	7.31	0.00	0.03	19.31	0.67	-0.02	
0:43:58	16:27:27	5.69	0.11	0.00	7.32	0.01	0.02	19.32	0.68	-0.02	
0:44:28	16:27:57	5.69	0.11	-0.01	7.31	0.00	0.03	19.32	0.68	-0.02	
0:44:58	16:28:27	5.69	0.11	-0.01	7.33	0.02	0.03	19.33	0.69	-0.02	
0:45:28	16:28:57	5.69	0.11	-0.01	7.30	-0.01	0.03	19.32	0.68	-0.01	
0:45:58	16:29:27	5.70	0.12	-0.01	7.30	-0.01	0.02	19.33	0.69	-0.02	
0:46:28	16:29:57	5.70	0.12	-0.01	7.31	0.00	0.02	19.34	0.70	-0.02	
0:46:58	16:30:27	5.70	0.12	0.00	7.31	0.00	0.02	19.34	0.70	0.00	
0:47:28	16:30:57	5.70	0.12	-0.01	7.32	0.01	0.01	19.35	0.71	0.00	
0:47:58	16:31:27	5.70	0.12	-0.01	7.31	0.00	0.02	19.35	0.71	-0.01	
0:48:28	16:31:57	5.70	0.12	-0.01	7.33	0.02	0.02	19.35	0.71	-0.02	
0:48:58	16:32:27	5.70	0.12	0.00	7.32	0.01	0.02	19.35	0.71	0.00	
0:49:28	16:32:57	5.70	0.12	-0.01	7.31	0.00	0.02	19.35	0.71	-0.01	
0:49:58	16:33:27	5.70	0.12	-0.01	7.31	0.00	0.02	19.36	0.72	-0.02	
0:50:28	16:33:57	5.70	0.12	-0.01	7.33	0.02	0.02	19.36	0.72	-0.02	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:50:58	16:34:27	5.70	0.12	-0.01	7.32	0.01	0.01	19.37	0.73	-0.01	
0:51:28	16:34:57	5.71	0.13	-0.01	7.31	0.00	0.02	19.37	0.73	-0.02	
0:51:59	16:35:27	5.71	0.13	-0.01	7.31	0.00	0.01	19.37	0.73	-0.04	
0:52:28	16:35:57	5.71	0.13	-0.01	7.32	0.01	0.01	19.37	0.73	-0.02	
0:52:58	16:36:27	5.71	0.13	0.00	7.33	0.02	0.02	19.38	0.74	-0.02	
0:53:28	16:36:57	5.71	0.13	-0.01	7.31	0.00	0.02	19.38	0.74	-0.01	
0:53:58	16:37:27	5.71	0.13	0.00	7.33	0.02	0.02	19.38	0.74	-0.01	
0:54:28	16:37:57	5.71	0.13	-0.01	7.30	-0.01	0.02	19.39	0.75	-0.02	
0:54:58	16:38:27	5.71	0.13	-0.01	7.31	0.00	0.02	19.39	0.75	-0.01	
0:55:28	16:38:57	5.71	0.13	-0.01	7.33	0.02	0.02	19.40	0.76	-0.02	
0:55:58	16:39:27	5.71	0.13	-0.01	7.31	0.00	0.03	19.39	0.75	0.00	
0:56:28	16:39:57	5.73	0.15	-0.01	7.32	0.01	0.02	19.39	0.75	-0.01	
0:56:58	16:40:27	5.73	0.15	-0.01	7.33	0.02	0.03	19.40	0.76	-0.02	
0:57:28	16:40:57	5.73	0.15	-0.01	7.33	0.02	0.03	19.40	0.76	-0.01	
0:57:58	16:41:27	5.73	0.15	-0.01	7.33	0.02	0.03	19.40	0.76	-0.02	
0:58:28	16:41:57	5.73	0.15	-0.01	7.32	0.01	0.03	19.40	0.76	-0.01	
0:58:58	16:42:27	5.73	0.15	-0.01	7.32	0.01	0.03	19.42	0.78	-0.01	
0:59:28	16:42:57	5.73	0.15	-0.01	7.31	0.00	0.03	19.42	0.78	-0.02	
0:59:59	16:43:27	5.73	0.15	-0.01	7.33	0.02	0.03	19.42	0.78	-0.03	
1:00:29	16:43:57	5.73	0.15	-0.01	7.32	0.01	0.03	19.42	0.78	-0.02	
1:00:59	16:44:27	5.73	0.15	-0.01	7.32	0.01	0.03	19.43	0.79	-0.02	
1:01:29	16:44:57	5.73	0.15	-0.02	7.32	0.01	0.03	19.43	0.79	-0.02	
1:01:59	16:45:27	5.73	0.15	-0.01	7.32	0.01	0.03	19.43	0.79	-0.02	
1:02:29	16:45:57	5.74	0.16	-0.01	7.32	0.01	0.02	19.43	0.79	-0.03	
1:02:59	16:46:27	5.74	0.16	0.00	7.32	0.01	0.02	19.43	0.79	-0.04	
1:03:29	16:46:57	5.74	0.16	-0.01	7.31	0.00	0.02	19.44	0.80	-0.04	
1:03:59	16:47:27	5.74	0.16	-0.01	7.31	0.00	0.02	19.44	0.80	-0.01	
1:04:29	16:47:57	5.74	0.16	-0.01	7.32	0.01	0.02	19.44	0.80	-0.02	
1:04:59	16:48:27	5.74	0.16	-0.01	7.33	0.02	0.01	19.44	0.80	-0.01	
1:05:29	16:48:57	5.74	0.16	-0.01	7.31	0.00	0.02	19.44	0.80	-0.03	
1:05:59	16:49:27	5.74	0.16	-0.01	7.32	0.01	0.02	19.46	0.82	-0.01	
1:06:29	16:49:57	5.74	0.16	-0.01	7.32	0.01	0.02	19.45	0.81	-0.03	
1:06:59	16:50:27	5.74	0.16	-0.01	7.32	0.01	0.02	19.45	0.81	-0.04	
1:07:29	16:50:57	5.74	0.16	-0.01	7.31	0.00	0.01	19.45	0.81	-0.02	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
1:07:59	16:51:27	5.74	0.16	-0.01	7.32	0.01	0.01	19.46	0.82	-0.02	
1:08:29	16:51:57	5.74	0.16	-0.01	7.32	0.01	0.00	19.46	0.82	-0.03	
1:08:59	16:52:27	5.75	0.17	-0.01	7.33	0.02	0.00	19.47	0.83	0.02	
1:09:29	16:52:57	5.75	0.17	-0.01	7.33	0.02	0.01	19.47	0.83	-0.01	
1:09:59	16:53:27	5.75	0.17	-0.01	7.32	0.01	0.01	19.47	0.83	-0.02	End of test.
1:10:29	16:53:57	5.74	0.16	-0.01	7.31	0.00	0.00	19.47	0.83	-0.02	
1:10:59	16:54:27	5.74	0.16	-0.01	7.31	0.00	0.00	19.47	0.83	-0.02	
1:11:29	16:54:57	5.75	0.17	-0.01	7.32	0.01	-0.01	19.48	0.84	-0.03	
1:11:59	16:55:27	5.75	0.17	-0.01	7.31	0.00	-0.01	19.48	0.84	-0.03	
1:12:29	16:55:57	5.75	0.17	-0.01	7.33	0.02	-0.01	19.48	0.84	0.00	DO readings taken on MW 10 so pressure is lost
1:12:59	16:56:27	5.75	0.17	-0.01	7.32	0.01	0.00	19.48	0.84	-0.03	
1:13:29	16:56:57	5.76	0.18	-0.01	7.32	0.01	0.00	19.48	0.84	-0.03	
1:13:59	16:57:27	5.75	0.17	-0.01	7.31	0.00	-0.02	19.49	0.85	-0.02	
1:14:29	16:57:57	5.75	0.17	-0.01	7.31	0.00	-0.02	19.49	0.85	-0.02	
1:14:59	16:58:27	5.75	0.17	-0.01	7.32	0.01	-0.02	19.49	0.85	-0.02	
1:15:29	16:58:57	5.75	0.17	-0.01	7.32	0.01	-0.01	19.49	0.85	-0.02	
1:15:55	16:59:24	5.75	0.17	-0.01	7.31	0.00	0.00	19.31	0.67	-0.02	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	15:43:29	6.17	0.00	0.00	-8.02	0.00	0.04	
0:01:03	15:44:32	6.17	0.00	0.00	-8.02	0.00	0.04	
0:01:12	15:44:41	6.17	0.00	0.00	-8.02	0.00	0.03	
0:01:28	15:44:57	6.17	0.00	0.00	-8.02	0.00	0.03	
0:01:58	15:45:27	6.17	0.00	0.00	-8.02	0.00	0.02	
0:02:28	15:45:57	6.17	0.00	0.00	-8.02	0.00	0.02	
0:02:58	15:46:27	6.17	0.00	0.00	-8.02	0.00	0.01	
0:03:28	15:46:57	6.17	0.00	0.00	-8.02	0.00	0.01	
0:03:58	15:47:27	6.17	0.00	0.00	-8.02	0.00	0.01	
0:04:28	15:47:57	6.17	0.00	0.00	-8.02	0.00	0.01	Start Test
0:04:58	15:48:27	6.17	0.00	0.01	-8.02	0.00	7.66	
0:05:28	15:48:57	6.17	0.00	0.00	-8.02	0.00	9.74	
0:05:58	15:49:27	6.17	0.00	-0.01	-8.02	0.00	10.07	
0:06:28	15:49:57	6.17	0.00	0.00	-8.02	0.00	13.93	
0:06:58	15:50:27	6.17	0.00	0.00	-8.02	0.00	15.24	
0:07:28	15:50:57	6.17	0.00	0.00	-8.02	0.00	14.89	
0:07:58	15:51:27	6.17	0.00	-0.01	-8.02	0.00	15.53	
0:08:28	15:51:57	6.17	0.00	0.00	-8.02	0.00	15.61	
0:08:58	15:52:27	6.17	0.00	0.00	-8.02	0.00	15.54	
0:09:28	15:52:57	6.17	0.00	0.00	-8.02	0.00	15.50	
0:09:58	15:53:27	6.17	0.00	0.00	-8.02	0.00	15.46	
0:10:28	15:53:57	6.17	0.00	0.00	-8.02	0.00	15.45	
0:10:58	15:54:27	6.17	0.00	0.00	-8.02	0.00	15.44	
0:11:28	15:54:57	6.17	0.00	-0.01	-8.02	0.00	15.42	
0:11:58	15:55:27	6.17	0.00	0.00	-8.02	0.00	15.42	
0:12:28	15:55:57	6.17	0.00	-0.01	-8.02	0.00	15.42	
0:12:58	15:56:27	6.17	0.00	0.00	-8.02	0.00	15.42	
0:13:28	15:56:57	6.17	0.00	0.00	-8.02	0.00	15.42	
0:13:58	15:57:27	6.17	0.00	0.00	-8.02	0.00	15.16	
0:14:28	15:57:57	6.17	0.00	0.00	-8.02	0.00	15.11	
0:14:58	15:58:27	6.17	0.00	0.00	-8.02	0.00	15.13	
0:15:29	15:58:58	6.17	0.00	0.00	-8.02	0.00	15.14	
0:15:58	15:59:27	6.17	0.00	0.00	-8.02	0.00	15.16	
0:16:28	15:59:57	6.17	0.00	0.00	-8.02	0.00	15.16	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:16:58	16:00:27	6.17	0.00	0.00	-8.02	0.00	15.18	
0:17:28	16:00:57	6.17	0.00	0.00	-8.02	0.00	15.19	
0:17:58	16:01:27	6.17	0.00	0.00	-8.02	0.00	15.21	
0:18:28	16:01:57	6.17	0.00	0.00	-8.02	0.00	15.22	
0:18:58	16:02:27	6.17	0.00	-0.01	-8.02	0.00	15.24	
0:19:28	16:02:57	6.17	0.00	0.00	-8.02	0.00	15.25	
0:19:58	16:03:27	6.17	0.00	0.00	-8.02	0.00	14.96	
0:20:28	16:03:57	6.17	0.00	0.00	-8.02	0.00	14.97	
0:20:58	16:04:27	6.17	0.00	0.00	-8.02	0.00	14.99	
0:21:28	16:04:57	6.17	0.00	0.00	-8.02	0.00	15.02	
0:21:58	16:05:27	6.17	0.00	0.00	-8.02	0.00	15.04	
0:22:28	16:05:57	6.17	0.00	0.00	-8.02	0.00	15.05	
0:22:58	16:06:27	6.17	0.00	0.00	-8.02	0.00	15.08	End Step 1
0:23:28	16:06:57	6.17	0.00	0.00	-8.02	0.00	20.25	
0:23:58	16:07:27	6.17	0.00	0.00	-8.02	0.00	20.14	
0:24:28	16:07:57	6.17	0.00	0.00	-8.02	0.00	19.72	
0:24:58	16:08:27	6.17	0.00	-0.01	-8.02	0.00	19.74	
0:25:28	16:08:57	6.17	0.00	0.00	-8.02	0.00	19.78	
0:25:58	16:09:27	6.17	0.00	0.00	-8.02	0.00	19.83	
0:26:28	16:09:57	6.17	0.00	0.00	-8.02	0.00	19.86	
0:26:58	16:10:27	6.17	0.00	0.00	-8.02	0.00	19.67	
0:27:28	16:10:57	6.17	0.00	0.00	-8.02	0.00	19.61	
0:27:58	16:11:27	6.17	0.00	0.00	-8.02	0.00	19.66	
0:28:28	16:11:57	6.17	0.00	0.00	-8.02	0.00	19.72	
0:28:58	16:12:27	6.17	0.00	0.00	-8.02	0.00	19.79	
0:29:28	16:12:57	6.17	0.00	0.00	-8.02	0.00	19.83	
0:29:58	16:13:27	6.17	0.00	0.00	-8.02	0.00	19.55	
0:30:28	16:13:57	6.17	0.00	0.00	-8.02	0.00	19.63	
0:30:58	16:14:27	6.17	0.00	0.00	-8.02	0.00	19.68	
0:31:28	16:14:57	6.17	0.00	0.00	-8.02	0.00	19.75	
0:31:58	16:15:27	6.17	0.00	0.00	-8.02	0.00	19.79	
0:32:28	16:15:57	6.17	0.00	0.00	-8.02	0.00	19.50	
0:32:58	16:16:27	6.17	0.00	0.00	-8.02	0.00	19.59	
0:33:28	16:16:57	6.17	0.00	0.00	-8.02	0.00	19.64	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:33:58	16:17:27	6.17	0.00	0.00	-8.02	0.00	19.71	
0:34:28	16:17:57	6.17	0.00	0.00	-8.02	0.00	19.78	
0:34:58	16:18:27	6.17	0.00	0.00	-8.02	0.00	19.49	
0:35:28	16:18:57	6.17	0.00	0.00	-8.02	0.00	19.57	
0:35:58	16:19:27	6.17	0.00	0.00	-8.02	0.00	19.65	
0:36:28	16:19:57	6.17	0.00	-0.01	-8.02	0.00	19.70	
0:36:58	16:20:27	6.17	0.00	0.00	-8.02	0.00	19.77	
0:37:28	16:20:57	6.17	0.00	0.00	-8.02	0.00	19.48	
0:37:58	16:21:27	6.17	0.00	0.00	-8.02	0.00	19.51	End Step 2
0:38:28	16:21:57	6.17	0.00	0.00	-8.02	0.00	24.27	
0:38:58	16:22:27	6.17	0.00	-0.01	-8.02	0.00	24.28	
0:39:28	16:22:57	6.17	0.00	0.00	-8.02	0.00	23.99	
0:39:58	16:23:27	6.17	0.00	0.00	-8.02	0.00	24.11	
0:40:28	16:23:57	6.17	0.00	0.00	-8.02	0.00	24.19	
0:40:58	16:24:27	6.17	0.00	0.00	-8.02	0.00	24.01	
0:41:28	16:24:57	6.17	0.00	0.00	-8.02	0.00	24.09	
0:41:58	16:25:27	6.20	0.03	0.01	-8.02	0.00	24.21	
0:42:28	16:25:57	6.20	0.03	0.01	-8.02	0.00	24.40	
0:42:58	16:26:27	6.20	0.03	0.01	-8.02	0.00	24.23	
0:43:28	16:26:57	6.20	0.03	0.02	-8.02	0.00	24.25	
0:43:58	16:27:27	6.20	0.03	0.02	-8.02	0.00	24.33	
0:44:28	16:27:57	6.20	0.03	0.02	-8.02	0.00	24.45	
0:44:58	16:28:27	6.20	0.03	0.02	-8.02	0.00	24.24	
0:45:28	16:28:57	6.19	0.02	0.02	-8.02	0.00	24.27	
0:45:58	16:29:27	6.20	0.03	0.02	-8.02	0.00	24.37	
0:46:28	16:29:57	6.19	0.02	0.02	-8.02	0.00	24.44	
0:46:58	16:30:27	6.19	0.02	0.02	-8.02	0.00	24.37	
0:47:28	16:30:57	6.19	0.02	0.02	-8.02	0.00	24.25	
0:47:58	16:31:27	6.19	0.02	0.03	-8.02	0.00	24.33	
0:48:28	16:31:57	6.19	0.02	0.03	-8.02	0.00	24.43	
0:48:58	16:32:27	6.19	0.02	0.03	-8.02	0.00	24.48	
0:49:28	16:32:57	6.19	0.02	0.03	-8.02	0.00	24.23	
0:49:58	16:33:27	6.19	0.02	0.03	-8.02	0.00	24.34	
0:50:28	16:33:57	6.19	0.02	0.03	-8.02	0.00	24.41	

Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

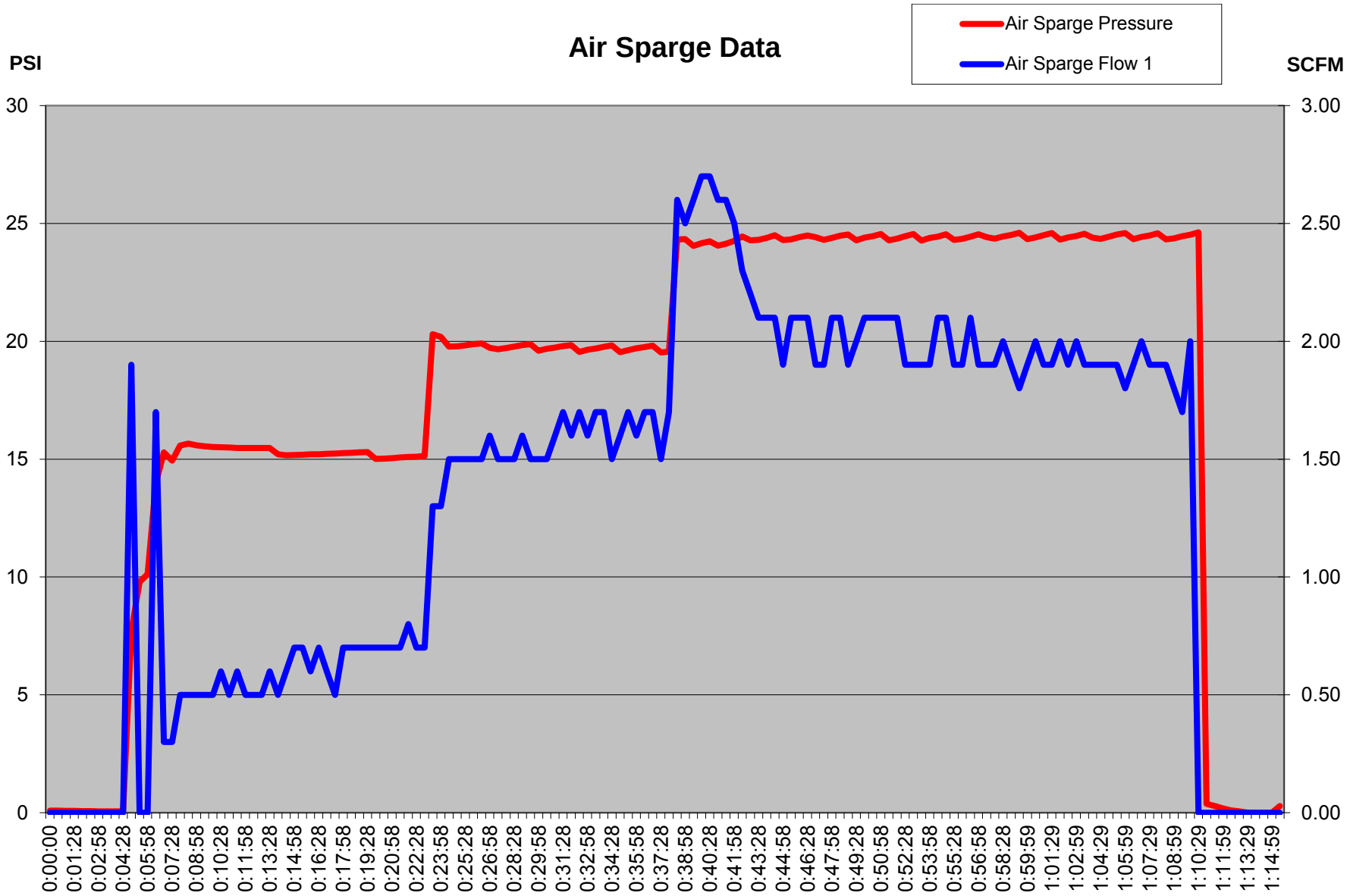
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:50:58	16:34:27	6.19	0.02	0.03	-8.02	0.00	24.50	
0:51:28	16:34:57	6.19	0.02	0.03	-8.02	0.00	24.23	
0:51:59	16:35:27	6.19	0.02	0.03	-8.02	0.00	24.30	
0:52:28	16:35:57	6.19	0.02	0.03	-8.02	0.00	24.41	
0:52:58	16:36:27	6.19	0.02	0.03	-8.02	0.00	24.50	
0:53:28	16:36:57	6.19	0.02	0.04	-8.02	0.00	24.22	
0:53:58	16:37:27	6.19	0.02	0.04	-8.02	0.00	24.33	
0:54:28	16:37:57	6.19	0.02	0.04	-8.02	0.00	24.39	
0:54:58	16:38:27	6.19	0.02	0.04	-8.02	0.00	24.49	
0:55:28	16:38:57	6.19	0.02	0.04	-8.02	0.00	24.25	
0:55:58	16:39:27	6.19	0.02	0.04	-8.02	0.00	24.29	
0:56:28	16:39:57	6.19	0.02	0.04	-8.02	0.00	24.39	
0:56:58	16:40:27	6.19	0.02	0.04	-8.02	0.00	24.49	
0:57:28	16:40:57	6.19	0.02	0.04	-8.02	0.00	24.37	
0:57:58	16:41:27	6.19	0.02	0.04	-8.02	0.00	24.30	
0:58:28	16:41:57	6.19	0.02	0.04	-8.02	0.00	24.40	
0:58:58	16:42:27	6.19	0.02	0.04	-8.02	0.00	24.46	
0:59:28	16:42:57	6.19	0.02	0.04	-8.02	0.00	24.55	
0:59:59	16:43:27	6.19	0.02	0.05	-8.02	0.00	24.28	
1:00:29	16:43:57	6.19	0.02	0.05	-8.02	0.00	24.35	
1:00:59	16:44:27	6.19	0.02	0.04	-8.02	0.00	24.45	
1:01:29	16:44:57	6.19	0.02	0.04	-8.02	0.00	24.54	
1:01:59	16:45:27	6.19	0.02	0.05	-8.02	0.00	24.26	
1:02:29	16:45:57	6.19	0.02	0.05	-8.02	0.00	24.35	
1:02:59	16:46:27	6.19	0.02	0.04	-8.02	0.00	24.42	
1:03:29	16:46:57	6.19	0.02	0.04	-8.02	0.00	24.51	
1:03:59	16:47:27	6.19	0.02	0.04	-8.02	0.00	24.34	
1:04:29	16:47:57	6.19	0.02	0.05	-8.02	0.00	24.29	
1:04:59	16:48:27	6.19	0.02	0.05	-8.02	0.00	24.39	
1:05:29	16:48:57	6.19	0.02	0.05	-8.02	0.00	24.48	
1:05:59	16:49:27	6.19	0.02	0.05	-8.02	0.00	24.54	
1:06:29	16:49:57	6.19	0.02	0.05	-8.02	0.00	24.28	
1:06:59	16:50:27	6.19	0.02	0.05	-8.02	0.00	24.38	
1:07:29	16:50:57	6.19	0.02	0.05	-8.02	0.00	24.44	

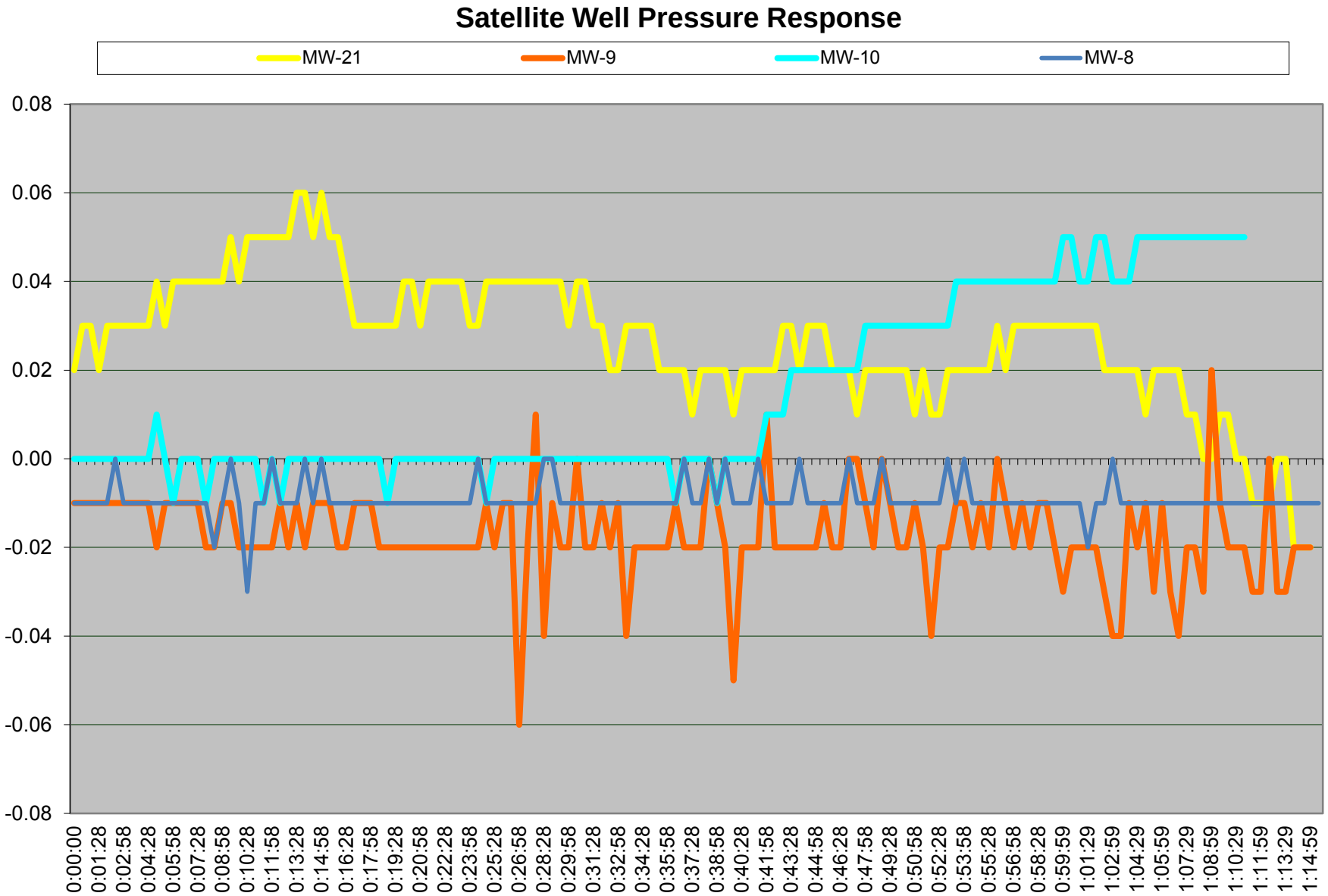
Table B-11

Air Injection at IP-4D

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-10			RADIO 7 IP-4D			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:07:59	16:51:27	6.19	0.02	0.05	-8.02	0.00	24.53	
1:08:29	16:51:57	6.19	0.02	0.05	-8.02	0.00	24.27	
1:08:59	16:52:27	6.19	0.02	0.05	-8.02	0.00	24.31	
1:09:29	16:52:57	6.18	0.01	0.05	-8.02	0.00	24.41	
1:09:59	16:53:27	6.18	0.01	0.05	-8.02	0.00	24.47	End of test.
1:10:29	16:53:57	6.19	0.02	0.05	-8.02	0.00	24.57	
1:10:59	16:54:27	6.18	0.01	0.05	-8.02	0.00	0.33	
1:11:29	16:54:57	6.18	0.01	0.05	-8.02	0.00	0.24	
1:11:59	16:55:27	6.18	0.01	0.05	-8.02	0.00	0.13	
1:12:29	16:55:57				-8.02	0.00	0.05	DO readings taken on MW 10 so pressure is lost
1:12:59	16:56:27				-8.02	0.00	0.01	
1:13:29	16:56:57				-8.02	0.00	-0.04	
1:13:59	16:57:27				-8.02	0.00	-0.05	
1:14:29	16:57:57				-8.02	0.00	-0.05	
1:14:59	16:58:27				-8.02	0.00	-0.05	
1:15:29	16:58:57				-8.02	0.00	0.24	
1:15:55	16:59:24				-8.02	0.00	0.35	


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
30
25
20
15
10
5
0
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0:00:00
0:01:28
0:02:58
0:04:28
0:05:58
0:07:28
0:08:58
0:10:28
0:11:58
0:13:28
0:14:58
0:16:28
0:17:58
0:19:28
0:20:58
0:22:28
0:23:58
0:25:28
0:26:58
0:28:28
0:29:58
0:31:28
0:32:58
0:34:28
0:35:58
0:37:28
0:38:58
0:40:28
0:41:58
0:43:28
0:44:58
0:46:28
0:47:58
0:49:28
0:50:58
0:52:28
0:53:58
0:55:28
0:56:58
0:58:28
0:59:59
1:01:29
1:02:59
1:04:29
1:05:59
1:07:29
1:08:59
1:10:29
1:11:59
1:13:29
1:14:59


Satellite Well Pressure Response
MW-21
MW-9
MW-10
MW-8
0.08
0.06
0.04
0.02
0.00
-0.02
-0.04
-0.06
-0.08
0:00:00
0:01:28
0:02:58
0:04:28
0:05:58
0:07:28
0:08:58
0:10:28
0:11:58
0:13:28
0:14:58
0:16:28
0:17:58
0:19:28
0:20:58
0:22:28
0:23:58
0:25:28
0:26:58
0:28:28
0:29:58
0:31:28
0:32:58
0:34:28
0:35:58
0:37:28
0:38:58
0:40:28
0:41:58
0:43:28
0:44:58
0:46:28
0:47:58
0:49:28
0:50:58
0:52:28
0:53:58
0:55:28
0:56:58
0:58:28
0:59:59
1:01:29
1:02:59
1:04:29
1:05:59
1:07:29
1:08:59
1:10:29
1:11:59
1:13:29
1:14:59

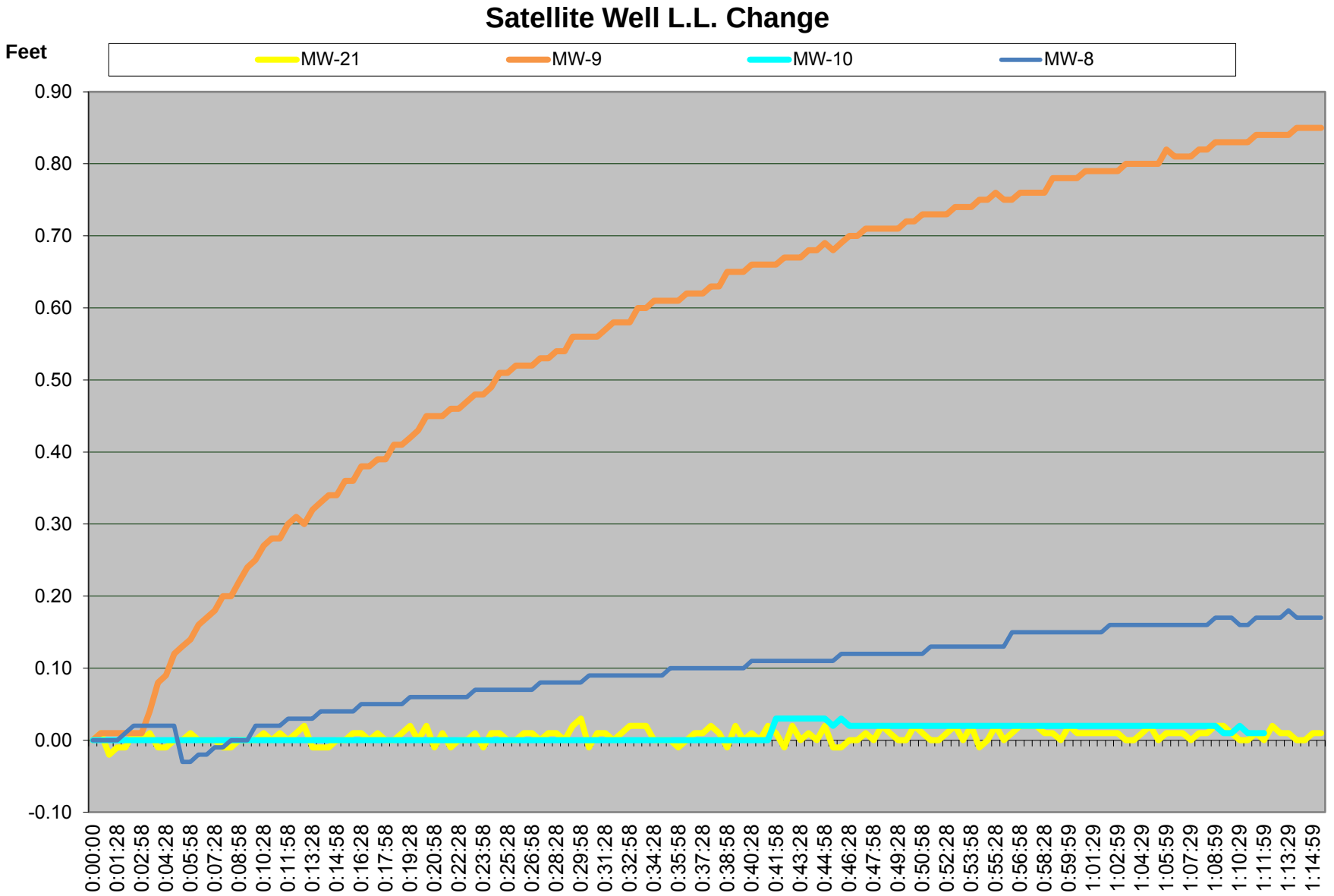

Satellite Well L.L. Change
Feet
MW-21
MW-9
MW-10
MW-8
0.90
0.80
0.70
0.60
0.50
0.40
0.30
0.20
0.10
0.00
-0.10
0:00:00
0:01:28
0:02:58
0:04:28
0:05:58
0:07:28
0:08:58
0:10:28
0:11:58
0:13:28
0:14:58
0:16:28
0:17:58
0:19:28
0:20:58
0:22:28
0:23:58
0:25:28
0:26:58
0:28:28
0:29:58
0:31:28
0:32:58
0:34:28
0:35:58
0:37:28
0:38:58
0:40:28
0:41:58
0:43:28
0:44:58
0:46:28
0:47:58
0:49:28
0:50:58
0:52:28
0:53:58
0:55:28
0:56:58
0:58:28
0:59:59
1:01:29
1:02:59
1:04:29
1:05:59
1:07:29
1:08:59
1:10:29
1:11:59
1:13:29
1:14:59

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:00:00	11:22:24	0.00	0.00	#REF!	#REF!	0.00	0.00	0.00	0	0	
0:00:32	11:22:56	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	SVE on MW-11 at 10 IWC
0:01:00	11:23:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:01:30	11:23:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	0	
0:02:00	11:24:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.30	0	4.5	
0:02:30	11:24:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.30	0	8.23	
0:03:00	11:25:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	10.81	
0:03:30	11:25:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.50	0	11.45	
0:04:00	11:26:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.50	0	11.66	
0:04:30	11:26:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.30	0	11.82	
0:05:00	11:27:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.40	0	11.78	
0:05:30	11:27:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.40	0	11.5	
0:06:00	11:28:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	12.48	
0:06:30	11:28:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.50	0	13.22	
0:07:00	11:29:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.60	0	13.01	
0:07:30	11:29:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.60	0	12.64	
0:08:00	11:30:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.50	0	12.68	
0:08:30	11:30:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.60	0	12.79	
0:09:07	11:31:32	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.70	0	12.63	
0:09:33	11:31:58	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.80	0	12.48	
0:10:00	11:32:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	12.41	
0:10:30	11:32:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	12.34	
0:11:00	11:33:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	12.36	
0:11:30	11:33:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	12.37	
0:12:00	11:34:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	12.38	
0:12:30	11:34:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.00	0	12.31	
0:13:08	11:35:33	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	12.22	
0:13:30	11:35:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	12.21	
0:14:04	11:36:29	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.90	0	12.22	
0:14:30	11:36:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.93	
0:15:00	11:37:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.97	
0:15:30	11:37:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.02	
0:16:00	11:38:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.05	
0:16:30	11:38:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.8	
0:17:00	11:39:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.81	
0:17:30	11:39:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.83	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:18:00	11:40:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.88	
0:18:30	11:40:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	12.02	
0:19:00	11:41:24	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	12.01	
0:19:30	11:41:54	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.84	
0:20:00	11:42:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.74	
0:20:30	11:42:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.76	
0:21:00	11:43:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.81	
0:21:30	11:43:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.85	
0:22:00	11:44:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.50	0	11.9	
0:22:30	11:44:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.83	
0:23:00	11:45:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.69	
0:23:30	11:45:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.76	
0:24:00	11:46:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.40	0	11.91	
0:24:30	11:46:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.95	
0:25:00	11:47:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.30	0	11.99	
0:25:30	11:47:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	12.15	
0:26:00	11:48:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.03	
0:26:30	11:48:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.10	0	12.04	
0:27:00	11:49:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	1.20	0	12.04	End Step 1
0:27:30	11:49:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	14.24	
0:28:00	11:50:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.00	0	14.54	
0:28:30	11:50:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.90	0	14.33	
0:29:00	11:51:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.00	0	14.52	
0:29:30	11:51:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.00	0	14.68	
0:30:00	11:52:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.5	
0:30:30	11:52:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.70	0	14.62	
0:31:00	11:53:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.80	0	14.69	
0:31:30	11:53:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.57	
0:32:00	11:54:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.58	
0:32:30	11:54:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.70	0	14.65	
0:33:00	11:55:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.80	0	14.75	
0:33:30	11:55:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.54	
0:34:00	11:56:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.80	0	14.6	
0:34:30	11:56:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.80	0	14.71	
0:35:00	11:57:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.52	
0:35:30	11:57:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	14.57	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:36:00	11:58:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.80	0	14.67	
0:36:30	11:58:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.40	0	14.58	
0:37:00	11:59:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.55	
0:37:30	11:59:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.70	0	14.64	
0:38:00	12:00:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.70	0	14.71	
0:38:30	12:00:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.50	0	14.52	
0:39:00	12:01:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	2.60	0	14.6	End Step 2
0:39:30	12:01:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	4.10	0	16.13	
0:40:00	12:02:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.80	0	16.09	
0:40:30	12:02:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.80	0	16.22	
0:41:00	12:03:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.33	
0:41:30	12:03:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.22	
0:42:00	12:04:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.36	
0:42:30	12:04:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.30	0	16.27	
0:43:00	12:05:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.29	
0:43:30	12:05:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.42	
0:44:00	12:06:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.28	
0:44:30	12:06:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.36	
0:45:00	12:07:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.50	0	16.49	
0:45:30	12:07:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.33	
0:46:00	12:08:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.42	
0:46:30	12:08:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.55	
0:47:00	12:09:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.33	
0:47:30	12:09:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.45	
0:48:00	12:10:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.20	0	16.34	
0:48:30	12:10:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.37	
0:49:00	12:11:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.50	0	16.49	
0:49:30	12:11:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.33	
0:50:00	12:12:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.41	
0:50:30	12:12:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.52	
0:51:00	12:13:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.33	
0:51:30	12:13:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.60	0	16.41	
0:52:00	12:14:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.50	0	16.52	
0:52:31	12:14:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.40	0	16.32	
0:53:01	12:15:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	3.50	0	16.43	End Test
0:53:31	12:15:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	17.37	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	GW Influent Flow	OWS Discharge Flow	Hydraulic Conductivity	Extraction Well Efficiency	ChemOx Injection Flow	ChemOx Injection Pressure	Sparge Airflow Leg #1	Sparge Airflow Leg #2	Sparge Air Pressure	4
		GPM	GPM	ft/day	%	GPM	PSI	SCFM	SCFM	PSI	Comments
0:54:01	12:16:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	12.33	
0:54:31	12:16:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	10.83	
0:55:01	12:17:25	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	9.85	
0:55:31	12:17:55	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	2.45	
0:55:51	12:18:15	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	5.28	
1:24:34	12:46:58	0.00	0.00	#DIV/0!	#DIV/0!	0.00	0.00	0.00	0	5.28	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	11:22:24	5.20	0.00	0.02	7.26	0.00	0.00	16.99	0.00	-0.02	
0:00:32	11:22:56	5.20	0.00	-0.01	7.25	-0.01	0.00	16.99	0.00	-0.01	SVE on MW-11 at 10 IWC
0:01:00	11:23:24	5.20	0.00	0.00	7.26	0.00	0.00	16.99	0.00	-0.02	
0:01:30	11:23:54	5.20	0.00	0.00	7.24	-0.02	0.00	16.99	0.00	-0.01	
0:02:00	11:24:24	5.20	0.00	0.01	7.25	-0.01	0.00	16.99	0.00	-0.02	
0:02:30	11:24:54	5.20	0.00	0.00	7.24	-0.02	0.00	16.99	0.00	-0.01	
0:03:00	11:25:24	5.20	0.00	0.01	7.27	0.01	0.00	16.98	-0.01	-0.01	
0:03:30	11:25:54	5.20	0.00	0.00	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:04:00	11:26:24	5.20	0.00	0.00	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:04:30	11:26:54	5.20	0.00	-0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:05:00	11:27:24	5.20	0.00	0.05	7.27	0.01	0.00	16.98	-0.01	0.00	
0:05:30	11:27:54	5.20	0.00	-0.02	7.25	-0.01	0.00	16.98	-0.01	0.00	
0:06:00	11:28:24	5.20	0.00	0.01	7.27	0.01	0.00	16.98	-0.01	-0.01	
0:06:30	11:28:54	5.20	0.00	0.03	7.24	-0.02	0.00	16.98	-0.01	-0.01	
0:07:00	11:29:24	5.20	0.00	-0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:07:30	11:29:54	5.20	0.00	-0.01	7.24	-0.02	0.00	16.98	-0.01	-0.01	
0:08:00	11:30:24	5.20	0.00	-0.04	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:08:30	11:30:54	5.20	0.00	0.01	7.24	-0.02	0.00	16.98	-0.01	-0.01	
0:09:07	11:31:32	5.20	0.00	0.00	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:09:33	11:31:58	5.20	0.00	-0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:10:00	11:32:25	5.20	0.00	-0.01	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:10:30	11:32:54	5.20	0.00	0.02	7.23	-0.03	0.00	16.98	-0.01	-0.01	
0:11:00	11:33:24	5.20	0.00	0.00	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:11:30	11:33:54	5.20	0.00	0.02	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:12:00	11:34:24	5.20	0.00	0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:12:30	11:34:54	5.20	0.00	-0.03	7.27	0.01	0.00	16.98	-0.01	-0.02	
0:13:08	11:35:33	5.20	0.00	0.00	7.24	-0.02	0.00	16.98	-0.01	-0.02	
0:13:30	11:35:54	5.20	0.00	-0.01	7.23	-0.03	0.00	16.98	-0.01	-0.01	
0:14:04	11:36:29	5.20	0.00	0.01	7.24	-0.02	0.00	16.98	-0.01	-0.01	
0:14:30	11:36:54	5.20	0.00	0.00	7.23	-0.03	0.00	16.98	-0.01	-0.01	
0:15:00	11:37:24	5.20	0.00	0.01	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:15:30	11:37:54	5.19	-0.01	-0.03	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:16:00	11:38:24	5.20	0.00	-0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:16:30	11:38:54	5.19	-0.01	-0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:17:00	11:39:24	5.20	0.00	0.00	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:17:30	11:39:54	5.20	0.00	-0.02	7.26	0.00	-0.02	16.98	-0.01	-0.01	
0:18:00	11:40:24	5.19	-0.01	-0.01	7.25	-0.01	-0.02	16.98	-0.01	-0.01	
0:18:30	11:40:54	5.19	-0.01	0.00	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:19:00	11:41:24	5.20	0.00	0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:19:30	11:41:54	5.19	-0.01	-0.02	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:20:00	11:42:25	5.20	0.00	-0.01	7.26	0.00	0.01	16.98	-0.01	-0.02	
0:20:30	11:42:55	5.19	-0.01	0.01	7.23	-0.03	0.01	16.98	-0.01	-0.01	
0:21:00	11:43:25	5.19	-0.01	0.06	7.26	0.00	0.01	16.98	-0.01	-0.01	
0:21:30	11:43:55	5.19	-0.01	0.00	7.25	-0.01	0.01	16.98	-0.01	-0.02	
0:22:00	11:44:25	5.19	-0.01	0.01	7.24	-0.02	0.03	16.98	-0.01	-0.02	
0:22:30	11:44:55	5.19	-0.01	0.00	7.24	-0.02	0.02	16.98	-0.01	-0.01	
0:23:00	11:45:25	5.19	-0.01	0.00	7.27	0.01	0.04	16.98	-0.01	-0.01	
0:23:30	11:45:55	5.19	-0.01	0.00	7.27	0.01	0.03	16.98	-0.01	-0.01	
0:24:00	11:46:25	5.19	-0.01	0.01	7.24	-0.02	0.04	16.98	-0.01	-0.02	
0:24:30	11:46:55	5.19	-0.01	0.00	7.26	0.00	0.04	16.98	-0.01	-0.02	
0:25:00	11:47:25	5.19	-0.01	0.00	7.28	0.02	0.03	16.98	-0.01	-0.02	
0:25:30	11:47:55	5.19	-0.01	0.01	7.27	0.01	0.03	16.98	-0.01	-0.02	
0:26:00	11:48:25	5.19	-0.01	0.00	7.27	0.01	0.04	16.98	-0.01	-0.02	
0:26:30	11:48:55	5.19	-0.01	0.02	7.24	-0.02	0.04	16.98	-0.01	-0.02	
0:27:00	11:49:25	5.19	-0.01	0.01	7.27	0.01	0.04	16.98	-0.01	-0.02	
0:27:30	11:49:55	5.19	-0.01	0.01	7.25	-0.01	0.03	16.98	-0.01	-0.02	
0:28:00	11:50:25	5.19	-0.01	0.01	7.25	-0.01	0.03	16.98	-0.01	-0.01	
0:28:30	11:50:55	5.19	-0.01	0.00	7.26	0.00	0.04	16.98	-0.01	-0.01	
0:29:00	11:51:25	5.19	-0.01	0.00	7.26	0.00	0.03	16.99	0.00	-0.01	
0:29:30	11:51:55	5.19	-0.01	0.00	7.25	-0.01	0.03	16.98	-0.01	-0.02	
0:30:00	11:52:25	5.19	-0.01	0.00	7.26	0.00	0.02	16.99	0.00	-0.01	
0:30:30	11:52:55	5.19	-0.01	0.01	7.27	0.01	0.03	16.98	-0.01	-0.01	
0:31:00	11:53:25	5.19	-0.01	0.01	7.26	0.00	0.03	16.98	-0.01	-0.01	
0:31:30	11:53:55	5.19	-0.01	0.01	7.24	-0.02	0.03	16.98	-0.01	-0.02	
0:32:00	11:54:25	5.19	-0.01	-0.01	7.26	0.00	0.04	16.98	-0.01	-0.02	
0:32:30	11:54:55	5.19	-0.01	0.01	7.26	0.00	0.03	16.98	-0.01	-0.01	
0:33:00	11:55:25	5.19	-0.01	0.01	7.26	0.00	0.04	16.99	0.00	-0.01	
0:33:30	11:55:55	5.19	-0.01	-0.01	7.25	-0.01	0.03	16.98	-0.01	-0.01	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:34:00	11:56:25	5.19	-0.01	0.00	7.25	-0.01	0.03	16.98	-0.01	-0.01	
0:34:30	11:56:55	5.19	-0.01	-0.01	7.26	0.00	0.02	16.98	-0.01	-0.01	
0:35:00	11:57:25	5.19	-0.01	0.00	7.25	-0.01	0.03	16.98	-0.01	-0.01	
0:35:30	11:57:55	5.19	-0.01	0.01	7.27	0.01	0.04	16.98	-0.01	-0.01	
0:36:00	11:58:25	5.19	-0.01	0.01	7.26	0.00	0.04	16.98	-0.01	-0.02	
0:36:30	11:58:55	5.19	-0.01	0.00	7.26	0.00	0.03	16.98	-0.01	-0.01	
0:37:00	11:59:25	5.19	-0.01	0.00	7.25	-0.01	0.02	16.98	-0.01	-0.01	
0:37:30	11:59:55	5.19	-0.01	0.01	7.27	0.01	0.01	16.98	-0.01	-0.01	
0:38:00	12:00:25	5.19	-0.01	0.01	7.26	0.00	0.02	16.98	-0.01	-0.01	
0:38:30	12:00:55	5.19	-0.01	0.01	7.23	-0.03	0.02	16.98	-0.01	-0.01	
0:39:00	12:01:25	5.19	-0.01	-0.01	7.24	-0.02	0.03	16.98	-0.01	0.00	
0:39:30	12:01:55	5.19	-0.01	-0.01	7.24	-0.02	0.03	16.98	-0.01	0.00	
0:40:00	12:02:25	5.19	-0.01	-0.05	7.27	0.01	0.03	16.99	0.00	0.00	
0:40:30	12:02:55	5.19	-0.01	0.02	7.26	0.00	0.03	16.99	0.00	-0.01	
0:41:00	12:03:25	5.19	-0.01	0.00	7.26	0.00	0.02	16.98	-0.01	-0.01	
0:41:30	12:03:55	5.19	-0.01	0.01	7.25	-0.01	0.02	16.98	-0.01	-0.01	
0:42:00	12:04:25	5.19	-0.01	0.01	7.26	0.00	0.04	16.98	-0.01	-0.01	
0:42:30	12:04:55	5.19	-0.01	0.00	7.25	-0.01	0.02	16.98	-0.01	-0.01	
0:43:00	12:05:25	5.19	-0.01	0.01	7.26	0.00	0.02	16.98	-0.01	-0.01	
0:43:30	12:05:55	5.19	-0.01	0.00	7.27	0.01	0.02	16.98	-0.01	-0.01	
0:44:00	12:06:25	5.19	-0.01	0.00	7.27	0.01	0.01	16.98	-0.01	-0.01	
0:44:30	12:06:55	5.19	-0.01	0.00	7.28	0.02	0.01	16.98	-0.01	-0.01	
0:45:00	12:07:25	5.19	-0.01	0.00	7.26	0.00	0.02	16.98	-0.01	-0.01	
0:45:30	12:07:55	5.18	-0.02	0.02	7.26	0.00	0.02	16.98	-0.01	-0.03	
0:46:00	12:08:25	5.19	-0.01	0.01	7.28	0.02	0.01	16.98	-0.01	-0.01	
0:46:30	12:08:55	5.18	-0.02	0.01	7.26	0.00	0.01	16.98	-0.01	-0.01	
0:47:00	12:09:25	5.18	-0.02	0.01	7.28	0.02	0.02	16.98	-0.01	-0.01	
0:47:30	12:09:55	5.18	-0.02	0.00	7.27	0.01	0.02	16.98	-0.01	-0.01	
0:48:00	12:10:25	5.18	-0.02	0.00	7.27	0.01	0.02	16.98	-0.01	-0.01	
0:48:30	12:10:55	5.18	-0.02	0.01	7.27	0.01	0.02	16.98	-0.01	-0.02	
0:49:00	12:11:25	5.19	-0.01	0.01	7.26	0.00	0.01	16.98	-0.01	-0.01	
0:49:30	12:11:55	5.19	-0.01	0.00	7.28	0.02	0.02	16.98	-0.01	-0.01	
0:50:00	12:12:25	5.19	-0.01	0.00	7.27	0.01	0.01	16.98	-0.01	-0.01	
0:50:30	12:12:55	5.18	-0.02	0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 2 (Extraction Well) MW-8			RADIO 3 MW-21			RADIO 4 MW-9			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	#REF!		#REF!	Comments
0:51:00	12:13:25	5.18	-0.02	0.01	7.25	-0.01	-0.01	16.98	-0.01	-0.01	
0:51:30	12:13:55	5.18	-0.02	0.00	7.27	0.01	0.00	16.98	-0.01	-0.01	
0:52:00	12:14:25	5.18	-0.02	0.00	7.26	0.00	0.00	16.98	-0.01	0.00	
0:52:31	12:14:55	5.18	-0.02	0.01	7.24	-0.02	-0.01	16.98	-0.01	-0.01	
0:53:01	12:15:25	5.18	-0.02	0.01	7.26	0.00	-0.01	16.98	-0.01	-0.01	
0:53:31	12:15:55	5.18	-0.02	0.01	7.26	0.00	0.00	16.98	-0.01	-0.01	
0:54:01	12:16:25	5.18	-0.02	0.01	7.25	-0.01	0.00	16.98	-0.01	-0.01	
0:54:31	12:16:55	5.18	-0.02	0.01	7.25	-0.01	-0.01	16.98	-0.01	-0.01	
0:55:01	12:17:25	5.18	-0.02	0.01	7.27	0.01	0.00	16.98	-0.01	-0.02	
0:55:31	12:17:55	5.18	-0.02	0.01	7.27	0.01	-0.01	16.98	-0.01	-0.01	
0:55:51	12:18:15	5.18	-0.02	0.00	7.29	0.03	-0.02	16.98	-0.01	-0.02	
1:24:34	12:46:58	5.18	-0.02	0.00	7.26	0.00	-0.01	16.98	-0.01	-0.01	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-11			RADIO 7 IP-5			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:00:00	11:22:24	11.33	0.00	-0.04	-8.02	0.00	0.00	
0:00:32	11:22:56	11.33	0.00	-0.02	-8.02	0.00	0.00	SVE on MW-11 at 10 IWC
0:01:00	11:23:24	11.33	0.00	-0.03	-8.02	0.00	0.00	
0:01:30	11:23:54	11.33	0.00	-0.03	-8.02	0.00	0.00	
0:02:00	11:24:24	11.33	0.00	-0.03	-8.02	0.00	4.50	
0:02:30	11:24:54	11.33	0.00	-0.03	-8.02	0.00	8.23	
0:03:00	11:25:24	11.33	0.00	-0.03	-8.02	0.00	10.81	
0:03:30	11:25:54	11.33	0.00	-0.03	-8.02	0.00	11.45	
0:04:00	11:26:24	11.33	0.00	-0.03	-8.02	0.00	11.66	
0:04:30	11:26:54	11.32	-0.01	-0.03	-8.02	0.00	11.82	
0:05:00	11:27:24	11.33	0.00	-0.03	-8.02	0.00	11.78	
0:05:30	11:27:54	11.33	0.00	-0.03	-8.02	0.00	11.50	
0:06:00	11:28:24	11.32	-0.01	-0.03	-8.02	0.00	12.48	
0:06:30	11:28:54	11.33	0.00	-0.03	-8.02	0.00	13.22	
0:07:00	11:29:24	11.33	0.00	-0.03	-8.02	0.00	13.01	
0:07:30	11:29:54	11.32	-0.01	-0.03	-8.02	0.00	12.64	
0:08:00	11:30:24	11.33	0.00	-0.03	-8.02	0.00	12.68	
0:08:30	11:30:54	11.33	0.00	-0.03	-8.02	0.00	12.79	
0:09:07	11:31:32	11.33	0.00	-0.03	-8.02	0.00	12.63	
0:09:33	11:31:58	11.33	0.00	-0.04	-8.02	0.00	12.48	
0:10:00	11:32:25	11.33	0.00	-0.04	-8.02	0.00	12.41	
0:10:30	11:32:54	11.33	0.00	-0.04	-8.02	0.00	12.34	
0:11:00	11:33:24	11.32	-0.01	-0.03	-8.02	0.00	12.36	
0:11:30	11:33:54	11.32	-0.01	0.00	-8.02	0.00	12.37	
0:12:00	11:34:24	11.32	-0.01	-0.02	-8.02	0.00	12.38	
0:12:30	11:34:54	11.32	-0.01	-0.04	-8.02	0.00	12.31	
0:13:08	11:35:33	11.33	0.00	-0.02	-8.02	0.00	12.22	
0:13:30	11:35:54	11.32	-0.01	0.00	-8.02	0.00	12.21	
0:14:05	11:36:29	11.32	-0.01	-0.01	-8.02	0.00	12.22	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-11			RADIO 7 IP-5			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:14:30	11:36:54	11.32	-0.01	0.01	-8.02	0.00	11.93	
0:15:00	11:37:24	11.32	-0.01	0.04	-8.02	0.00	11.97	
0:15:30	11:37:54	11.32	-0.01	-0.06	-8.02	0.00	12.02	
0:16:00	11:38:24	11.32	-0.01	-0.07	-8.02	0.00	12.05	
0:16:30	11:38:54	11.33	0.00	-0.07	-8.02	0.00	11.80	
0:17:00	11:39:24	11.32	-0.01	-0.08	-8.02	0.00	11.81	
0:17:30	11:39:54	11.32	-0.01	-0.10	-8.02	0.00	11.83	
0:18:00	11:40:25	11.33	0.00	-0.07	-8.02	0.00	11.88	
0:18:30	11:40:54	11.33	0.00	-0.05	-8.02	0.00	12.02	
0:19:00	11:41:24	11.33	0.00	-0.04	-8.02	0.00	12.01	
0:19:30	11:41:54	11.32	-0.01	-0.04	-8.02	0.00	11.84	
0:20:00	11:42:25	11.33	0.00	-0.04	-8.02	0.00	11.74	
0:20:30	11:42:55	11.33	0.00	-0.05	-8.02	0.00	11.76	
0:21:00	11:43:25	11.33	0.00	-0.02	-8.02	0.00	11.81	
0:21:30	11:43:55	11.33	0.00	-0.02	-8.02	0.00	11.85	
0:22:00	11:44:25	11.33	0.00	-0.01	-8.02	0.00	11.90	
0:22:30	11:44:55	11.32	-0.01	-0.04	-8.02	0.00	11.83	
0:23:00	11:45:25	11.33	0.00	0.01	-8.02	0.00	11.69	
0:23:30	11:45:55	11.33	0.00	0.02	-8.02	0.00	11.76	
0:24:00	11:46:25	11.32	-0.01	-0.01	-8.02	0.00	11.91	
0:24:30	11:46:55	11.33	0.00	-0.01	-8.02	0.00	11.95	
0:25:00	11:47:25	11.33	0.00	-0.02	-8.02	0.00	11.99	
0:25:30	11:47:55	11.34	0.01	0.02	-8.02	0.00	12.15	
0:26:00	11:48:25	11.33	0.00	-0.02	-8.02	0.00	12.03	
0:26:30	11:48:55	11.34	0.01	-0.02	-8.02	0.00	12.04	
0:27:00	11:49:25	11.34	0.01	-0.03	-8.02	0.00	12.04	end step 1
0:27:30	11:49:55	11.34	0.01	-0.02	-8.02	0.00	14.24	
0:28:00	11:50:25	11.34	0.01	-0.05	-8.02	0.00	14.54	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-11			RADIO 7 IP-5			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:28:30	11:50:55	11.34	0.01	-0.09	-8.02	0.00	14.33	
0:29:00	11:51:25	11.34	0.01	-0.09	-8.02	0.00	14.52	
0:29:30	11:51:55	11.34	0.01	-0.09	-8.02	0.00	14.68	
0:30:00	11:52:25	11.34	0.01	-0.09	-8.02	0.00	14.50	
0:30:30	11:52:55	11.34	0.01	-0.09	-8.02	0.00	14.62	
0:31:00	11:53:25	11.33	0.00	-0.03	-8.02	0.00	14.69	
0:31:30	11:53:55	11.33	0.00	-0.02	-8.02	0.00	14.57	
0:32:00	11:54:25	11.33	0.00	-0.05	-8.02	0.00	14.58	
0:32:30	11:54:55	11.33	0.00	-0.09	-8.02	0.00	14.65	
0:33:00	11:55:25	11.31	-0.02	-0.09	-8.02	0.00	14.75	
0:33:30	11:55:55	11.33	0.00	0.12	-8.02	0.00	14.54	
0:34:00	11:56:25	11.34	0.01	0.08	-8.02	0.00	14.60	
0:34:30	11:56:55	11.33	0.00	0.06	-8.02	0.00	14.71	
0:35:00	11:57:25	11.33	0.00	0.10	-8.02	0.00	14.52	
0:35:30	11:57:55	11.33	0.00	0.01	-8.02	0.00	14.57	
0:36:00	11:58:25	11.33	0.00	-0.03	-8.02	0.00	14.67	
0:36:30	11:58:55	11.33	0.00	-0.02	-8.02	0.00	14.58	
0:37:00	11:59:25	11.33	0.00	-0.02	-8.02	0.00	14.55	
0:37:30	11:59:55	11.33	0.00	0.01	-8.02	0.00	14.64	
0:38:00	12:00:25	11.34	0.01	0.07	-8.02	0.00	14.71	
0:38:30	12:00:55	11.34	0.01	0.02	-8.02	0.00	14.52	
0:39:00	12:01:25	11.34	0.01	-0.02	-8.02	0.00	14.60	end step 2
0:39:30	12:01:55	11.34	0.01	-0.06	-8.02	0.00	16.13	
0:40:00	12:02:25	11.34	0.01	-0.06	-8.02	0.00	16.09	
0:40:30	12:02:55	11.34	0.01	-0.04	-8.02	0.00	16.22	
0:41:00	12:03:25	11.34	0.01	0.00	-8.02	0.00	16.33	
0:41:30	12:03:55	11.34	0.01	0.01	-8.02	0.00	16.22	
0:42:00	12:04:25	11.34	0.01	-0.02	-8.02	0.00	16.36	

Table B-12

Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

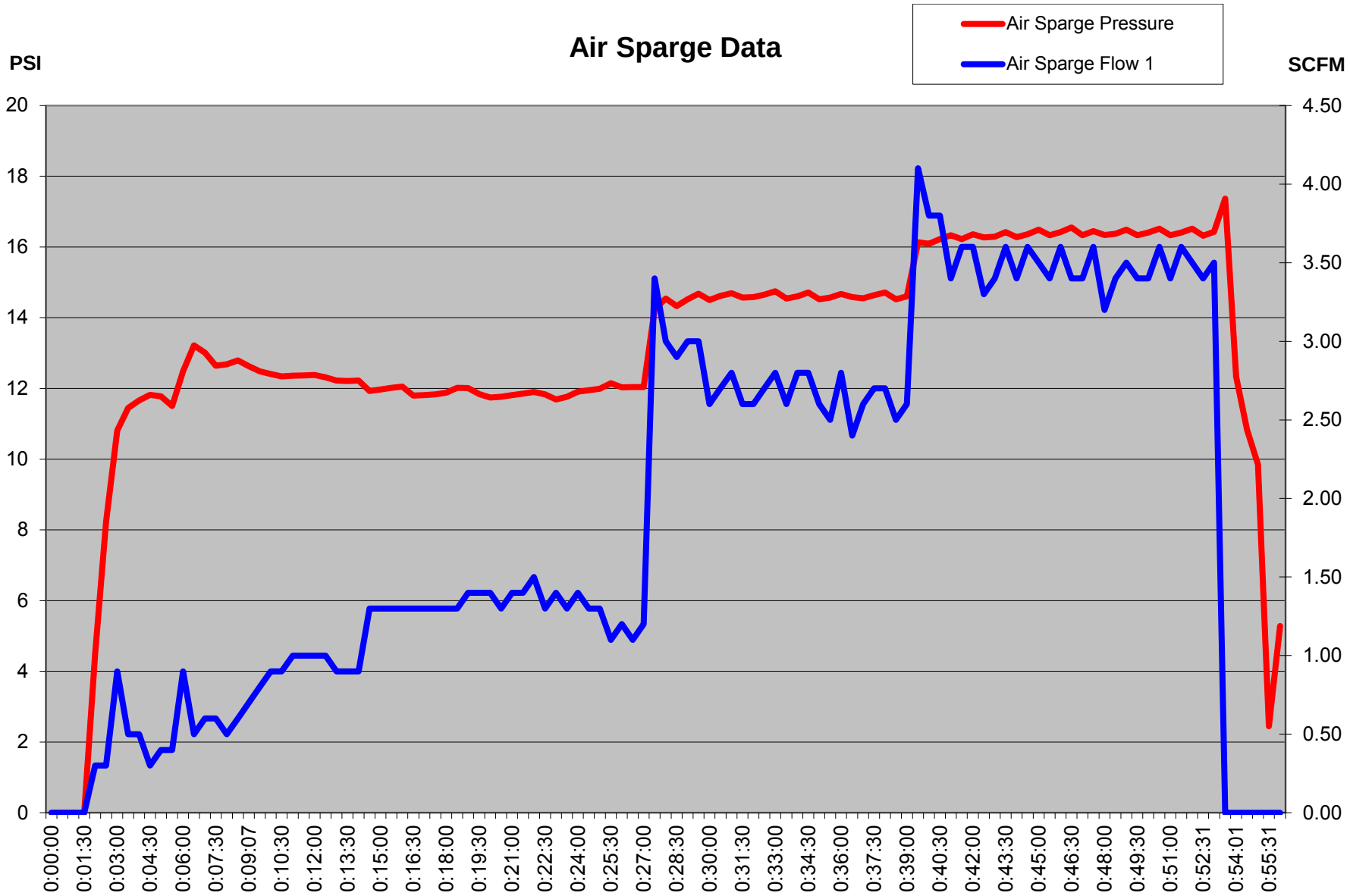
ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-11			RADIO 7 IP-5			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
0:42:30	12:04:55	11.34	0.01	0.03	-8.02	0.00	16.27	
0:43:00	12:05:25	11.34	0.01	0.01	-8.02	0.00	16.29	
0:43:30	12:05:55	11.34	0.01	0.02	-8.02	0.00	16.42	
0:44:00	12:06:25	11.34	0.01	-0.02	-8.02	0.00	16.28	
0:44:30	12:06:55	11.34	0.01	-0.07	-8.02	0.00	16.36	
0:45:00	12:07:25	11.34	0.01	-0.05	-8.02	0.00	16.49	
0:45:30	12:07:55	11.34	0.01	-0.06	-8.02	0.00	16.33	
0:46:00	12:08:25	11.35	0.02	-0.05	-8.02	0.00	16.42	
0:46:30	12:08:55	11.34	0.01	-0.08	-8.02	0.00	16.55	
0:47:00	12:09:25	11.34	0.01	-0.09	-8.02	0.00	16.33	
0:47:30	12:09:55	11.34	0.01	-0.08	-8.02	0.00	16.45	
0:48:00	12:10:25	11.34	0.01	-0.07	-8.02	0.00	16.34	
0:48:30	12:10:55	11.35	0.02	-0.07	-8.02	0.00	16.37	
0:49:00	12:11:25	11.34	0.01	-0.08	-8.02	0.00	16.49	
0:49:30	12:11:55	11.34	0.01	-0.09	-8.02	0.00	16.33	
0:50:00	12:12:25	11.34	0.01	-0.09	-8.02	0.00	16.41	
0:50:30	12:12:55	11.35	0.02	-0.10	-8.02	0.00	16.52	
0:51:00	12:13:25	11.34	0.01	-0.07	-8.02	0.00	16.33	
0:51:30	12:13:55	11.34	0.01	0.00	-8.02	0.00	16.41	
0:52:00	12:14:25	11.34	0.01	-0.02	-8.02	0.00	16.52	
0:52:31	12:14:55	11.33	0.00	-0.02	-8.02	0.00	16.32	
0:53:01	12:15:25	11.33	0.00	-0.04	-8.02	0.00	16.43	end test
0:53:31	12:15:55	11.33	0.00	-0.08	-8.02	0.00	17.37	
0:54:01	12:16:25	11.33	0.00	-0.04	-8.02	0.00	12.33	
0:54:31	12:16:55	11.33	0.00	0.01	-8.02	0.00	10.83	
0:55:01	12:17:25	11.33	0.00	0.05	-8.02	0.00	9.85	
0:55:31	12:17:55	11.33	0.00	0.03	-8.02	0.00	2.45	
0:55:51	12:18:15	11.33	0.00	0.06	-8.02	0.00	5.28	

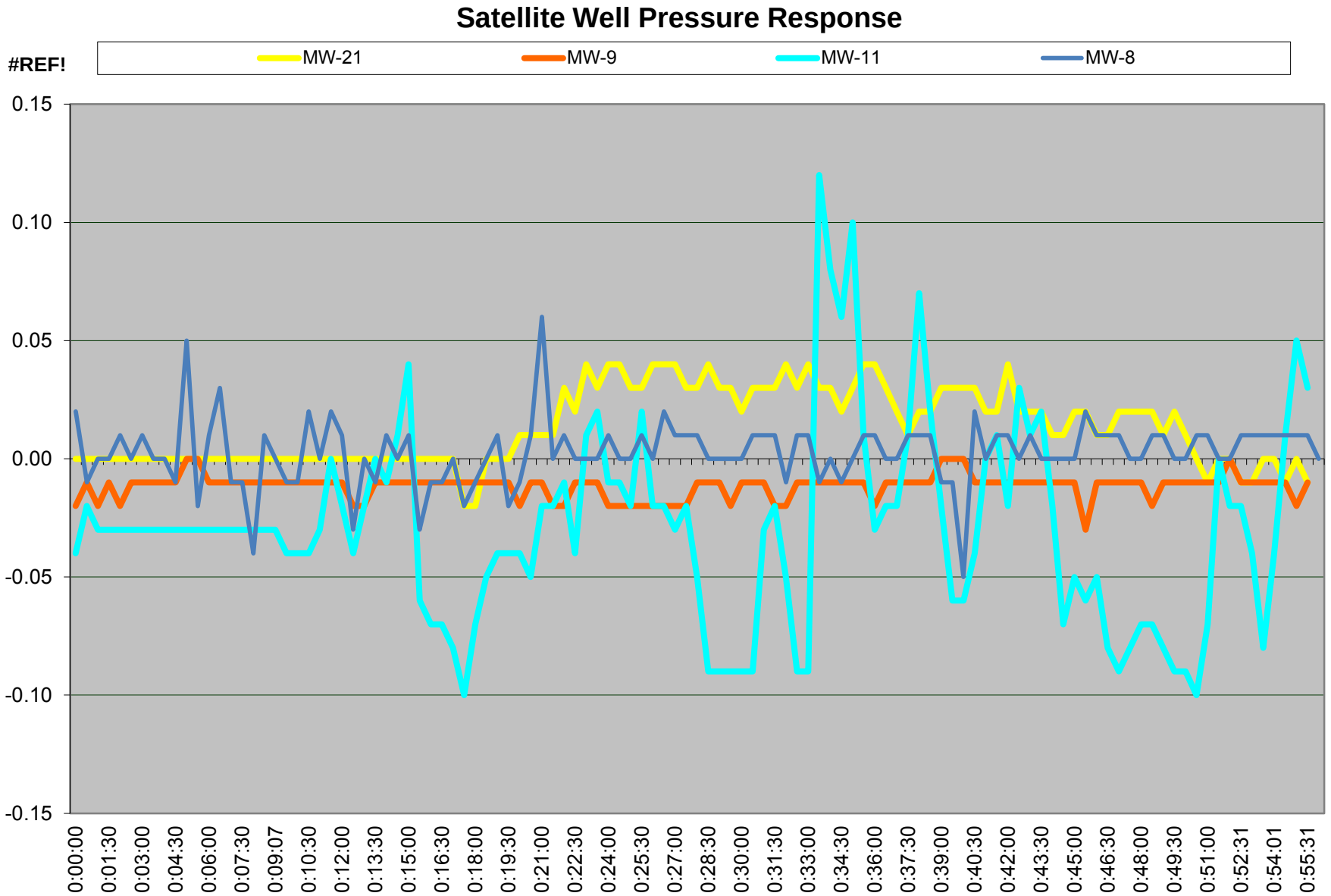
Table B-12

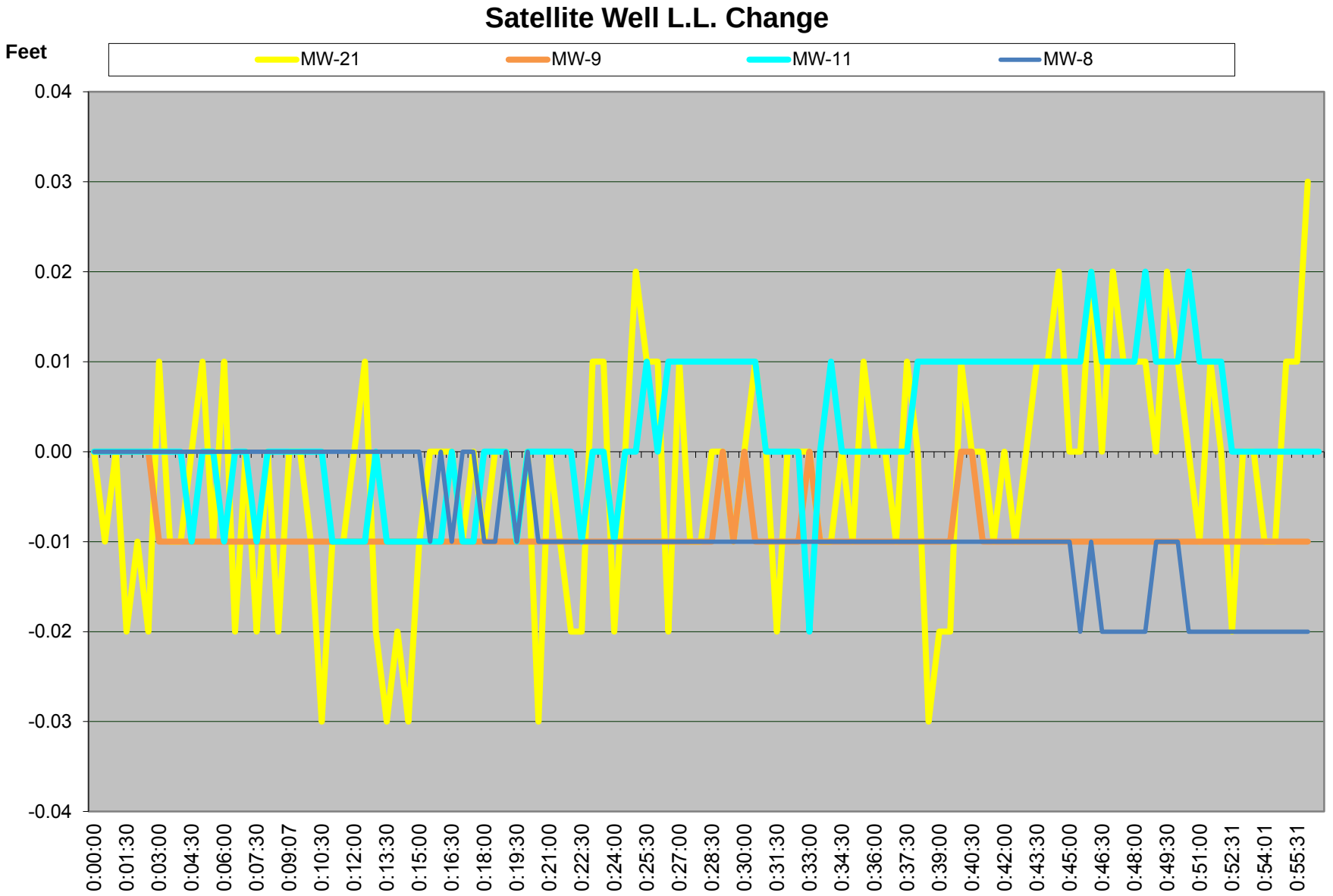
Air Injection at IP-5

United Refining Company
Kwik Fill #M-061
227 East Main Street
Bradford, Pennsylvania

ELAPSED TIME hh/mm/ss	Time	RADIO 5 MW-11			RADIO 7 IP-5			4
		#REF!	L.L. Change - = ↓ + = ↑	#REF!	#REF!	L.L. Change - = ↓ + = ↑	#REF!	
		#REF!		#REF!	#REF!		#REF!	Comments
1:24:34	12:46:58	11.33	0.00	0.04	-8.02	0.00	5.28	


Air Sparge Data
Air Sparge Pressure
Air Sparge Flow 1
PSI
SCFM
20
18
16
14
12
10
8
6
4
2
0
4.50
4.00
3.50
3.00
2.50
2.00
1.50
1.00
0.50
0.00
0:00:00
0:01:30
0:03:00
0:04:30
0:06:00
0:07:30
0:09:07
0:10:30
0:12:00
0:13:30
0:15:00
0:16:30
0:18:00
0:19:30
0:21:00
0:22:30
0:24:00
0:25:30
0:27:00
0:28:30
0:30:00
0:31:30
0:33:00
0:34:30
0:36:00
0:37:30
0:39:00
0:40:30
0:42:00
0:43:30
0:45:00
0:46:30
0:48:00
0:49:30
0:51:00
0:52:31
0:54:01
0:55:31


Satellite Well Pressure Response
#REF!
MW-21
MW-9
MW-11
MW-8
0.15
0.10
0.05
0.00
-0.05
-0.10
-0.15
0:00:00
0:01:30
0:03:00
0:04:30
0:06:00
0:07:30
0:09:07
0:10:30
0:12:00
0:13:30
0:15:00
0:16:30
0:18:00
0:19:30
0:21:00
0:22:30
0:24:00
0:25:30
0:27:00
0:28:30
0:30:00
0:31:30
0:33:00
0:34:30
0:36:00
0:37:30
0:39:00
0:40:30
0:42:00
0:43:30
0:45:00
0:46:30
0:48:00
0:49:30
0:51:00
0:52:31
0:54:01
0:55:31


Satellite Well L.L. Change
Feet
MW-21
MW-9
MW-11
MW-8
0.04
0.03
0.02
0.01
0.00
-0.01
-0.02
-0.03
-0.04
0:00:00
0:01:30
0:03:00
0:04:30
0:06:00
0:07:30
0:09:07
0:10:30
0:12:00
0:13:30
0:15:00
0:16:30
0:18:00
0:19:30
0:21:00
0:22:30
0:24:00
0:25:30
0:27:00
0:28:30
0:30:00
0:31:30
0:33:00
0:34:30
0:36:00
0:37:30
0:39:00
0:40:30
0:42:00
0:43:30
0:45:00
0:46:30
0:48:00
0:49:30
0:51:00
0:52:31
0:54:01
0:55:31

APPENDIX C

Remedial Feasibility Study Laboratory Analytical Reports

Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

May 02, 2014

Ms. Erin Letrick
Groundwater & Environmental Services
301 Commerce Park Drive
Cranberry Twp, PA 16066

RE: Project: UPA Bradford M-061
Pace Project No.: 30119053

Dear Ms. Letrick:
Enclosed are the analytical results for sample(s) received by the laboratory on April 25, 2014. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Rachel Christner
rachel.christner@pacelabs.com
Project Manager

Enclosures

cc: Ms. Joan Amodeo, Groundwater and Environmental Services, Inc.
Ms. Caitlin Conte, Groundwater & Environmental Services, Inc.

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

CERTIFICATIONS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Pennsylvania Certification IDs

1638 Roseytown Rd Suites 2,3&4 Greensburg, PA 15601
ACLASS DOD-ELAP Accreditation #: ADE-1544
Alabama Certification #: 41590
Arizona Certification #: AZ0734
Arkansas Certification
California/TNI Certification #: 04222CA
Colorado Certification
Connecticut Certification #: PH-0694
Delaware Certification
Florida/TNI Certification #: E87683
Guam/PADEP Certification
Hawaii/PADEP Certification
Idaho Certification
Illinois/PADEP Certification
Indiana/PADEP Certification
Iowa Certification #: 391
Kansas/TNI Certification #: E-10358
Kentucky Certification #: 90133
Louisiana DHH/TNI Certification #: LA140008
Louisiana DEQ/TNI Certification #: 4086
Maine Certification #: PA00091
Maryland Certification #: 308
Massachusetts Certification #: M-PA1457
Michigan/PADEP Certification
Missouri Certification #: 235
Montana Certification #: Cert 0082
Nebraska Certification #: NE-05-29-14
Nevada Certification
New Hampshire/TNI Certification #: 2976
New Jersey/TNI Certification #: PA 051
New Mexico Certification
New York/TNI Certification #: 10888
North Carolina Certification #: 42706
North Dakota Certification #: R-190
Oregon/TNI Certification #: PA200002
Pennsylvania/TNI Certification #: 65-00282
Puerto Rico Certification #: PA01457
South Dakota Certification
Tennessee Certification #: TN2867
Texas/TNI Certification #: T104704188
Utah/TNI Certification #: ANTE
Vermont Dept. of Health: ID# VT-0282
Virgin Island/PADEP Certification
Virginia/VELAP Certification #: 460198
Washington Certification #: C868
West Virginia DEP Certification #: 143
West Virginia DHHR Certification #: 9964C
Wisconsin/PADEP Certification
Wyoming Certification #: 8TMS-Q

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Sample: MW-1R Pump test **Lab ID: 30119053001** Collected: 04/22/14 11:40 Received: 04/25/14 17:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST	Analytical Method: EPA 8260B							
Benzene	**149**	ug/L	1.0	1		04/29/14 02:16	71-43-2	
Ethylbenzene	**14.7**	ug/L	1.0	1		04/29/14 02:16	100-41-4	
Isopropylbenzene (Cumene)	**7.6**	ug/L	1.0	1		04/29/14 02:16	98-82-8	
Methyl-tert-butyl ether	**2.7**	ug/L	1.0	1		04/29/14 02:16	1634-04-4	
Naphthalene	**12.9**	ug/L	2.0	1		04/29/14 02:16	91-20-3	
Toluene	**25.3**	ug/L	1.0	1		04/29/14 02:16	108-88-3	
1,2,4-Trimethylbenzene	**48.8**	ug/L	1.0	1		04/29/14 02:16	95-63-6	
1,3,5-Trimethylbenzene	**14.7**	ug/L	1.0	1		04/29/14 02:16	108-67-8	
Xylene (Total)	**29.7**	ug/L	3.0	1		04/29/14 02:16	1330-20-7	
Surrogates								
Toluene-d8 (S)	104	%	85-115	1		04/29/14 02:16	2037-26-5	
4-Bromofluorobenzene (S)	101	%	85-115	1		04/29/14 02:16	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	77-119	1		04/29/14 02:16	17060-07-0	

REPORT OF LABORATORY ANALYSIS

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Sample: MW-1R VEGE **Lab ID: 30119053002** Collected: 04/22/14 14:10 Received: 04/25/14 17:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP	Analytical Method: EPA 6010B Preparation Method: EPA 3005A							
Aluminum	**13400**	ug/L	50.0	1	04/29/14 11:28	04/29/14 19:19	7429-90-5	
Antimony	ND	ug/L	6.0	1	04/29/14 11:28	04/29/14 19:19	7440-36-0	
Arsenic	**22.6**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7440-38-2	
Barium	**1060**	ug/L	10.0	1	04/29/14 11:28	04/29/14 19:19	7440-39-3	
Beryllium	ND	ug/L	1.0	1	04/29/14 11:28	04/29/14 19:19	7440-41-7	
Boron	ND	ug/L	50.0	1	04/29/14 11:28	04/29/14 19:19	7440-42-8	
Cadmium	ND	ug/L	3.0	1	04/29/14 11:28	04/29/14 19:19	7440-43-9	
Calcium	**174000**	ug/L	1000	1	04/29/14 11:28	04/29/14 19:19	7440-70-2	
Chromium	**18.0**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7440-47-3	
Cobalt	**18.1**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7440-48-4	
Copper	**59.0**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7440-50-8	
Iron	**40500**	ug/L	70.0	1	04/29/14 11:28	04/29/14 19:19	7439-89-6	
Lead	**159**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7439-92-1	
Magnesium	**30700**	ug/L	200	1	04/29/14 11:28	04/29/14 19:19	7439-95-4	
Manganese	**5780**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7439-96-5	
Molybdenum	ND	ug/L	20.0	1	04/29/14 11:28	04/29/14 19:19	7439-98-7	
Nickel	**19.0**	ug/L	10.0	1	04/29/14 11:28	04/29/14 19:19	7440-02-0	
Potassium	**11400**	ug/L	500	1	04/29/14 11:28	04/29/14 19:19	7440-09-7	
Selenium	ND	ug/L	8.0	1	04/29/14 11:28	04/29/14 19:19	7782-49-2	
Silver	ND	ug/L	6.0	1	04/29/14 11:28	04/29/14 19:19	7440-22-4	
Sodium	**492000**	ug/L	1000	1	04/29/14 11:28	04/29/14 19:19	7440-23-5	
Thallium	ND	ug/L	10.0	1	04/29/14 11:28	04/29/14 19:19	7440-28-0	
Vanadium	**21.6**	ug/L	5.0	1	04/29/14 11:28	04/29/14 19:19	7440-62-2	
Zinc	**130**	ug/L	10.0	1	04/29/14 11:28	04/29/14 19:19	7440-66-6	
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010B Preparation Method: EPA 3005A							
Aluminum, Dissolved	ND	ug/L	50.0	1	04/29/14 15:33	04/30/14 09:32	7429-90-5	
Antimony, Dissolved	ND	ug/L	6.0	1	04/29/14 15:33	04/30/14 09:32	7440-36-0	
Arsenic, Dissolved	ND	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7440-38-2	
Barium, Dissolved	**817**	ug/L	10.0	1	04/29/14 15:33	04/30/14 09:32	7440-39-3	
Beryllium, Dissolved	ND	ug/L	1.0	1	04/29/14 15:33	04/30/14 09:32	7440-41-7	
Boron, Dissolved	ND	ug/L	50.0	1	04/29/14 15:33	04/30/14 09:32	7440-42-8	
Cadmium, Dissolved	ND	ug/L	3.0	1	04/29/14 15:33	04/30/14 09:32	7440-43-9	
Calcium, Dissolved	**178000**	ug/L	1000	1	04/29/14 15:33	04/30/14 09:32	7440-70-2	
Chromium, Dissolved	ND	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7440-47-3	
Cobalt, Dissolved	ND	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7440-48-4	
Copper, Dissolved	ND	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7440-50-8	
Iron, Dissolved	**182**	ug/L	70.0	1	04/29/14 15:33	04/30/14 09:32	7439-89-6	
Lead, Dissolved	ND	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7439-92-1	
Magnesium, Dissolved	**30300**	ug/L	200	1	04/29/14 15:33	04/30/14 09:32	7439-95-4	
Manganese, Dissolved	**5150**	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7439-96-5	
Molybdenum, Dissolved	ND	ug/L	20.0	1	04/29/14 15:33	04/30/14 09:32	7439-98-7	
Nickel, Dissolved	ND	ug/L	10.0	1	04/29/14 15:33	04/30/14 09:32	7440-02-0	
Potassium, Dissolved	**9760**	ug/L	500	1	04/29/14 15:33	04/30/14 09:32	7440-09-7	
Selenium, Dissolved	ND	ug/L	8.0	1	04/29/14 15:33	04/30/14 09:32	7782-49-2	
Silver, Dissolved	ND	ug/L	6.0	1	04/29/14 15:33	04/30/14 09:32	7440-22-4	
Sodium, Dissolved	**513000**	ug/L	1000	1	04/29/14 15:33	04/30/14 09:32	7440-23-5	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Sample: MW-1R VEGE **Lab ID: 30119053002** Collected: 04/22/14 14:10 Received: 04/25/14 17:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
6010 MET ICP, Lab Filtered	Analytical Method: EPA 6010B Preparation Method: EPA 3005A							
Thallium, Dissolved	ND	ug/L	10.0	1	04/29/14 15:33	04/30/14 09:32	7440-28-0	
Vanadium, Dissolved	ND	ug/L	5.0	1	04/29/14 15:33	04/30/14 09:32	7440-62-2	
Zinc, Dissolved	**17.8**	ug/L	10.0	1	04/29/14 15:33	04/30/14 09:32	7440-66-6	
7470 Mercury	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury	ND	ug/L	0.20	1	04/30/14 16:59	04/30/14 19:16	7439-97-6	
7470 Mercury, Lab Filtered	Analytical Method: EPA 7470A Preparation Method: EPA 7470A							
Mercury, Dissolved	ND	ug/L	0.20	1	04/30/14 16:56	04/30/14 19:05	7439-97-6	
8260 MSV PA UST	Analytical Method: EPA 8260B							
Benzene	**305**	ug/L	1.0	1		04/29/14 02:40	71-43-2	
Ethylbenzene	**421**	ug/L	50.0	50		04/29/14 11:26	100-41-4	
Isopropylbenzene (Cumene)	**49.0**	ug/L	1.0	1		04/29/14 02:40	98-82-8	
Methyl-tert-butyl ether	**5.2**	ug/L	1.0	1		04/29/14 02:40	1634-04-4	
Naphthalene	**140**	ug/L	2.0	1		04/29/14 02:40	91-20-3	
Toluene	**12.1**	ug/L	1.0	1		04/29/14 02:40	108-88-3	
1,2,4-Trimethylbenzene	**1430**	ug/L	50.0	50		04/29/14 11:26	95-63-6	
1,3,5-Trimethylbenzene	**412**	ug/L	50.0	50		04/29/14 11:26	108-67-8	
Xylene (Total)	**2440**	ug/L	150	50		04/29/14 11:26	1330-20-7	
Surrogates								
Toluene-d8 (S)	103	%	85-115	1		04/29/14 02:40	2037-26-5	
4-Bromofluorobenzene (S)	99	%	85-115	1		04/29/14 02:40	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	77-119	1		04/29/14 02:40	17060-07-0	
410.4 COD	Analytical Method: EPA 410.4							
Chemical Oxygen Demand	**60.0**	mg/L	25.0	1		04/30/14 10:35		

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Sample: MW-1R TPE **Lab ID: 30119053003** Collected: 04/22/14 17:15 Received: 04/25/14 17:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST	Analytical Method: EPA 8260B							
Benzene	**250**	ug/L	1.0	1		04/29/14 03:05	71-43-2	
Ethylbenzene	**175**	ug/L	1.0	1		04/29/14 03:05	100-41-4	
Isopropylbenzene (Cumene)	**27.2**	ug/L	1.0	1		04/29/14 03:05	98-82-8	
Methyl-tert-butyl ether	**4.4**	ug/L	1.0	1		04/29/14 03:05	1634-04-4	
Naphthalene	**73.0**	ug/L	2.0	1		04/29/14 03:05	91-20-3	
Toluene	**9.9**	ug/L	1.0	1		04/29/14 03:05	108-88-3	
1,2,4-Trimethylbenzene	**537**	ug/L	10.0	10		04/29/14 11:50	95-63-6	
1,3,5-Trimethylbenzene	**157**	ug/L	1.0	1		04/29/14 03:05	108-67-8	
Xylene (Total)	**976**	ug/L	30.0	10		04/29/14 11:50	1330-20-7	
Surrogates								
Toluene-d8 (S)	103	%	85-115	1		04/29/14 03:05	2037-26-5	
4-Bromofluorobenzene (S)	100	%	85-115	1		04/29/14 03:05	460-00-4	
1,2-Dichloroethane-d4 (S)	104	%	77-119	1		04/29/14 03:05	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Sample: MW-9 Pump test **Lab ID: 30119053004** Collected: 04/23/14 11:30 Received: 04/25/14 17:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		04/29/14 03:29	71-43-2	
Ethylbenzene	**4.1**	ug/L	1.0	1		04/29/14 03:29	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		04/29/14 03:29	98-82-8	
Methyl-tert-butyl ether	**3420**	ug/L	50.0	50		04/29/14 12:15	1634-04-4	
Naphthalene	**14.4**	ug/L	2.0	1		04/29/14 03:29	91-20-3	
Toluene	**37.3**	ug/L	1.0	1		04/29/14 03:29	108-88-3	
1,2,4-Trimethylbenzene	**40.5**	ug/L	1.0	1		04/29/14 03:29	95-63-6	
1,3,5-Trimethylbenzene	**11.6**	ug/L	1.0	1		04/29/14 03:29	108-67-8	
Xylene (Total)	**30.2**	ug/L	3.0	1		04/29/14 03:29	1330-20-7	
Surrogates								
Toluene-d8 (S)	103	%	85-115	1		04/29/14 03:29	2037-26-5	
4-Bromofluorobenzene (S)	99	%	85-115	1		04/29/14 03:29	460-00-4	
1,2-Dichloroethane-d4 (S)	98	%	77-119	1		04/29/14 03:29	17060-07-0	

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ANALYTICAL RESULTS

Project: UPA Bradford M-061
Pace Project No.: 30119053

Sample: MW-9 VEGE **Lab ID: 30119053005** Collected: 04/23/14 14:15 Received: 04/25/14 17:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV PA UST	Analytical Method: EPA 8260B							
Benzene	ND	ug/L	1.0	1		04/29/14 03:53	71-43-2	
Ethylbenzene	**4.2**	ug/L	1.0	1		04/29/14 03:53	100-41-4	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		04/29/14 03:53	98-82-8	
Methyl-tert-butyl ether	**3130**	ug/L	50.0	50		04/29/14 12:39	1634-04-4	
Naphthalene	**7.6**	ug/L	2.0	1		04/29/14 03:53	91-20-3	
Toluene	**79.6**	ug/L	1.0	1		04/29/14 03:53	108-88-3	
1,2,4-Trimethylbenzene	**41.2**	ug/L	1.0	1		04/29/14 03:53	95-63-6	
1,3,5-Trimethylbenzene	**12.2**	ug/L	1.0	1		04/29/14 03:53	108-67-8	
Xylene (Total)	**30.8**	ug/L	3.0	1		04/29/14 03:53	1330-20-7	
Surrogates								
Toluene-d8 (S)	105	%	85-115	1		04/29/14 03:53	2037-26-5	
4-Bromofluorobenzene (S)	102	%	85-115	1		04/29/14 03:53	460-00-4	
1,2-Dichloroethane-d4 (S)	103	%	77-119	1		04/29/14 03:53	17060-07-0	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

QC Batch: MERP/5403
QC Batch Method: EPA 7470A
Analysis Method: EPA 7470A
Analysis Description: 7470 Mercury
Associated Lab Samples: 30119053002

METHOD BLANK: 723675 Matrix: Water
Associated Lab Samples: 30119053002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	04/30/14 19:13	

LABORATORY CONTROL SAMPLE: 723676

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	1	1.0	103	85-115	

MATRIX SPIKE SAMPLE: 723678

Parameter	Units	30118595001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	2.5	2.5	98	80-120	

MATRIX SPIKE SAMPLE: 723680

Parameter	Units	30119053002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	ND	2.5	2.5	100	80-120	

SAMPLE DUPLICATE: 723677

Parameter	Units	30118595001 Result	Dup Result	RPD	Qualifiers
Mercury	ug/L	ND	ND		

SAMPLE DUPLICATE: 723679

Parameter	Units	30119053002 Result	Dup Result	RPD	Qualifiers
Mercury	ug/L	ND	ND		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

QC Batch: MERP/5402
QC Batch Method: EPA 7470A
Analysis Method: EPA 7470A
Analysis Description: 7470 Mercury Dissolved
Associated Lab Samples: 30119053002

METHOD BLANK: 723660 Matrix: Water
Associated Lab Samples: 30119053002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury, Dissolved	ug/L	ND	0.20	04/30/14 18:24	

LABORATORY CONTROL SAMPLE: 723661

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	1	0.96	96	85-115	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 723663 723664

Parameter	Units	30118882001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Mercury, Dissolved	ug/L	ND	2.5	2.5	2.4	2.4	94	96	80-120	2	

MATRIX SPIKE SAMPLE: 723666

Parameter	Units	30118882012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Mercury, Dissolved	ug/L	ND	2.5	2.4	98	80-120	

SAMPLE DUPLICATE: 723662

Parameter	Units	30118882001 Result	Dup Result	RPD	Qualifiers
Mercury, Dissolved	ug/L	ND	ND		

SAMPLE DUPLICATE: 723665

Parameter	Units	30118882012 Result	Dup Result	RPD	Qualifiers
Mercury, Dissolved	ug/L	ND	ND		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

QC Batch: MPRP/12873
QC Batch Method: EPA 3005A
Analysis Method: EPA 6010B
Analysis Description: 6010 MET
Associated Lab Samples: 30119053002

METHOD BLANK: 722851
Matrix: Water
Associated Lab Samples: 30119053002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum	ug/L	ND	50.0	04/29/14 18:57	
Antimony	ug/L	ND	6.0	04/29/14 18:57	
Arsenic	ug/L	ND	5.0	04/29/14 18:57	
Barium	ug/L	ND	10.0	04/29/14 18:57	
Beryllium	ug/L	ND	1.0	04/29/14 18:57	
Boron	ug/L	ND	50.0	04/29/14 18:57	
Cadmium	ug/L	ND	3.0	04/29/14 18:57	
Calcium	ug/L	ND	1000	04/29/14 18:57	
Chromium	ug/L	ND	5.0	04/29/14 18:57	
Cobalt	ug/L	ND	5.0	04/29/14 18:57	
Copper	ug/L	ND	5.0	04/29/14 18:57	
Iron	ug/L	ND	70.0	04/29/14 18:57	
Lead	ug/L	ND	5.0	04/29/14 18:57	
Magnesium	ug/L	ND	200	04/29/14 18:57	
Manganese	ug/L	ND	5.0	04/29/14 18:57	
Molybdenum	ug/L	ND	20.0	04/29/14 18:57	
Nickel	ug/L	ND	10.0	04/29/14 18:57	
Potassium	ug/L	ND	500	04/29/14 18:57	
Selenium	ug/L	ND	8.0	04/29/14 18:57	
Silver	ug/L	ND	6.0	04/29/14 18:57	
Sodium	ug/L	ND	1000	04/29/14 18:57	
Thallium	ug/L	ND	10.0	04/29/14 18:57	
Vanadium	ug/L	ND	5.0	04/29/14 18:57	
Zinc	ug/L	ND	10.0	04/29/14 18:57	

LABORATORY CONTROL SAMPLE: 722852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	5000	4970	99	80-120	
Antimony	ug/L	500	498	100	80-120	
Arsenic	ug/L	500	478	96	80-120	
Barium	ug/L	500	489	98	80-120	
Beryllium	ug/L	500	495	99	80-120	
Boron	ug/L	500	495	99	80-120	
Cadmium	ug/L	500	497	99	80-120	
Calcium	ug/L	5000	4960	99	80-120	
Chromium	ug/L	500	491	98	80-120	
Cobalt	ug/L	500	472	94	80-120	
Copper	ug/L	500	496	99	80-120	
Iron	ug/L	5000	4970	99	80-120	
Lead	ug/L	500	478	96	80-120	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

LABORATORY CONTROL SAMPLE: 722852

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium	ug/L	5000	4960	99	80-120	
Manganese	ug/L	500	495	99	80-120	
Molybdenum	ug/L	500	470	94	80-120	
Nickel	ug/L	500	500	100	80-120	
Potassium	ug/L	5000	4900	98	80-120	
Selenium	ug/L	500	491	98	80-120	
Silver	ug/L	250	249	100	80-120	
Sodium	ug/L	5000	5090	102	80-120	
Thallium	ug/L	500	467	93	80-120	
Vanadium	ug/L	500	485	97	80-120	
Zinc	ug/L	500	489	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 722854 722855

Parameter	Units	30119081007 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum	ug/L	ND	5000	5000	4960	5010	99	100	75-125	1	
Antimony	ug/L	ND	500	500	483	478	97	96	75-125	1	
Arsenic	ug/L	ND	500	500	474	473	95	95	75-125	0	
Barium	ug/L	302	500	500	794	808	98	101	75-125	2	
Beryllium	ug/L	ND	500	500	497	510	99	102	75-125	3	
Boron	ug/L	ND	500	500	495	487	95	94	75-125	2	
Cadmium	ug/L	ND	500	500	483	483	97	96	75-125	0	
Calcium	ug/L	93200	5000	5000	100000	102000	136	169	75-125	2	M1
Chromium	ug/L	ND	500	500	479	483	96	96	75-125	1	
Cobalt	ug/L	ND	500	500	477	478	95	96	75-125	0	
Copper	ug/L	ND	500	500	490	501	98	100	75-125	2	
Iron	ug/L	ND	5000	5000	4850	4920	97	98	75-125	1	
Lead	ug/L	ND	500	500	478	481	95	96	75-125	1	
Magnesium	ug/L	31500	5000	5000	36900	37700	108	124	75-125	2	
Manganese	ug/L	54.8	500	500	541	555	97	100	75-125	3	
Molybdenum	ug/L	ND	500	500	494	492	98	97	75-125	1	
Nickel	ug/L	ND	500	500	467	468	93	94	75-125	0	
Potassium	ug/L	2120	5000	5000	7020	7220	98	102	75-125	3	
Selenium	ug/L	ND	500	500	476	472	95	94	75-125	1	
Silver	ug/L	ND	250	250	243	242	97	97	75-125	0	
Sodium	ug/L	38400	5000	5000	43700	45000	106	133	75-125	3	M1
Thallium	ug/L	ND	500	500	448	450	89	89	75-125	0	
Vanadium	ug/L	ND	500	500	483	490	96	98	75-125	1	
Zinc	ug/L	96.5	500	500	558	556	92	92	75-125	0	

MATRIX SPIKE SAMPLE: 722857

Parameter	Units	30119086006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum	ug/L	66.0	5000	5240	104	75-125	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

MATRIX SPIKE SAMPLE: 722857

Parameter	Units	30119086006 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony	ug/L	ND	500	506	101	75-125	
Arsenic	ug/L	ND	500	510	102	75-125	
Barium	ug/L	54.7	500	572	103	75-125	
Beryllium	ug/L	ND	500	528	106	75-125	
Boron	ug/L	ND	500	508	100	75-125	
Cadmium	ug/L	ND	500	522	104	75-125	
Calcium	ug/L	16500	5000	22100	112	75-125	
Chromium	ug/L	ND	500	516	103	75-125	
Cobalt	ug/L	11.6	500	522	102	75-125	
Copper	ug/L	ND	500	519	104	75-125	
Iron	ug/L	133	5000	5240	102	75-125	
Lead	ug/L	ND	500	513	103	75-125	
Magnesium	ug/L	6280	5000	11600	107	75-125	
Manganese	ug/L	1560	500	2100	108	75-125	
Molybdenum	ug/L	ND	500	499	100	75-125	
Nickel	ug/L	13.8	500	539	105	75-125	
Potassium	ug/L	837	5000	5990	103	75-125	
Selenium	ug/L	ND	500	507	101	75-125	
Silver	ug/L	ND	250	250	100	75-125	
Sodium	ug/L	2090	5000	7300	104	75-125	
Thallium	ug/L	ND	500	501	100	75-125	
Vanadium	ug/L	ND	500	512	102	75-125	
Zinc	ug/L	ND	500	524	103	75-125	

SAMPLE DUPLICATE: 722853

Parameter	Units	30119081007 Result	Dup Result	RPD	Qualifiers
Aluminum	ug/L	ND	22.2J		
Antimony	ug/L	ND	ND		
Arsenic	ug/L	ND	ND		
Barium	ug/L	302	326	7	
Beryllium	ug/L	ND	ND		
Boron	ug/L	ND	18.6J		
Cadmium	ug/L	ND	1.6J		
Calcium	ug/L	93200	100000	7	
Chromium	ug/L	ND	ND		
Cobalt	ug/L	ND	ND		
Copper	ug/L	ND	ND		
Iron	ug/L	ND	11.4J		
Lead	ug/L	ND	ND		
Magnesium	ug/L	31500	33700	7	
Manganese	ug/L	54.8	58.5	7	
Molybdenum	ug/L	ND	ND		
Nickel	ug/L	ND	ND		
Potassium	ug/L	2120	2340	10	
Selenium	ug/L	ND	ND		
Silver	ug/L	ND	ND		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

SAMPLE DUPLICATE: 722853

Parameter	Units	30119081007 Result	Dup Result	RPD	Qualifiers
Sodium	ug/L	38400	41400	8	
Thallium	ug/L	ND	ND		
Vanadium	ug/L	ND	ND		
Zinc	ug/L	96.5	99.8	3	

SAMPLE DUPLICATE: 722856

Parameter	Units	30119086006 Result	Dup Result	RPD	Qualifiers
Aluminum	ug/L	66.0	76.0	14	
Antimony	ug/L	ND	ND		
Arsenic	ug/L	ND	ND		
Barium	ug/L	54.7	54.3	1	
Beryllium	ug/L	ND	ND		
Boron	ug/L	ND	8.9J		
Cadmium	ug/L	ND	ND		
Calcium	ug/L	16500	16300	1	
Chromium	ug/L	ND	ND		
Cobalt	ug/L	11.6	11.7	1	
Copper	ug/L	ND	ND		
Iron	ug/L	133	134	1	
Lead	ug/L	ND	ND		
Magnesium	ug/L	6280	6280	0	
Manganese	ug/L	1560	1550	1	
Molybdenum	ug/L	ND	ND		
Nickel	ug/L	13.8	14.5	5	
Potassium	ug/L	837	827	1	
Selenium	ug/L	ND	ND		
Silver	ug/L	ND	ND		
Sodium	ug/L	2090	2040	3	
Thallium	ug/L	ND	ND		
Vanadium	ug/L	ND	ND		
Zinc	ug/L	ND	8.6J		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

QC Batch: MPRP/12881
QC Batch Method: EPA 3005A
Analysis Method: EPA 6010B
Analysis Description: 6010 MET Dissolved
Associated Lab Samples: 30119053002

METHOD BLANK: 723179
Matrix: Water
Associated Lab Samples: 30119053002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Aluminum, Dissolved	ug/L	ND	50.0	04/30/14 08:58	
Antimony, Dissolved	ug/L	ND	6.0	04/30/14 08:58	
Arsenic, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Barium, Dissolved	ug/L	ND	10.0	04/30/14 08:58	
Beryllium, Dissolved	ug/L	ND	1.0	04/30/14 08:58	
Boron, Dissolved	ug/L	ND	50.0	04/30/14 08:58	
Cadmium, Dissolved	ug/L	ND	3.0	04/30/14 08:58	
Calcium, Dissolved	ug/L	ND	1000	04/30/14 08:58	
Chromium, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Cobalt, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Copper, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Iron, Dissolved	ug/L	ND	70.0	04/30/14 08:58	
Lead, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Magnesium, Dissolved	ug/L	ND	200	04/30/14 08:58	
Manganese, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Molybdenum, Dissolved	ug/L	ND	20.0	04/30/14 08:58	
Nickel, Dissolved	ug/L	ND	10.0	04/30/14 08:58	
Potassium, Dissolved	ug/L	ND	500	04/30/14 08:58	
Selenium, Dissolved	ug/L	ND	8.0	04/30/14 08:58	
Silver, Dissolved	ug/L	ND	6.0	04/30/14 08:58	
Sodium, Dissolved	ug/L	ND	1000	04/30/14 08:58	
Thallium, Dissolved	ug/L	ND	10.0	04/30/14 08:58	
Vanadium, Dissolved	ug/L	ND	5.0	04/30/14 08:58	
Zinc, Dissolved	ug/L	ND	10.0	04/30/14 08:58	

LABORATORY CONTROL SAMPLE: 723180

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	5000	4960	99	80-120	
Antimony, Dissolved	ug/L	500	507	101	80-120	
Arsenic, Dissolved	ug/L	500	492	98	80-120	
Barium, Dissolved	ug/L	500	488	98	80-120	
Beryllium, Dissolved	ug/L	500	500	100	80-120	
Boron, Dissolved	ug/L	500	503	101	80-120	
Cadmium, Dissolved	ug/L	500	507	101	80-120	
Calcium, Dissolved	ug/L	5000	5080	102	80-120	
Chromium, Dissolved	ug/L	500	505	101	80-120	
Cobalt, Dissolved	ug/L	500	487	97	80-120	
Copper, Dissolved	ug/L	500	497	99	80-120	
Iron, Dissolved	ug/L	5000	5000	100	80-120	
Lead, Dissolved	ug/L	500	490	98	80-120	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

LABORATORY CONTROL SAMPLE: 723180

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Magnesium, Dissolved	ug/L	5000	4990	100	80-120	
Manganese, Dissolved	ug/L	500	494	99	80-120	
Molybdenum, Dissolved	ug/L	500	490	98	80-120	
Nickel, Dissolved	ug/L	500	509	102	80-120	
Potassium, Dissolved	ug/L	5000	4960	99	80-120	
Selenium, Dissolved	ug/L	500	494	99	80-120	
Silver, Dissolved	ug/L	250	253	101	80-120	
Sodium, Dissolved	ug/L	5000	5230	105	80-120	
Thallium, Dissolved	ug/L	500	483	97	80-120	
Vanadium, Dissolved	ug/L	500	488	98	80-120	
Zinc, Dissolved	ug/L	500	509	102	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 723182 723183

Parameter	Units	30119080001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Aluminum, Dissolved	ug/L	ND	5000	5000	5210	5210	103	103	75-125	0	
Antimony, Dissolved	ug/L	ND	500	500	544	551	109	110	75-125	1	
Arsenic, Dissolved	ug/L	ND	500	500	548	546	110	109	75-125	0	
Barium, Dissolved	ug/L	81.8	500	500	585	591	101	102	75-125	1	
Beryllium, Dissolved	ug/L	ND	500	500	506	510	101	102	75-125	1	
Boron, Dissolved	ug/L	55.0	500	500	584	584	106	106	75-125	0	
Cadmium, Dissolved	ug/L	ND	500	500	542	539	108	108	75-125	1	
Calcium, Dissolved	ug/L	190000	5000	5000	197000	197000	146	136	75-125	0	M1
Chromium, Dissolved	ug/L	ND	500	500	522	521	104	104	75-125	0	
Cobalt, Dissolved	ug/L	ND	500	500	531	528	106	106	75-125	1	
Copper, Dissolved	ug/L	ND	500	500	512	517	102	103	75-125	1	
Iron, Dissolved	ug/L	ND	5000	5000	5060	5050	101	101	75-125	0	
Lead, Dissolved	ug/L	ND	500	500	519	517	104	103	75-125	1	
Magnesium, Dissolved	ug/L	44800	5000	5000	50800	50700	120	118	75-125	0	
Manganese, Dissolved	ug/L	90.2	500	500	589	590	100	100	75-125	0	
Molybdenum, Dissolved	ug/L	ND	500	500	569	570	112	113	75-125	0	
Nickel, Dissolved	ug/L	ND	500	500	506	506	101	101	75-125	0	
Potassium, Dissolved	ug/L	4860	5000	5000	10300	10300	108	108	75-125	0	
Selenium, Dissolved	ug/L	ND	500	500	542	544	108	109	75-125	0	
Silver, Dissolved	ug/L	ND	250	250	271	272	109	109	75-125	0	
Sodium, Dissolved	ug/L	130000	5000	5000	138000	139000	150	174	75-125	1	M1
Thallium, Dissolved	ug/L	ND	500	500	479	486	95	97	75-125	1	
Vanadium, Dissolved	ug/L	ND	500	500	518	522	103	104	75-125	1	
Zinc, Dissolved	ug/L	ND	500	500	521	515	104	102	75-125	1	

MATRIX SPIKE SAMPLE: 723185

Parameter	Units	30119098002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Aluminum, Dissolved	ug/L	ND	5000	5180	103	75-125	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

MATRIX SPIKE SAMPLE: 723185

Parameter	Units	30119098002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Antimony, Dissolved	ug/L	ND	500	530	106	75-125	
Arsenic, Dissolved	ug/L	ND	500	516	103	75-125	
Barium, Dissolved	ug/L	37.1	500	546	102	75-125	
Beryllium, Dissolved	ug/L	ND	500	522	104	75-125	
Boron, Dissolved	ug/L	ND	500	524	103	75-125	
Cadmium, Dissolved	ug/L	ND	500	525	105	75-125	
Calcium, Dissolved	ug/L	13400	5000	18400	99	75-125	
Chromium, Dissolved	ug/L	ND	500	535	107	75-125	
Cobalt, Dissolved	ug/L	ND	500	517	103	75-125	
Copper, Dissolved	ug/L	ND	500	522	104	75-125	
Iron, Dissolved	ug/L	ND	5000	5220	104	75-125	
Lead, Dissolved	ug/L	ND	500	524	105	75-125	
Magnesium, Dissolved	ug/L	2460	5000	7690	105	75-125	
Manganese, Dissolved	ug/L	ND	500	516	103	75-125	
Molybdenum, Dissolved	ug/L	ND	500	525	105	75-125	
Nickel, Dissolved	ug/L	ND	500	528	106	75-125	
Potassium, Dissolved	ug/L	953	5000	6160	104	75-125	
Selenium, Dissolved	ug/L	ND	500	511	102	75-125	
Silver, Dissolved	ug/L	ND	250	266	106	75-125	
Sodium, Dissolved	ug/L	2070	5000	7060	100	75-125	
Thallium, Dissolved	ug/L	ND	500	516	103	75-125	
Vanadium, Dissolved	ug/L	ND	500	521	104	75-125	
Zinc, Dissolved	ug/L	ND	500	528	105	75-125	

SAMPLE DUPLICATE: 723181

Parameter	Units	30119080001 Result	Dup Result	RPD	Qualifiers
Aluminum, Dissolved	ug/L	ND	44J		
Antimony, Dissolved	ug/L	ND	ND		
Arsenic, Dissolved	ug/L	ND	ND		
Barium, Dissolved	ug/L	81.8	81.2	1	
Beryllium, Dissolved	ug/L	ND	ND		
Boron, Dissolved	ug/L	55.0	53.7	2	
Cadmium, Dissolved	ug/L	ND	ND		
Calcium, Dissolved	ug/L	190000	188000	1	
Chromium, Dissolved	ug/L	ND	ND		
Cobalt, Dissolved	ug/L	ND	ND		
Copper, Dissolved	ug/L	ND	2.3J		
Iron, Dissolved	ug/L	ND	ND		
Lead, Dissolved	ug/L	ND	ND		
Magnesium, Dissolved	ug/L	44800	44600	0	
Manganese, Dissolved	ug/L	90.2	89.9	0	
Molybdenum, Dissolved	ug/L	ND	2.6J		
Nickel, Dissolved	ug/L	ND	1.8J		
Potassium, Dissolved	ug/L	4860	4850	0	
Selenium, Dissolved	ug/L	ND	ND		
Silver, Dissolved	ug/L	ND	ND		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

SAMPLE DUPLICATE: 723181

Parameter	Units	30119080001 Result	Dup Result	RPD	Qualifiers
Sodium, Dissolved	ug/L	130000	129000	1	
Thallium, Dissolved	ug/L	ND	ND		
Vanadium, Dissolved	ug/L	ND	.9J		
Zinc, Dissolved	ug/L	ND	3.2J		

SAMPLE DUPLICATE: 723184

Parameter	Units	30119098002 Result	Dup Result	RPD	Qualifiers
Aluminum, Dissolved	ug/L	ND	ND		
Antimony, Dissolved	ug/L	ND	ND		
Arsenic, Dissolved	ug/L	ND	ND		
Barium, Dissolved	ug/L	37.1	37.2	0	
Beryllium, Dissolved	ug/L	ND	ND		
Boron, Dissolved	ug/L	ND	7.2J		
Cadmium, Dissolved	ug/L	ND	ND		
Calcium, Dissolved	ug/L	13400	13400	0	
Chromium, Dissolved	ug/L	ND	ND		
Cobalt, Dissolved	ug/L	ND	ND		
Copper, Dissolved	ug/L	ND	ND		
Iron, Dissolved	ug/L	ND	16.1J		
Lead, Dissolved	ug/L	ND	ND		
Magnesium, Dissolved	ug/L	2460	2460	0	
Manganese, Dissolved	ug/L	ND	.88J		
Molybdenum, Dissolved	ug/L	ND	ND		
Nickel, Dissolved	ug/L	ND	ND		
Potassium, Dissolved	ug/L	953	963	1	
Selenium, Dissolved	ug/L	ND	ND		
Silver, Dissolved	ug/L	ND	ND		
Sodium, Dissolved	ug/L	2070	1940	7	
Thallium, Dissolved	ug/L	ND	ND		
Vanadium, Dissolved	ug/L	ND	ND		
Zinc, Dissolved	ug/L	ND	1.3J		

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

QC Batch: MSV/19440 Analysis Method: EPA 8260B
QC Batch Method: EPA 8260B Analysis Description: 8260 MSV UST-WATER
Associated Lab Samples: 30119053001, 30119053002, 30119053003, 30119053004, 30119053005

METHOD BLANK: 722297 Matrix: Water
Associated Lab Samples: 30119053001, 30119053002, 30119053003, 30119053004, 30119053005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	04/28/14 11:39	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	04/28/14 11:39	
Benzene	ug/L	ND	1.0	04/28/14 11:39	
Ethylbenzene	ug/L	ND	1.0	04/28/14 11:39	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	04/28/14 11:39	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/28/14 11:39	
Naphthalene	ug/L	ND	2.0	04/28/14 11:39	
Toluene	ug/L	ND	1.0	04/28/14 11:39	
Xylene (Total)	ug/L	ND	3.0	04/28/14 11:39	
1,2-Dichloroethane-d4 (S)	%	103	77-119	04/28/14 11:39	
4-Bromofluorobenzene (S)	%	96	85-115	04/28/14 11:39	
Toluene-d8 (S)	%	106	85-115	04/28/14 11:39	

METHOD BLANK: 722485 Matrix: Water
Associated Lab Samples: 30119053001, 30119053002, 30119053003, 30119053004, 30119053005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trimethylbenzene	ug/L	ND	1.0	04/28/14 23:26	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	04/28/14 23:26	
Benzene	ug/L	ND	1.0	04/28/14 23:26	
Ethylbenzene	ug/L	ND	1.0	04/28/14 23:26	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	04/28/14 23:26	
Methyl-tert-butyl ether	ug/L	ND	1.0	04/28/14 23:26	
Naphthalene	ug/L	ND	2.0	04/28/14 23:26	
Toluene	ug/L	ND	1.0	04/28/14 23:26	
Xylene (Total)	ug/L	ND	3.0	04/28/14 23:26	
1,2-Dichloroethane-d4 (S)	%	103	77-119	04/28/14 23:26	
4-Bromofluorobenzene (S)	%	101	85-115	04/28/14 23:26	
Toluene-d8 (S)	%	105	85-115	04/28/14 23:26	

LABORATORY CONTROL SAMPLE: 722298

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.1	100	64-116	
1,3,5-Trimethylbenzene	ug/L	20	19.5	97	61-114	
Benzene	ug/L	20	20.7	104	66-122	
Ethylbenzene	ug/L	20	16.9	85	69-119	
Isopropylbenzene (Cumene)	ug/L	20	20.5	103	68-126	
Methyl-tert-butyl ether	ug/L	20	16.9	85	58-131	

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QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

LABORATORY CONTROL SAMPLE: 722298

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Naphthalene	ug/L	20	17.5	87	51-123	
Toluene	ug/L	20	19.2	96	72-115	
Xylene (Total)	ug/L	60	53.6	89	70-123	
1,2-Dichloroethane-d4 (S)	%			107	77-119	
4-Bromofluorobenzene (S)	%			101	85-115	
Toluene-d8 (S)	%			102	85-115	

LABORATORY CONTROL SAMPLE: 722486

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.5	102	64-116	
1,3,5-Trimethylbenzene	ug/L	20	20.4	102	61-114	
Benzene	ug/L	20	21.5	107	66-122	
Ethylbenzene	ug/L	20	18.3	92	69-119	
Isopropylbenzene (Cumene)	ug/L	20	23.1	116	68-126	
Methyl-tert-butyl ether	ug/L	20	17.3	87	58-131	
Naphthalene	ug/L	20	23.9	120	51-123	
Toluene	ug/L	20	20.2	101	72-115	
Xylene (Total)	ug/L	60	55.6	93	70-123	
1,2-Dichloroethane-d4 (S)	%			101	77-119	
4-Bromofluorobenzene (S)	%			102	85-115	
Toluene-d8 (S)	%			101	85-115	

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Pace Analytical Services, Inc.
1638 Roseytown Road - Suites 2,3,4
Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA

Project: UPA Bradford M-061
Pace Project No.: 30119053

QC Batch: WETA/16194 Analysis Method: EPA 410.4
QC Batch Method: EPA 410.4 Analysis Description: 410.4 COD
Associated Lab Samples: 30119053002

METHOD BLANK: 723372 Matrix: Water
Associated Lab Samples: 30119053002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	04/30/14 10:35	

METHOD BLANK: 723374 Matrix: Water
Associated Lab Samples: 30119053002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Chemical Oxygen Demand	mg/L	ND	25.0	04/30/14 10:35	

LABORATORY CONTROL SAMPLE: 723373

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	300	294	98	90-110	

MATRIX SPIKE SAMPLE: 723375

Parameter	Units	30118978001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Chemical Oxygen Demand	mg/L	9.7J	150	158	99	90-110	

SAMPLE DUPLICATE: 723376

Parameter	Units	30118978001 Result	Dup Result	RPD	Qualifiers
Chemical Oxygen Demand	mg/L	9.7J	11.9J		

REPORT OF LABORATORY ANALYSIS

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Greensburg, PA 15601
(724)850-5600

QUALIFIERS

Project: UPA Bradford M-061
Pace Project No.: 30119053

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

BATCH QUALIFIERS

Batch: MSV/19440

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

ANALYTE QUALIFIERS

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

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Greensburg, PA 15601
(724)850-5600

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: UPA Bradford M-061
Pace Project No.: 30119053

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
30119053002	**MW-1R VEGE**	EPA 3005A	MPRP/12873	EPA 6010B	ICP/12216
30119053002	**MW-1R VEGE**	EPA 3005A	MPRP/12881	EPA 6010B	ICP/12223
30119053002	**MW-1R VEGE**	EPA 7470A	MERP/5403	EPA 7470A	MERC/5183
30119053002	**MW-1R VEGE**	EPA 7470A	MERP/5402	EPA 7470A	MERC/5182
30119053001	**MW-1R Pump test**	EPA 8260B	MSV/19440		
30119053002	**MW-1R VEGE**	EPA 8260B	MSV/19440		
30119053003	**MW-1R TPE**	EPA 8260B	MSV/19440		
30119053004	**MW-9 Pump test**	EPA 8260B	MSV/19440		
30119053005	**MW-9 VEGE**	EPA 8260B	MSV/19440		
30119053002	**MW-1R VEGE**	EPA 410.4	WETA/16194		

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CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Pace Analytical®
www.pacelabs.com

Page: of

1794848

Section A Required Client Information:

Company: GES
Address: 301 Commerce Park Drive
Cranberry Twp, PA 16066
Email To:
Phone: 800-267-2549 Fax:
Requested Due Date/TAT: Standard

Section B Required Project Information:

Report To: elettrick@gesonline.com
Copy To: jamodeo@gesonline.com
cconte@gesonline.com
Purchase Order No.:
Project Name: UPA Bradford M-061
Project Number:

Section C Invoice Information:

Attention: Erin Letrick
Company Name: GES
Address:
Pace Quote Reference:
Pace Project Manager:
Pace Profile #:

REGULATORY AGENCY

☐ NPDES ☐ GROUND WATER ☐ DRINKING WATER
☐ UST ☐ RCRA ☐ OTHER _____

Site Location STATE:

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

Matrix Codes MATRIX / CODE

Drinking Water	DW
Water	WT
Waste Water	WW
Product	P
Soil/Solid	SL
Oil	OL
Wipe	WP
Air	AR
Tissue	TS
Other	OT

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED: COMPOSITE START DATE	COLLECTED: COMPOSITE START TIME	COLLECTED: COMPOSITE END/GRAB DATE	COLLECTED: COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test Y/N	PA Unleaded (Revised)	Total Metals	Dissolved Metals	COD	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	MW-1R pump test	WT	G	4/22	1140				3				X						X					0119053
2	MW-1R VEGE	WT	G	4/22	1410				6	X	X	X	X						X	X	X	X		
3	MW-1R TPE	WT	G	4/22	1715				3				X						X					
4	MW-9 pump test	WT	G	4/23	1130				3				X						X					
5	MW-9 VEGE	WT	G	4/23	1415				3				X						X					
6																								
7																								
8																								
9																								
10																								
11																								
12																								

Requested Analysis Filtered (Y/N)

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
1 ppb detection limit	Caitlin Conte/GES	4/24/14	1900	GES sample receiving	4/24/14	1900				
	Caitlin Conte/GES	4/24/14	1900	Pace	4-25-14	5:15				
	Pace 4-25-14	5-45		Scott Anstis	4-25-14	1745	0.1	Y	Y	Y

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Caitlin Conte
SIGNATURE of SAMPLER: Caitlin Conte
DATE Signed (MM/DD/YY): 04/24/14

ORIGINAL

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

F-ALL-Q-020rev.07, 15-May-2007

JSH

Sample Condition Upon Receipt

Pace Analytical

Client Name: GES

Project # 30119053

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace Other _____

Tracking #: _____

Optional
Proj. Due Date:
Proj. Name:

Custody Seal on Cooler/Box Present: ☒ yes ☐ no Seals intact: ☒ yes ☐ no

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other _____

Thermometer Used 6 (7) 8 Type of Ice: (Wet) Blue None ☒ Samples on ice, cooling process has begun

Cooler Temperature 0 t Biological Tissue is Frozen: Yes No

Date and Initials of person examining contents: SRA 4-25-14

Temp should be above freezing to 6°C

Comments:

Chain of Custody Present:	☒Yes	☐No	☐N/A	1.
Chain of Custody Filled Out:	☒Yes	☐No	☐N/A	2.
Chain of Custody Relinquished:	☒Yes	☐No	☐N/A	3.
Sampler Name & Signature on COC:	☒Yes	☐No	☐N/A	4.
Samples Arrived within Hold Time:	☒Yes	☐No	☐N/A	5.
Short Hold Time Analysis (<72hr):	☐Yes	☒No	☐N/A	6.
Rush Turn Around Time Requested:	☐Yes	☒No	☐N/A	7.
Sufficient Volume:	☒Yes	☐No	☐N/A	8.
Correct Containers Used:	☒Yes	☐No	☐N/A	9.
-Pace Containers Used:	☒Yes	☐No	☐N/A	
Containers Intact:	☒Yes	☐No	☐N/A	10.
Filtered volume received for Dissolved tests	☐Yes	☒No	☐N/A	11.
Sample Labels match COC:	☒Yes	☐No	☐N/A	12.
-Includes date/time/ID/Analysis Matrix: wt				
All containers needing preservation have been checked.	☒Yes	☐No	☐N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation.	☒Yes	☐No	☐N/A	
exceptions: VOA, coliform, TOC, O&G, WI-DRO (water)	☒Yes	☐No		Initial when completed: SRA — Lot # of added preservative:
Samples checked for dechlorination:	☒Yes	☐No	☐N/A	14.
Headspace in VOA Vials (>6mm):	☒Yes	☐No	☐N/A	15. #1 1/3, #3 1/3, #4 2/3, #5 1/3
Trip Blank Present:	☐Yes	☒No	☐N/A	16.
Trip Blank Custody Seals Present	☐Yes	☐No	☒N/A	
Pace Trip Blank Lot # (if purchased):				

Client Notification/ Resolution: Field Data Required? Y / N

Person Contacted: _____ Date/Time: _____

Comments/ Resolution: _____

Project Manager Review: Rachel S Christner **Date:** 4/28/14

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i e out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical

page 2

Project Number: 30119053

Client Name: SES

Item No.	001	002	003	005								
Matrix Code	wt	→	→	→								
Glass Jar (120 / 250 / 500 / 1L)												
Soil kit (2 SB, 1M, soil jar)												
Chemistry (250 / 500 / 1L)												
Organics (1L)												
Nutrient (250 / 500)		—										
Phenolics (250 ml)												
TOC (40 ml / 250 ml)												
TOX (250 ml)												
Total Metals		—										
Dissolved Metals preserved Y (N)		—										
O & G (1L)												
TPH (1L)												
VOA (40 ml 30 ml)	3	→		→								
Cyanide (250 ml)												
Sulfide (500 ml)												
Bacteria (120 ml)												
Wipes / swipe/ smear/ filter												
Radchem Nalgene (125 / 250 / 500 / 1L)												
Radchem Nalgene (1/2 gal. / 1 gal.L)												
Cubitainer (500 ml / 4L)												
Ziploc												
Other												
Other												
Other												

SCURF Back (C016-4 15May2012).xls

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING



ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Tel: (615)726-0177

TestAmerica Job ID: 490-51845-1
Client Project/Site: UPA - Bradford M-061

For:
Groundwater & Environmental Services Inc
301 Commerce Park Drive
Cranberry Township, Pennsylvania 16066

Attn: Caitlin Conte

Cathy Gartner

Authorized for release by:
5/8/2014 10:06:39 AM

Cathy Gartner, Project Manager I
(615)726-0177
cathy.gartner@testamericainc.com

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

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Sample Summary

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
490-51845-1	MW-1R Mid Vac VEGE	Air - Tedlar Bag	04/22/14 13:05	04/28/14 10:21
490-51845-2	MW-1R TPE	Air - Tedlar Bag	04/22/14 15:40	04/28/14 10:21
490-51845-3	MW-9 VEGE	Air - Tedlar Bag	04/23/14 14:20	04/28/14 10:21
490-51845-4	MW-9 TPE	Air - Tedlar Bag	04/23/14 16:15	04/28/14 10:21

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Job ID: 490-51845-1

Laboratory: TestAmerica Nashville

Narrative

Job Narrative
490-51845-1

Comments
No additional comments.

Receipt
The samples were received on 4/28/2014 10:21 AM; the samples arrived in good condition, properly preserved and, where required, on ice.

GC/MS VOA
Method(s) EPA-18: Sample were analyzed outside of 72 hours; however, Pennsylvania does not have a 72 hour hold time requirement.

No other analytical or quality issues were noted.

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
H	Sample was prepped or analyzed beyond the specified holding time

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CNF	Contains no Free Liquid
DER	Duplicate error ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision level concentration
MDA	Minimum detectable activity
EDL	Estimated Detection Limit
MDC	Minimum detectable concentration
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative error ratio
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Client Sample ID: MW-1R Mid Vac VEGE
Date Collected: 04/22/14 13:05
Date Received: 04/28/14 10:21

Lab Sample ID: 490-51845-1
Matrix: Air - Tedlar Bag

Method: EPA-18 - Volatile Organic Compounds

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**1.65**	**H**	1.00	1.00	mg/m3			04/26/14 12:11	1
1,3,5-Trimethylbenzene	ND	H	1.00	1.00	mg/m3			04/26/14 12:11	1
Benzene	ND	H	1.00	1.00	mg/m3			04/26/14 12:11	1
Ethylbenzene	**1.38**	**H**	1.00	1.00	mg/m3			04/26/14 12:11	1
Methyl tert-butyl ether	ND	H	1.00	1.00	mg/m3			04/26/14 12:11	1
Toluene	ND	H	1.00	1.00	mg/m3			04/26/14 12:11	1
Total Hydrocarbons	**960**	**H**	10.0	10.0	mg/m3			04/26/14 12:11	1
Xylenes, Total	**6.73**	**H**	2.00	2.00	mg/m3			04/26/14 12:11	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**0.336**	**H**	0.203	0.203	ppm v/v			04/26/14 12:11	1
1,3,5-Trimethylbenzene	ND	H	0.203	0.203	ppm v/v			04/26/14 12:11	1
Benzene	ND	H	0.313	0.313	ppm v/v			04/26/14 12:11	1
Ethylbenzene	**0.318**	**H**	0.230	0.230	ppm v/v			04/26/14 12:11	1
Methyl tert-butyl ether	ND	H	0.277	0.277	ppm v/v			04/26/14 12:11	1
Toluene	ND	H	0.265	0.265	ppm v/v			04/26/14 12:11	1
Total Hydrocarbons	**235**	**H**	2.45	2.45	ppm v/v			04/26/14 12:11	1
Xylenes, Total	**1.55**	**H**	0.461	0.461	ppm v/v			04/26/14 12:11	1

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Client Sample ID: MW-1R TPE
Date Collected: 04/22/14 15:40
Date Received: 04/28/14 10:21

Lab Sample ID: 490-51845-2
Matrix: Air - Tedlar Bag

Method: EPA-18 - Volatile Organic Compounds

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**5.27**	**H**	1.00	1.00	mg/m3			04/26/14 12:29	1
1,3,5-Trimethylbenzene	ND	H	1.00	1.00	mg/m3			04/26/14 12:29	1
Benzene	**1.67**	**H**	1.00	1.00	mg/m3			04/26/14 12:29	1
Ethylbenzene	**1.57**	**H**	1.00	1.00	mg/m3			04/26/14 12:29	1
Methyl tert-butyl ether	ND	H	1.00	1.00	mg/m3			04/26/14 12:29	1
Toluene	ND	H	1.00	1.00	mg/m3			04/26/14 12:29	1
Total Hydrocarbons	**460**	**H**	10.0	10.0	mg/m3			04/26/14 12:29	1
Xylenes, Total	**7.47**	**H**	2.00	2.00	mg/m3			04/26/14 12:29	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	**1.07**	**H**	0.203	0.203	ppm v/v			04/26/14 12:29	1
1,3,5-Trimethylbenzene	ND	H	0.203	0.203	ppm v/v			04/26/14 12:29	1
Benzene	**0.523**	**H**	0.313	0.313	ppm v/v			04/26/14 12:29	1
Ethylbenzene	**0.362**	**H**	0.230	0.230	ppm v/v			04/26/14 12:29	1
Methyl tert-butyl ether	ND	H	0.277	0.277	ppm v/v			04/26/14 12:29	1
Toluene	ND	H	0.265	0.265	ppm v/v			04/26/14 12:29	1
Total Hydrocarbons	**112**	**H**	2.45	2.45	ppm v/v			04/26/14 12:29	1
Xylenes, Total	**1.72**	**H**	0.461	0.461	ppm v/v			04/26/14 12:29	1

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Client Sample ID: MW-9 VEGE
Date Collected: 04/23/14 14:20
Date Received: 04/28/14 10:21

Lab Sample ID: 490-51845-3
Matrix: Air - Tedlar Bag

Method: EPA-18 - Volatile Organic Compounds

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		1.00	1.00	mg/m3			04/26/14 10:36	1
1,3,5-Trimethylbenzene	ND		1.00	1.00	mg/m3			04/26/14 10:36	1
Benzene	ND		1.00	1.00	mg/m3			04/26/14 10:36	1
Ethylbenzene	ND		1.00	1.00	mg/m3			04/26/14 10:36	1
Methyl tert-butyl ether	ND		1.00	1.00	mg/m3			04/26/14 10:36	1
Toluene	ND		1.00	1.00	mg/m3			04/26/14 10:36	1
Total Hydrocarbons	ND		10.0	10.0	mg/m3			04/26/14 10:36	1
Xylenes, Total	ND		2.00	2.00	mg/m3			04/26/14 10:36	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		0.203	0.203	ppm v/v			04/26/14 10:36	1
1,3,5-Trimethylbenzene	ND		0.203	0.203	ppm v/v			04/26/14 10:36	1
Benzene	ND		0.313	0.313	ppm v/v			04/26/14 10:36	1
Ethylbenzene	ND		0.230	0.230	ppm v/v			04/26/14 10:36	1
Methyl tert-butyl ether	ND		0.277	0.277	ppm v/v			04/26/14 10:36	1
Toluene	ND		0.265	0.265	ppm v/v			04/26/14 10:36	1
Total Hydrocarbons	ND		2.45	2.45	ppm v/v			04/26/14 10:36	1
Xylenes, Total	ND		0.461	0.461	ppm v/v			04/26/14 10:36	1

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Client Sample ID: MW-9 TPE
Date Collected: 04/23/14 16:15
Date Received: 04/28/14 10:21

Lab Sample ID: 490-51845-4
Matrix: Air - Tedlar Bag

Method: EPA-18 - Volatile Organic Compounds

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		1.00	1.00	mg/m3			04/26/14 10:53	1
1,3,5-Trimethylbenzene	ND		1.00	1.00	mg/m3			04/26/14 10:53	1
Benzene	ND		1.00	1.00	mg/m3			04/26/14 10:53	1
Ethylbenzene	ND		1.00	1.00	mg/m3			04/26/14 10:53	1
Methyl tert-butyl ether	ND		1.00	1.00	mg/m3			04/26/14 10:53	1
Toluene	ND		1.00	1.00	mg/m3			04/26/14 10:53	1
Total Hydrocarbons	ND		10.0	10.0	mg/m3			04/26/14 10:53	1
Xylenes, Total	ND		2.00	2.00	mg/m3			04/26/14 10:53	1

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		0.203	0.203	ppm v/v			04/26/14 10:53	1
1,3,5-Trimethylbenzene	ND		0.203	0.203	ppm v/v			04/26/14 10:53	1
Benzene	ND		0.313	0.313	ppm v/v			04/26/14 10:53	1
Ethylbenzene	ND		0.230	0.230	ppm v/v			04/26/14 10:53	1
Methyl tert-butyl ether	ND		0.277	0.277	ppm v/v			04/26/14 10:53	1
Toluene	ND		0.265	0.265	ppm v/v			04/26/14 10:53	1
Total Hydrocarbons	ND		2.45	2.45	ppm v/v			04/26/14 10:53	1
Xylenes, Total	ND		0.461	0.461	ppm v/v			04/26/14 10:53	1

Method: EPA-18 - Volatile Organic Compounds

Lab Sample ID: MB 660-147883/8
Matrix: Air - Tedlar Bag
Analysis Batch: 147883

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		1.00	1.00	mg/m3			04/25/14 19:38	1
1,3,5-Trimethylbenzene	ND		1.00	1.00	mg/m3			04/25/14 19:38	1
Benzene	ND		1.00	1.00	mg/m3			04/25/14 19:38	1
Ethylbenzene	ND		1.00	1.00	mg/m3			04/25/14 19:38	1
Methyl tert-butyl ether	ND		1.00	1.00	mg/m3			04/25/14 19:38	1
Toluene	ND		1.00	1.00	mg/m3			04/25/14 19:38	1
Total Hydrocarbons	ND		10.0	10.0	mg/m3			04/25/14 19:38	1
Xylenes, Total	ND		2.00	2.00	mg/m3			04/25/14 19:38	1

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trimethylbenzene	ND		0.203	0.203	ppm v/v			04/25/14 19:38	1
1,3,5-Trimethylbenzene	ND		0.203	0.203	ppm v/v			04/25/14 19:38	1
Benzene	ND		0.313	0.313	ppm v/v			04/25/14 19:38	1
Ethylbenzene	ND		0.230	0.230	ppm v/v			04/25/14 19:38	1
Methyl tert-butyl ether	ND		0.277	0.277	ppm v/v			04/25/14 19:38	1
Toluene	ND		0.265	0.265	ppm v/v			04/25/14 19:38	1
Total Hydrocarbons	ND		2.45	2.45	ppm v/v			04/25/14 19:38	1
Xylenes, Total	ND		0.461	0.461	ppm v/v			04/25/14 19:38	1

Lab Sample ID: LCS 660-147883/4
Matrix: Air - Tedlar Bag
Analysis Batch: 147883

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	20.0	25.51		mg/m3		128	50 - 150
1,3,5-Trimethylbenzene	20.0	24.47		mg/m3		122	50 - 150
Benzene	20.0	21.40		mg/m3		107	50 - 150
Ethylbenzene	20.0	23.17		mg/m3		116	50 - 150
Methyl tert-butyl ether	20.0	20.38		mg/m3		102	50 - 150
Toluene	20.0	20.52		mg/m3		103	50 - 150
Xylenes, Total	60.0	71.24		mg/m3		119	50 - 150

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2,4-Trimethylbenzene	4.07	5.189		ppm v/v		128	50 - 150
1,3,5-Trimethylbenzene	4.07	4.978		ppm v/v		122	50 - 150
Benzene	6.26	6.698		ppm v/v		107	50 - 150
Ethylbenzene	4.61	5.337		ppm v/v		116	50 - 150
Methyl tert-butyl ether	5.55	5.652		ppm v/v		102	50 - 150
Toluene	5.31	5.445		ppm v/v		103	50 - 150
Xylenes, Total	13.8	16.41		ppm v/v		119	50 - 150

Lab Sample ID: LCSD 660-147883/5
Matrix: Air - Tedlar Bag
Analysis Batch: 147883

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	20.0	21.51		mg/m3		108	50 - 150	17	30
1,3,5-Trimethylbenzene	20.0	20.05		mg/m3		100	50 - 150	20	30

Method: EPA-18 - Volatile Organic Compounds (Continued)

Lab Sample ID: LCSD 660-147883/5
Matrix: Air - Tedlar Bag
Analysis Batch: 147883

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	20.0	19.16		mg/m3		96	50 - 150	11	30
Ethylbenzene	20.0	19.30		mg/m3		97	50 - 150	18	30
Methyl tert-butyl ether	20.0	18.59		mg/m3		93	50 - 150	9	30
Toluene	20.0	17.06		mg/m3		85	50 - 150	18	30
Xylenes, Total	60.0	58.49		mg/m3		97	50 - 150	20	

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
1,2,4-Trimethylbenzene	4.07	4.375		ppm v/v		108	50 - 150	17	30
1,3,5-Trimethylbenzene	4.07	4.079		ppm v/v		100	50 - 150	20	30
Benzene	6.26	5.997		ppm v/v		96	50 - 150	11	30
Ethylbenzene	4.61	4.446		ppm v/v		97	50 - 150	18	30
Methyl tert-butyl ether	5.55	5.157		ppm v/v		93	50 - 150	9	30
Toluene	5.31	4.527		ppm v/v		85	50 - 150	18	30
Xylenes, Total	13.8	13.47		ppm v/v		97	50 - 150	20	

QC Association Summary

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Air - GC/MS VOA

Analysis Batch: 147883

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
490-51845-1	MW-1R Mid Vac VEGE	Total/NA	Air - Tedlar Bag	EPA-18	
490-51845-2	MW-1R TPE	Total/NA	Air - Tedlar Bag	EPA-18	
490-51845-3	MW-9 VEGE	Total/NA	Air - Tedlar Bag	EPA-18	
490-51845-4	MW-9 TPE	Total/NA	Air - Tedlar Bag	EPA-18	
LCS 660-147883/4	Lab Control Sample	Total/NA	Air - Tedlar Bag	EPA-18	
LCSD 660-147883/5	Lab Control Sample Dup	Total/NA	Air - Tedlar Bag	EPA-18	
MB 660-147883/8	Method Blank	Total/NA	Air - Tedlar Bag	EPA-18	

Lab Chronicle

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Client Sample ID: MW-1R Mid Vac VEGE

Lab Sample ID: 490-51845-1

Date Collected: 04/22/14 13:05

Matrix: Air - Tedlar Bag

Date Received: 04/28/14 10:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA-18		1	147883	04/26/14 12:11	LBS	TAL TAM

Client Sample ID: MW-1R TPE

Lab Sample ID: 490-51845-2

Date Collected: 04/22/14 15:40

Matrix: Air - Tedlar Bag

Date Received: 04/28/14 10:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA-18		1	147883	04/26/14 12:29	LBS	TAL TAM

Client Sample ID: MW-9 VEGE

Lab Sample ID: 490-51845-3

Date Collected: 04/23/14 14:20

Matrix: Air - Tedlar Bag

Date Received: 04/28/14 10:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA-18		1	147883	04/26/14 10:36	LBS	TAL TAM

Client Sample ID: MW-9 TPE

Lab Sample ID: 490-51845-4

Date Collected: 04/23/14 16:15

Matrix: Air - Tedlar Bag

Date Received: 04/28/14 10:21

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	EPA-18		1	147883	04/26/14 10:53	LBS	TAL TAM

Laboratory References:

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Method Summary

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Method	Method Description	Protocol	Laboratory
EPA-18	Volatile Organic Compounds	EPA	TAL TAM

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL TAM = TestAmerica Tampa, 6712 Benjamin Road, Suite 100, Tampa, FL 33634, TEL (813)885-7427

Certification Summary

Client: Groundwater & Environmental Services Inc
Project/Site: UPA - Bradford M-061

TestAmerica Job ID: 490-51845-1

Laboratory: TestAmerica Nashville

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
A2LA	ISO/IEC 17025		0453.07	12-31-15
Alaska (UST)	State Program	10	UST-087	07-24-14
Arizona	State Program	9	AZ0473	05-05-15
Arkansas DEQ	State Program	6	88-0737	04-25-15
California	NELAP	9	1168CA	10-31-14
Connecticut	State Program	1	PH-0220	12-31-15
Florida	NELAP	4	E87358	06-30-14
Illinois	NELAP	5	200010	12-09-14
Iowa	State Program	7	131	05-01-14 *
Kansas	NELAP	7	E-10229	10-31-14
Kentucky (UST)	State Program	4	19	06-30-14
Louisiana	NELAP	6	30613	06-30-14
Maryland	State Program	3	316	03-31-15
Massachusetts	State Program	1	M-TN032	06-30-14
Minnesota	NELAP	5	047-999-345	12-31-14
Mississippi	State Program	4	N/A	06-30-14
Montana (UST)	State Program	8	NA	02-24-20
Nevada	State Program	9	TN00032	07-31-14
New Hampshire	NELAP	1	2963	10-09-14
New Jersey	NELAP	2	TN965	06-30-14
New York	NELAP	2	11342	03-31-15
North Carolina DENR	State Program	4	387	12-31-14
North Dakota	State Program	8	R-146	06-30-14
Ohio VAP	State Program	5	CL0033	10-16-15
Oklahoma	State Program	6	9412	08-31-14
Oregon	NELAP	10	TN200001	04-29-15
Pennsylvania	NELAP	3	68-00585	06-30-14
Rhode Island	State Program	1	LAO00268	12-30-14
South Carolina	State Program	4	84009 (002)	02-23-17
Tennessee	State Program	4	2008	02-23-17
Texas	NELAP	6	T104704077	08-31-14
USDA	Federal		S-48469	10-30-16
Utah	NELAP	8	TN00032	07-31-14
Virginia	NELAP	3	460152	06-14-14
Washington	State Program	10	C789	07-19-14
West Virginia DEP	State Program	3	219	02-28-15
Wisconsin	State Program	5	998020430	08-31-14
Wyoming (UST)	A2LA	8	453.07	12-31-15

Laboratory: TestAmerica Tampa

All certifications held by this laboratory are listed. Not all certifications are applicable to this report.

Authority	Program	EPA Region	Certification ID	Expiration Date
Alabama	State Program	4	40610	06-30-14
Florida	NELAP	4	E84282	06-30-14
Georgia	State Program	4	905	06-30-14
USDA	Federal		P330-11-00177	04-20-14 *

* Expired certification is currently pending renewal and is considered valid.

TestAmerica Nashville
2960 Foster Creighton Drive
Nashville, TN 37204
Phone (615) 726-0177 Fax (615) 726-3404

Chain of Custody Record

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Client Information	Sampler: C.Conte	Lab PM: Gartner, Cathy	Carrier Tracking No(s):	COC No: 490-17123-1220.10
Client Contact: Caitlin Conte	Phone: 800-267-2549 x 3628	E-Mail: cathy.gartner@testamericainc.com		Page: Page 10 of 10
Company: Groundwater & Environmental Services Inc				Job #:
Address: 317 Commerce Park Drive	Due Date Requested:			
City: Cranberry Township	TAT Requested (days): Standard			
State, Zip: PA, 16066				
Phone:	PO #: Purchase Order not required			
Email:	WO #:			
Project Name: UPA Bradford M-061	Project #:			
Site:	SSOW#:			

Analysis Requested

Preservation Codes:

A - HCL	M - Hexane
B - NaOH	N - None
C - Zn Acetate	O - AsNaO2
D - Nitric Acid	P - Na2O4S
E - NaHSO4	Q - Na2SO3
F - MeOH	R - Na2S2SO3
G - Amchlor	S - H2SO4
H - Ascorbic Acid	T - TSP Dodecahydrate
I - Ice	U - Acetone
J - DI Water	V - MCAA
K - EDTA	W - ph 4-5
L - EDA	Z - other (specify)

Other:

Sample Identification	Sample Date	Sample Time	Sample Type (C=comp, G=grab)	Matrix (W=water, S=solid, O=waste/oil, BT=Tissue, A=Air)	Field Filtered Sample (Yes or No)	Perform MS/MSD (Yes or No)	EPA_18 - (MOD) EPA 18 BTEX/MTBE/TPH/TMBs	Total Number of containers	Special Instructions/Note:
	Preservation Code:						N		
MW-1R mid val VEGE	4/22	1305	G	A			X		
MW-1R TPE	4/22	1540	G	A			X		
MW-9 VEGE	4/23	1420	G	A			X		
MW-9R TPE	4/23	1615	G	A			X		

490-51845 Chain of Custody

Possible Hazard Identification
☐ Non-Hazard ☐ Flammable ☐ Skin Irritant ☐ Poison B ☐ Unknown ☐ Radiological

Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months

Deliverable Requested: I, II, III, IV, Other (specify)

Special Instructions/QC Requirements:

Empty Kit Relinquished by:	Date:	Time:	Method of Shipment:

Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company
Caitlin Conte	4/25/14 915	GES	Fedex	4/25/14 915	Fedex
Relinquished by:	Date/Time:	Company	Received by:	Date/Time: 4/26/14 1000	Company
Relinquished by:	Date/Time:	Company	Received by:	Date/Time:	Company

Custody Seals Intact: Δ Yes Δ No | Custody Seal No.: | Cooler Temperature(s) °C and Other Remarks:

5/8/2014

Login Sample Receipt Checklist

Client: Groundwater & Environmental Services Inc

Job Number: 490-51845-1

Login Number: 51845

List Number: 1

Creator: Gartner, Cathy

List Source: TestAmerica Nashville

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.		
The cooler's custody seal, if present, is intact.		
Sample custody seals, if present, are intact.		
The cooler or samples do not appear to have been compromised or tampered with.		
Samples were received on ice.		
Cooler Temperature is acceptable.		
Cooler Temperature is recorded.		
COC is present.		
COC is filled out in ink and legible.		
COC is filled out with all pertinent information.		
Is the Field Sampler's name present on COC?		
There are no discrepancies between the containers received and the COC.		
Samples are received within Holding Time.		
Sample containers have legible labels.		
Containers are not broken or leaking.		
Sample collection date/times are provided.		
Appropriate sample containers are used.		
Sample bottles are completely filled.		
Sample Preservation Verified.		
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs		
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").		
Multiphasic samples are not present.		
Samples do not require splitting or compositing.		
Residual Chlorine Checked.		

APPENDIX D

Engineering Calculations

ESTIMATED RADIUS-OF-INFLUENCE

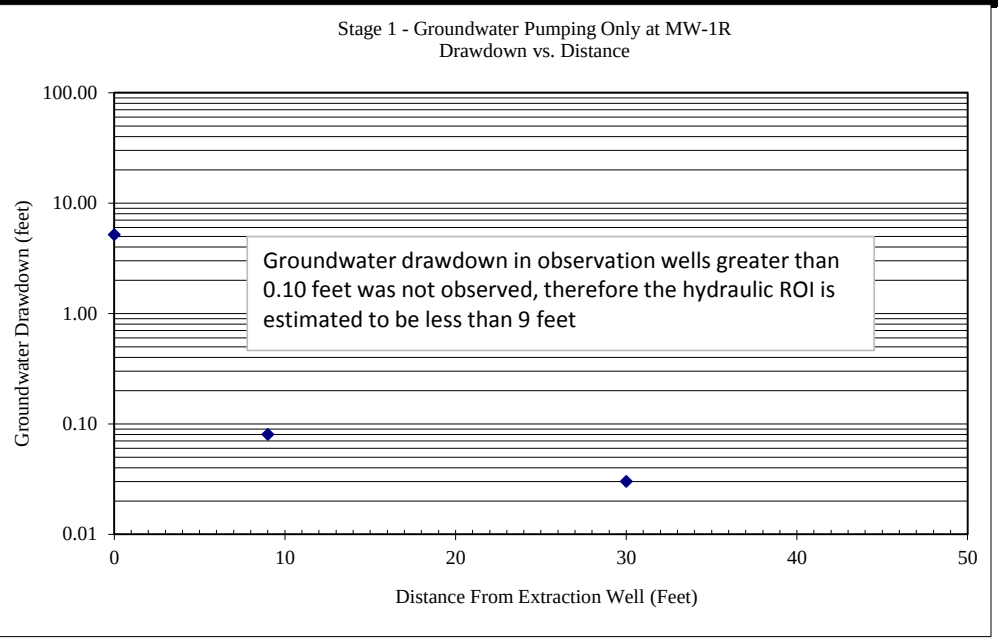
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 22, 2014

HYDRAULIC RADIUS OF INFLUENCE

Extraction Well	**MW-1R**
T Start:	10:23
T Finish:	11:57
T Data:	11:57

	Distance from MW-1R *(Feet)*	Change in Water Elevation *(Feet)*
MW-1R	0.00	5.15
MW-4	9.00	0.08
MW-6	21.00	0.00
MW-14	30.00	0.03
MW-5	41.00	0.00

Test Type:	Pump Test at MW-1R	
Applied Well Vac:	0.00	in w.c.
Gallons Pumped:	9.00	total gallons
Test Length:	94.00	mins
Pumping Rate:	0.10	gpm
PID Average:	NA	ppmV
Flow Rate Average:	NA	scfm
Radius of Influence:	NA	feet



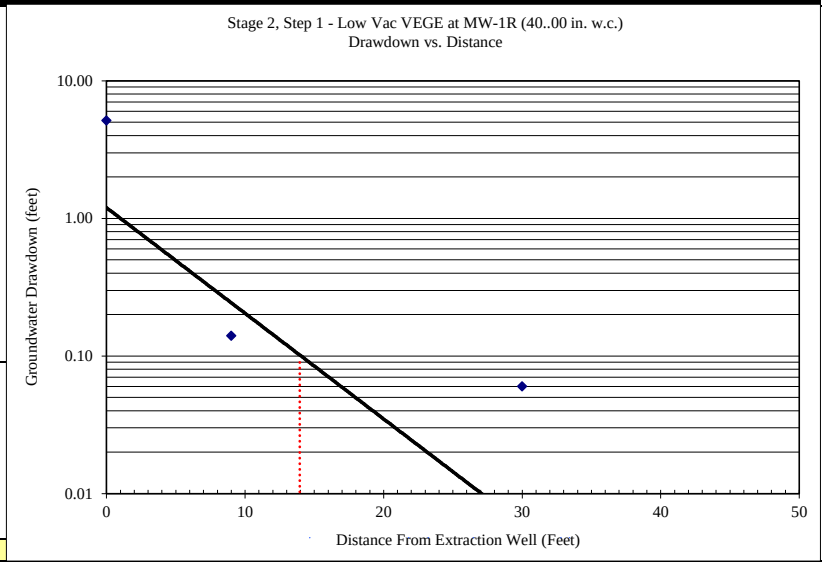
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 22, 2014

HYDRAULIC RADIUS OF INFLUENCE

Extraction Well	**MW-1R**
T Start:	12:01
T Finish:	12:53
T Data:	12:53

	Distance from MW-1R *(Feet)*	Change in Water Elevation *(Feet)*
MW-1R	0.00	5.14
MW-4	9.00	0.14
MW-6	21.00	0.00
MW-14	30.00	0.06
MW-5	41.00	0.00

Test Type:	VEGE at MW-1R	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac:	40.00	in w.c.
Gallons Pumped:	13	total gallons
Test Length:	52	mins
Pumping Rate:	0.25	gpm
PID Average:	45.60	ppmV
Flow Rate Average:	31.42	scfm
Radius of Influence:	14	feet

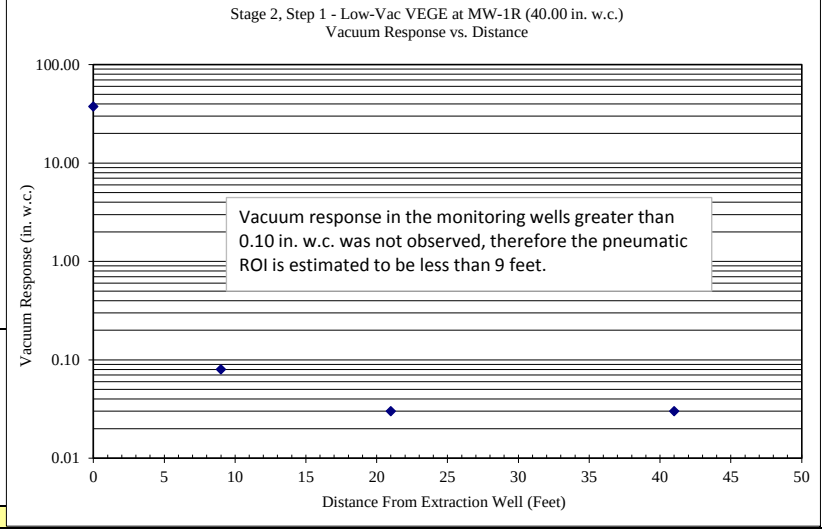


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-1R**
T Start:	12:01
T Finish	12:53
T Data	12:53

	Distance from MW-1R *(Feet)*	Vacuum Response (in w.c.)
MW-1R	0.00	37.53
MW-4	9.00	0.08
MW-6	21.00	0.03
MW-14	30.00	0.00
MW-5	41.00	0.03

Test Type:	VEGE at MW-1R	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac:	40.00	in w.c.
Gallons Pumped:	13.00	total gallons
Test Length:	52.00	mins
Pumping Rate:	0.25	gpm
PID Average:	45.60	ppmV
Flow Rate Average:	31.42	scfm
Radius of Influence:	NA	feet



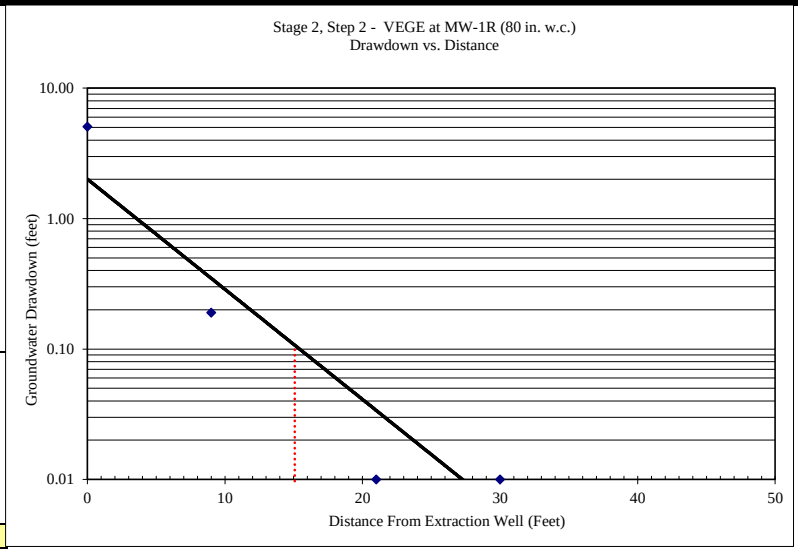
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 22, 2014

HYDRAULIC RADIUS OF INFLUENCE

Extraction Well:	**MW-1R**
T Start:	12:53
T Finish:	13:35
T Data:	13:35

	Distance from MW-1R *(Feet)*	Change in Water Elevation *(Feet)*
MW-1R	0.00	5.07
MW-4	9.00	0.19
MW-6	21.00	0.01
MW-14	30.00	0.01
MW-5	41.00	0.00

Test Type:	VEGE at MW-1R	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac	80.00	in w.c.
Gallons Pumped:	27	total gallons
Test Length:	42	mins
Pumping Rate:	0.64	gpm
PID Average:	129.40	ppmV
Flow Rate Average:	34.61	scfm
Radius of Influence:	15	feet

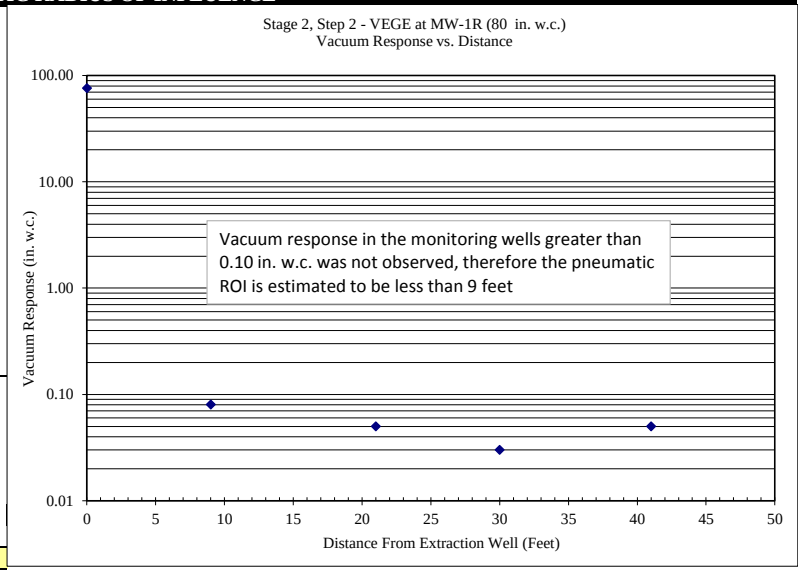


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-1R**
T Start:	12:53
T Finish:	13:35
T Data:	13:35

	Distance from MW-6R *(Feet)*	Vacuum Response (in w.c.)
MW-1R	0.00	75.87
MW-4	9.00	0.08
MW-6	21.00	0.05
MW-14	30.00	0.03
MW-5	41.00	0.05

Test Type:	VEGE at MW-1R	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac:	80.00	in w.c.
Gallons Pumped:	27.00	total gallons
Test Length:	42.00	mins
Pumping Rate:	0.64	gpm
PID Average:	129.40	ppmV
Flow Rate Average:	34.61	scfm
Radius of Influence:	NA	feet



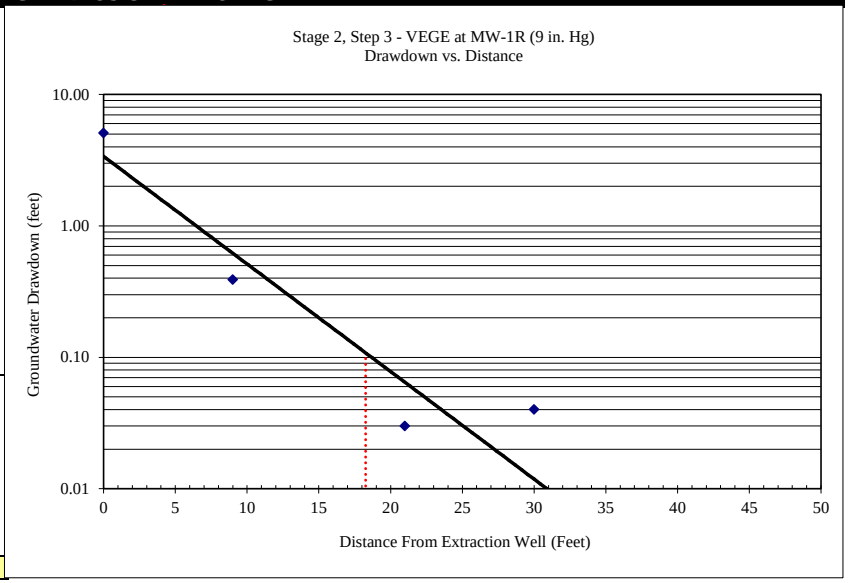
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 22, 2014

HYDRAULIC RADIUS OF INFLUENCE

TPE Well	**MW-1R**
T Start:	13:37
T Finish:	14:35
T Data:	14:35

	Distance from MW-1R *(Feet)*	Change in Water Elevation *(Feet)*
MW-1R	0.00	5.08
MW-4	9.00	0.39
MW-6	21.00	0.03
MW-14	30.00	0.04
MW-5	41.00	0.00

Test Type:	VEGE at MW-1R	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	9.00	in Hg
Gallons Pumped:	61.00	total gallons
Test Length:	58.00	mins
Pumping Rate:	1.05	gpm
PID Average:	167.05	ppmV
Flow Rate Average:	44.07	scfm
Radius of Influence:	18	feet

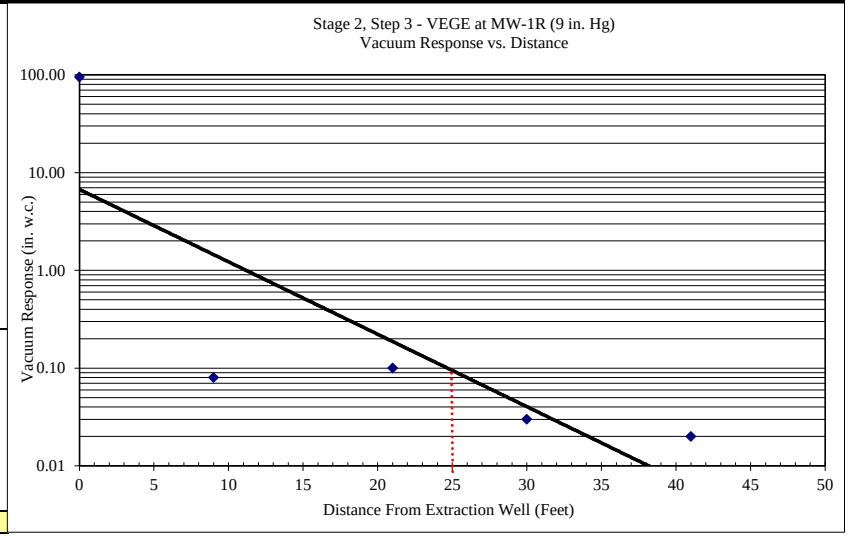


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-1R**
T Start:	13:37
T Finish	14:35
T Data	14:35

	Distance from MW-4R *(Feet)*	Vacuum Response (in w.c.)
MW-1R	0.00	95.04
MW-4	9.00	0.08
MW-6	21.00	0.10
MW-14	30.00	0.03
MW-5	41.00	0.02

Test Type:	VEGE at MW-1R	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	9.00	in Hg
Gallons Pumped:	61.00	total gallons
Test Length:	58.00	mins
Pumping Rate:	1.05	gpm
PID Average:	167.05	ppmV
Flow Rate Average:	44.07	scfm
Radius of Influence:	25	feet



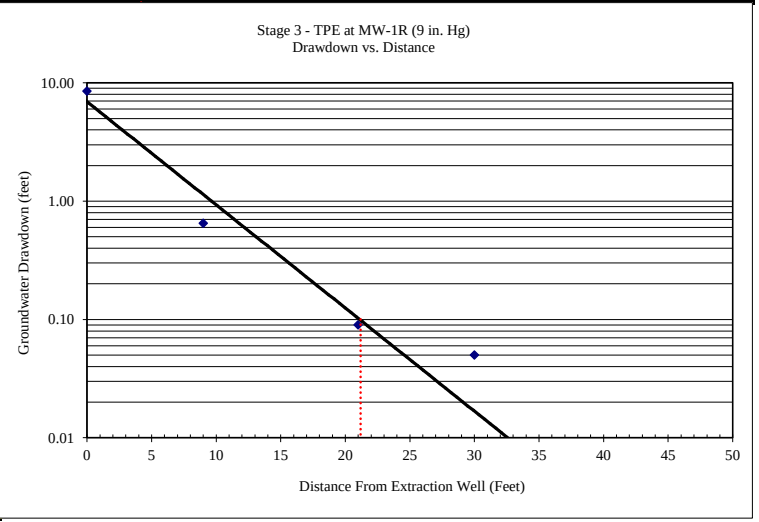
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 22, 2014

HYDRAULIC RADIUS OF INFLUENCE

TPE Well	**MW-1R**
T Start:	13:37
T Finish:	14:35
T Data:	14:35

	Distance from MW-1R *(Feet)*	Change in Water Elevation *(Feet)*
MW-1R	0.00	8.50
MW-4	9.00	0.65
MW-6	21.00	0.09
MW-14	30.00	0.05
MW-5	41.00	0.00

Test Type:	TPE at MW-1R	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	9.00	in Hg
Gallons Pumped:	61.00	total gallons
Test Length:	58.00	mins
Pumping Rate:	1.05	gpm
PID Average:	169.50	ppmV
Flow Rate Average:	29.66	scfm
Radius of Influence:	21	feet

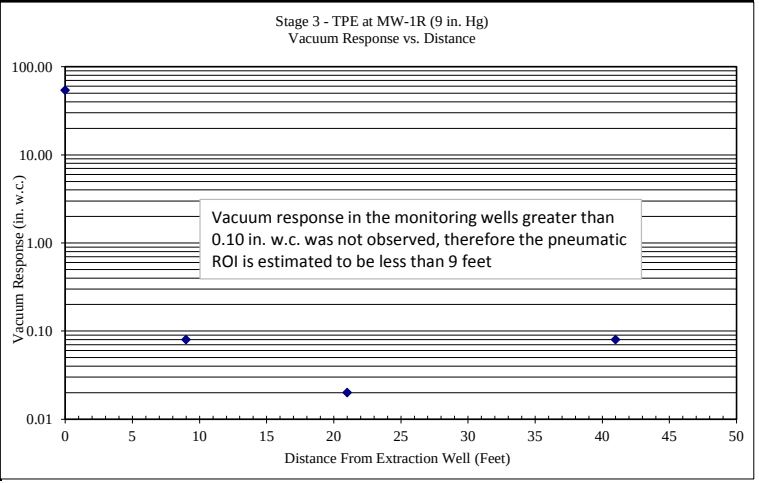


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-1R**
T Start:	13:37
T Finish	14:35
T Data	14:35

	Distance from MW-1R *(Feet)*	Vacuum Response (in w.c.)
MW-1R	0.00	54.27
MW-4	9.00	0.08
MW-6	21.00	0.02
MW-14	30.00	0.00
MW-5	41.00	0.08

Test Type:	TPE at MW-1R	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	9.00	in Hg
Gallons Pumped:	61.00	total gallons
Test Length:	58.00	mins
Pumping Rate:	1.05	gpm
PID Average:	169.50	ppmV
Flow Rate Average:	29.66	scfm
Radius of Influence:	<9	feet



ESTIMATED RADIUS-OF-INFLUENCE

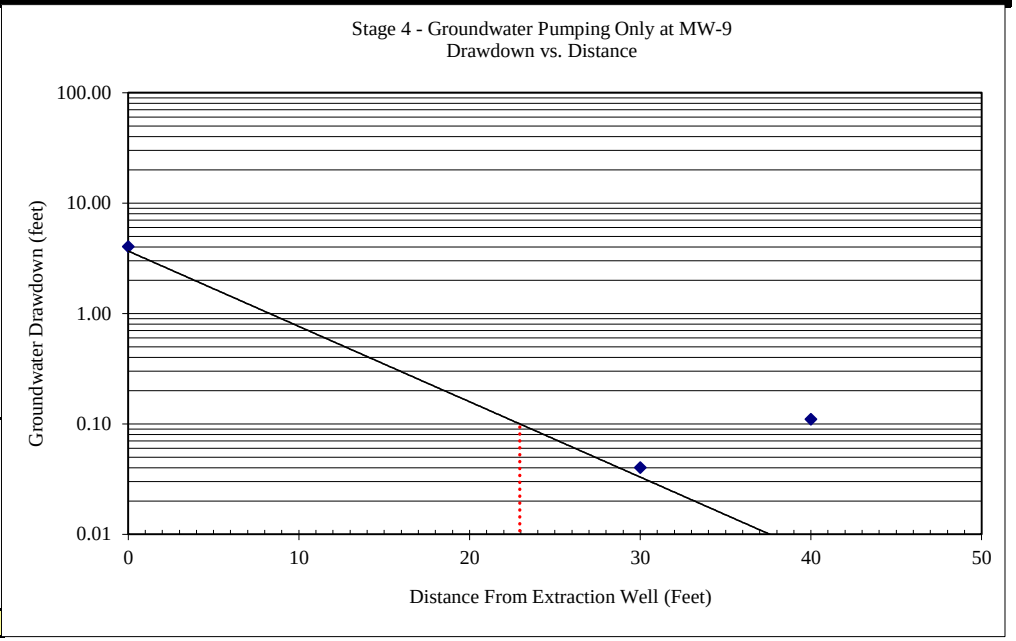
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 23, 2014

HYDRAULIC RADIUS OF INFLUENCE

Extraction Well	**MW-9**
T Start:	10:21
T Finish:	11:36
T Data:	11:36

	Distance from MW-9 *(Feet)*	Change in Water Elevation *(Feet)*
MW-9	0.00	4.03
MW-8	30.00	0.04
MW-10	36.00	0.00
MW-13	40.00	0.11
MW-11	49.00	0.00

Test Type:	Pump Test at MW-9	
Applied Well Vac:	0.00	in w.c.
Gallons Pumped:	11.00	total gallons
Test Length:	75.00	mins
Pumping Rate:	0.15	gpm
PID Average:	NA	ppmV
Flow Rate Average:	NA	scfm
Radius of Influence:	23	feet



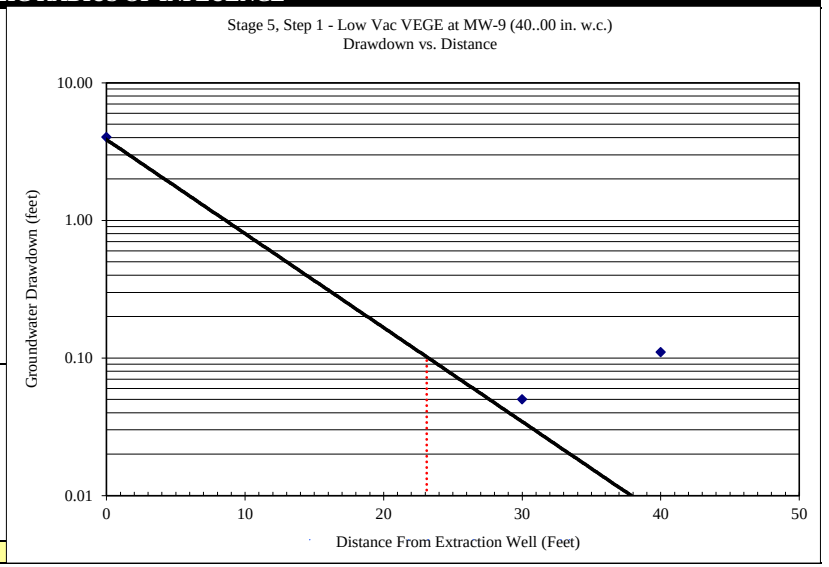
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 23, 2014

HYDRAULIC RADIUS OF INFLUENCE

Extraction Well	**MW-9**
T Start:	11:38
T Finish:	12:31
T Data:	12:31

	Distance from MW-9 *(Feet)*	Change in Water Elevation *(Feet)*
MW-9	0.00	4.03
MW-8	30.00	0.05
MW-10	36.00	0.00
MW-13	40.00	0.11
MW-11	49.00	0.00

Test Type:	VEGE at MW-9	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac:	40.00	in w.c.
Gallons Pumped:	6	total gallons
Test Length:	53	mins
Pumping Rate:	0.11	gpm
PID Average:	1.25	ppmV
Flow Rate Average:	6.47	scfm
Radius of Influence:	23	feet

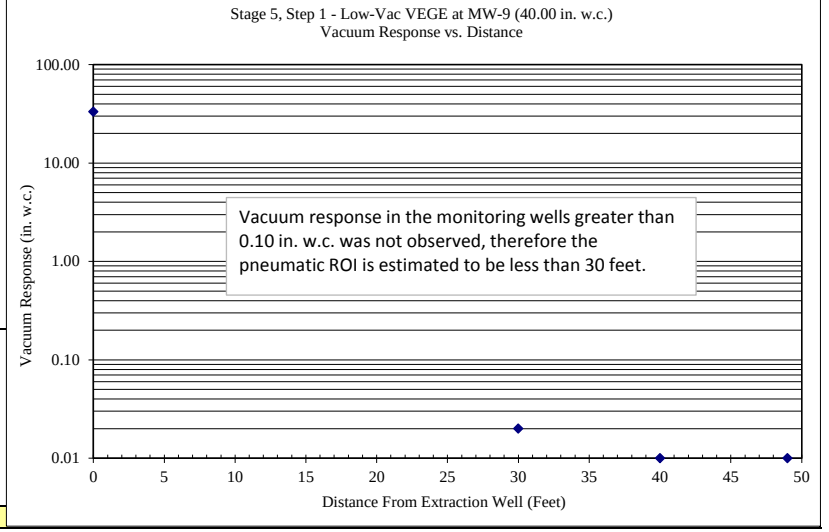


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-9**
T Start:	11:38
T Finish	12:31
T Data	12:31

	Distance from MW-9 *(Feet)*	Vacuum Response (in w.c.)
MW-9	0.00	33.21
MW-8	30.00	0.02
MW-10	36.00	0.00
MW-13	40.00	0.01
MW-11	49.00	0.01

Test Type:	VEGE at MW-9	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac:	40.00	in w.c.
Gallons Pumped:	6.00	total gallons
Test Length:	53.00	mins
Pumping Rate:	0.11	gpm
PID Average:	1.25	ppmV
Flow Rate Average:	6.47	scfm
Radius of Influence:	<30	feet



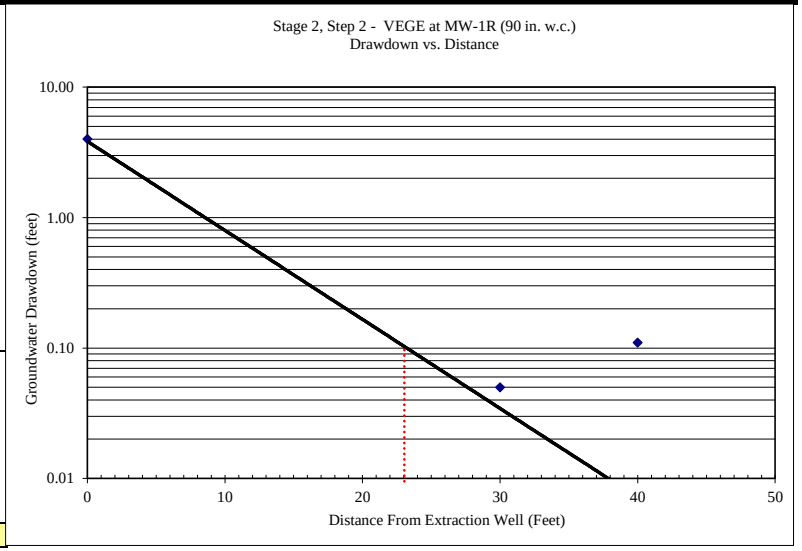
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 23, 2014

HYDRAULIC RADIUS OF INFLUENCE

Extraction Well:	**MW-9**
T Start:	12:53
T Finish:	13:35
T Data:	13:35

	Distance from MW-9 *(Feet)*	Change in Water Elevation *(Feet)*
MW-9	0.00	4.01
MW-8	30.00	0.05
MW-10	36.00	0.00
MW-13	40.00	0.11
MW-11	49.00	0.00

Test Type:	VEGE at MW-9	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac	90.00	in w.c.
Gallons Pumped:	2	total gallons
Test Length:	50	mins
Pumping Rate:	0.04	gpm
PID Average:	1.50	ppmV
Flow Rate Average:	7.79	scfm
Radius of Influence:	23	feet

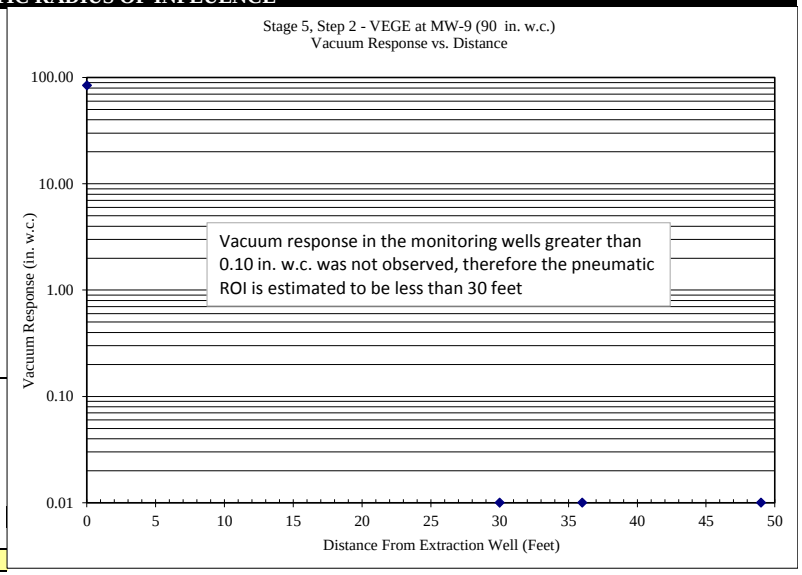


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-9**
T Start:	12:53
T Finish:	13:35
T Data:	13:35

	Distance from MW-9 *(Feet)*	Vacuum Response (in w.c.)
MW-9	0.00	84.51
MW-8	30.00	0.01
MW-10	36.00	0.01
MW-13	40.00	0.00
MW-11	49.00	0.01

Test Type:	VEGE at MW-1R	
Blower Type:	Rotron EN808Regenerative Blower	
Applied Well Vac:	90.00	in w.c.
Gallons Pumped:	2.00	total gallons
Test Length:	50.00	mins
Pumping Rate:	0.04	gpm
PID Average:	1.50	ppmV
Flow Rate Average:	7.79	scfm
Radius of Influence:	<30	feet



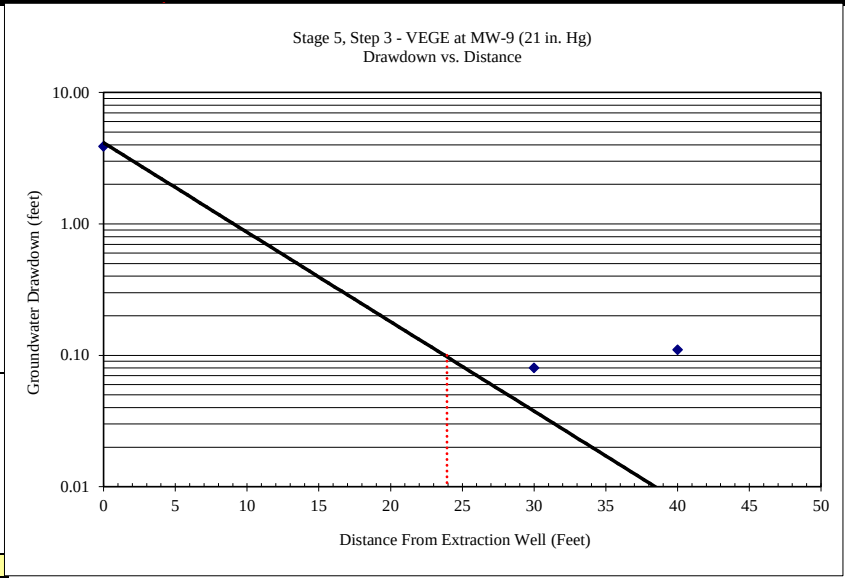
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 23, 2014

HYDRAULIC RADIUS OF INFLUENCE

TPE Well	**MW-9**
T Start:	13:23
T Finish:	14:26
T Data:	14:26

	Distance from MW-9 *(Feet)*	Change in Water Elevation *(Feet)*
MW-9	0.00	3.88
MW-8	30.00	0.08
MW-10	36.00	0.00
MW-13	40.00	0.11
MW-11	49.00	0.00

Test Type:	VEGE at MW-9	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	21.00	in Hg
Gallons Pumped:	3.00	total gallons
Test Length:	63.00	mins
Pumping Rate:	0.05	gpm
PID Average:	0.00	ppmV
Flow Rate Average:	10.30	scfm
Radius of Influence:	24	feet

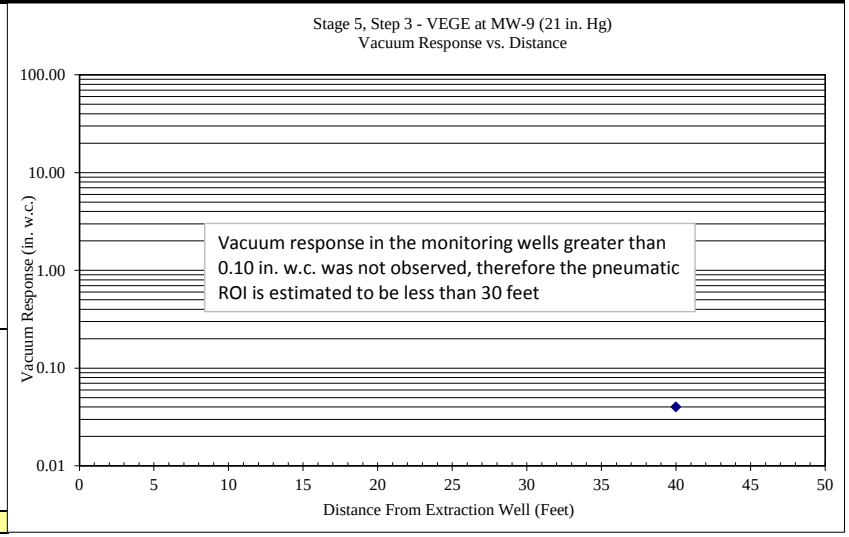


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-9**
T Start:	13:23
T Finish	14:26
T Data	14:26

	Distance from MW-4R *(Feet)*	Vacuum Response (in w.c.)
MW-9	0.00	281.48
MW-8	30.00	0.00
MW-10	36.00	0.00
MW-13	40.00	0.04
MW-11	49.00	0.00

Test Type:	VEGE at MW-9	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	21.00	in Hg
Gallons Pumped:	3.00	total gallons
Test Length:	63.00	mins
Pumping Rate:	0.05	gpm
PID Average:	0.00	ppmV
Flow Rate Average:	10.30	scfm
Radius of Influence:	<30	feet



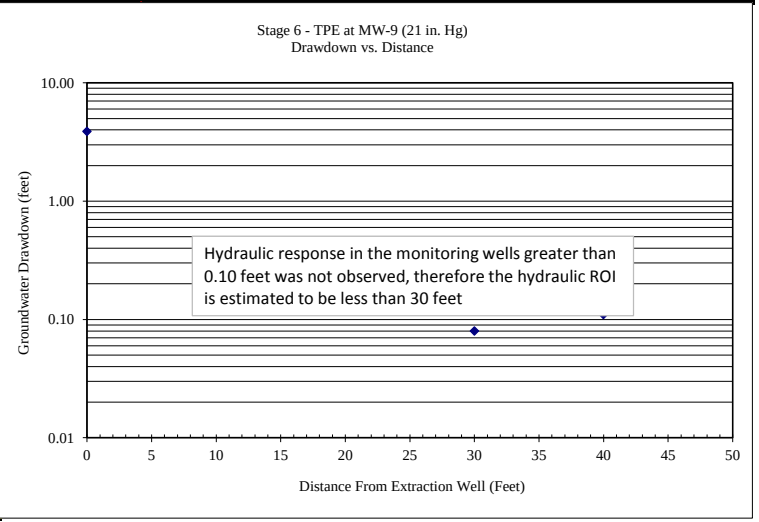
ESTIMATED RADIUS-OF-INFLUENCE
United Refining Company
Kwik Fill Station M-061
227 East Main Street
Bradford, Pennsylvania
Test Date: April 23, 2014

HYDRAULIC RADIUS OF INFLUENCE

TPE Well	**MW-9**
T Start:	15:40
T Finish:	16:33
T Data:	16:33

	Distance from MW-9 *(Feet)*	Change in Water Elevation *(Feet)*
MW-9	0.00	2.74
MW-8	30.00	0.00
MW-10	36.00	0.00
MW-13	40.00	0.00
MW-11	49.00	0.00

Test Type:	TPE at MW-9	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	21.00	in Hg
Gallons Pumped:	0.00	total gallons
Test Length:	53.00	mins
Pumping Rate:	0.00	gpm
PID Average:	1.60	ppmV
Flow Rate Average:	9.79	scfm
Radius of Influence:	<30	feet

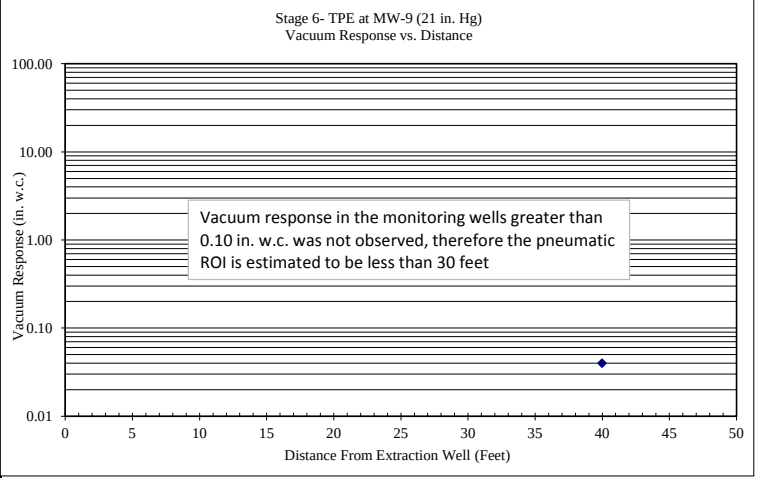


PNEUMATIC RADIUS OF INFLUENCE

Extraction Well:	**MW-9**
T Start:	15:40
T Finish	16:33
T Data	16:33

	Distance from MW-9 *(Feet)*	Vacuum Response (in w.c.)
MW-9	0.00	233.82
MW-8	30.00	0.00
MW-10	36.00	0.06
MW-13	40.00	0.06
MW-11	49.00	0.01

Test Type:	TPE at MW-9	
Blower Type:	Rietschle VLR-100 Zephyr multi-claw pump	
Applied Well Vac:	21.00	in Hg
Gallons Pumped:	0.00	total gallons
Test Length:	53.00	mins
Pumping Rate:	0.00	gpm
PID Average:	1.60	ppmV
Flow Rate Average:	9.79	scfm
Radius of Influence:	<30	feet



INPUT - LIQUID PHASE GAC USAGE

Site Name: **UPA Bradford M-061**
Site Address: 227 E. Main Street
Bradford, PA
Freundlich Isotherms and Adsorptive Capacity Determination

Compound	1/n	K	Concentration (µg/L)	Adsorptive Capacity
Benzene	0.53	1.266	264	2.43%
Toluene	0.42	5	27	1.99%
Ethylbenzene	0.41	9.26	10	2.42%
Xylenes	0.24	35.80	40	8.67%
TPH**	0.53	1.27	427	3.14%
MTBE	0.5	0.25	6	0.06%

Assumes no air stripper will be used.

System Flow Rate (gpm):	10
Size of GAC Units (lbs):	200.00
Number of Units:	2.00
Total Pounds of Carbon:	400.00
TIME TO BREAKTHROUGH (days):	**106.84**

**If a TPH sample was not collected, assume BTEX is 80% of total TPH (i.e., TPH = BTEX x (1.25))

OUTPUT - LIQUID PHASE GAC USAGE

Design Flowrate:	10.00	GPM
Min, Cross-Sectional Area of Carbon Unit (sq. ft.):	2.22	
Min, Dia of Carbon Unit (inches):	11.39	
Required Contact Time (min.):	30	(for 90% removal of MTBE)
Minimum Bed Volume:	40.11	cu. ft.
Minimum total Lbs. GAC:	1,122.99	lbs.
Carbon Usage for MTBE:		
MTBE mass flow	0.001	lb/day
Adsorption capacity from MTBE Isotherm	0.061	%
Carbon Usage for TPH (using worst case Isotherm):		
TPH mass flow	0.051	lb/day
Adsorption capacity from Isotherms	1.991	%
GAC Usage (TPH)	2.571	lb/day
GAC Usage (MTBE)	1.172	lb/day
GAC Usage (MTBE + TPH)	3.744	lb/day
Increased usage factor due to background organcis @ 1-2 ppm	1	
Total GAC usage:	3.74	lb/day

ANALYTICAL DATA (µg/l)

Benzene	Tolulene	Ethylbenzene	Xylenes	MTBE
264	27	10	40	6

RECOVERY DATA

Day 1 Recovery =
Liquid-phase hydrocarbon recovery (lb) = conc. (µg/l) x 3.785 liters / gallon x 2.205 lb / 10^9 ug x # gallons

= 0.00358871 pounds of hydrocarbon

Vapor Recovery & Carbon Usage Over Time

{assuming a first order decrease in vapor concentrations}

Site: UPA Bradford M-061

Date:

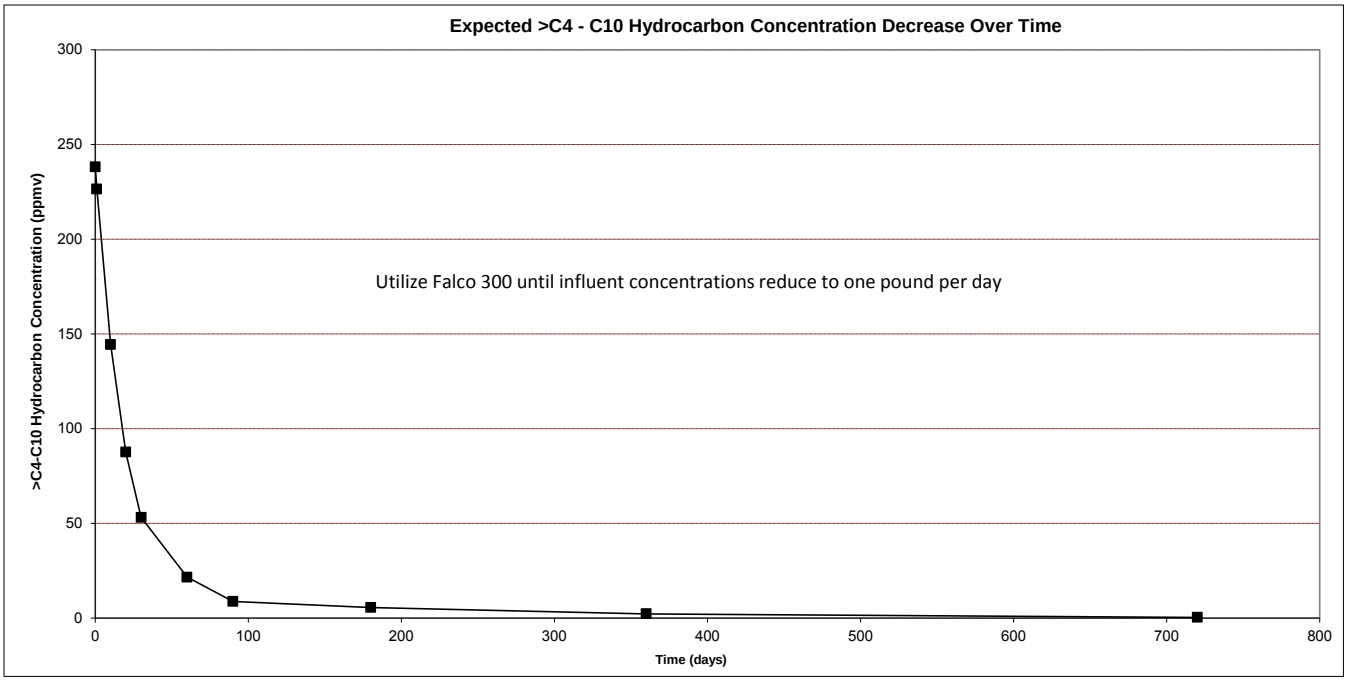
initial hydrocarbon conc.	238 ppmv	
molecular weight	100	SVE treatment
k coef. during days 0-59	0.05 1/day	
k coef. during days 60-179	0.03 1/day	
k coef. during days 180-720	0.005 1/day	
vapor flow rate	264 scfm	
carbon adsorption capacity	15%	

Time (days)	>C4-C10 HC Concentration (ppmv)	>C4-C10 HC Concentration (µg/l)	>C4-C10 HC Recovery Rate (lb/day)	Total >C4-C10 HC Recovered (lbs)	Vapor-Phase Carbon Usage Rate (lb/day)	Total Carbon Usage To Date (lbs)
0	238	990	23.49	0	157	0
1	227	942	22.35	23	149	153
10	144	601	14.25	188	95	1,251
20	88	364	8.64	302	58	2,014
30	53	221	5.24	371	35	2,476
60	22	90	2.13	482	14	3,214
90	9	37	0.87	527	6	3,513
180	6	23	0.55	591	4	3,939
360	2	9	0.22	661	1	4,405
720	0	2	0.04	708	0	4,719
1080	0	0	0.01	716	0	4,771

EQUATIONS:

$$\text{Concentration}(\mu g/l) = \frac{\text{Concentration}^{(-kt)} \times \text{molecular weight}}{24.05\ L/mol} \quad (ug/l = mg/m^3)$$

$$\text{lb/day recovery} = \frac{\text{Conc (ug/l)} \times \text{Flow}(ft^3/min) \times 1\ mg \times 1{,}000\ l \times 1\ pound \times 0.0283\ m^3 \times 1440\ min}{1{,}000\ \mu g \times m^3 \times 454{,}000\ mg \times ft^3 \times 1\ day}$$



APPENDIX E

Investigation and Remediation Derived Waste Documentation

McCutcheon Enterprises, Inc.
250 Park Road
Apollo, PA 15613
(724)568-3623 Fax (724)568-2571
www.completewastemgmt.com

00135804

Non Hazardous Waste Manifest

1. Generator's US EPA ID No.	Manifest Document No.	2. Page 1 of 1	
	059001		JWO0189342

3. Generator's Name and Mailing Address
United Refining Company
814 Lexington Avenue, P. O. Box 688
Warren, PA 16365

4. Generator's Phone ( )

MC059001

B. State Generator's ID

5. Transporter 1 Company Name: McCutcheon Enterprises Inc
6. US EPA ID Number: PAD013826847
C. State Trans. ID: 724-568-3623

7. Transporter 2 Company Name
8. US EPA ID Number
D. Transporter's Phone ( )
E. State Trans. ID

9. Designated Facility Name and Site Address
McCutcheon Ent. Biosolids Treatment Facility
250 Park Road, .
Apollo, PA 15613
10. US EPA ID Number: PAD013826847
F. Transporter's Phone ( )
G. State Facility's ID
H. Facility's Phone (724 568-3623

11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number) HM	12. Containers No.	Type	13. Total Quantity	14. Unit Wt/Vol	L Waste No.
a. Residual Waste (Soil Cuttings)	23	DM	18 RST	T	998
b.					
c.					
d.					

J. Additional Descriptions for Materials Listed Above
a. 053106-00001837
b.
c.
d.

K. Handling Codes for Wastes Listed Above
a.
b.
c.
d.

15. Special Handling Instructions and Additional Information
UPA M061
227 E Main Street
Bradford, PA
McKean county
Waste Tracking # 208255 1 Through 23 Coalton

16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national governmental regulations.

I hereby certify that the above-named material is not hazardous waste as defined by 40 CFR Part 261 or any applicable state law.

Printed/Typed Name	Signature	Month Day Year
X James R Alexander	X on behalf of United Refining	10 8 15

TRANSPORTER

17. Transporter 1 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year
Shawn Johnston		8 25 15

18. Transporter 2 Acknowledgement of Receipt of Materials

Printed/Typed Name	Signature	Month Day Year

FACILITY

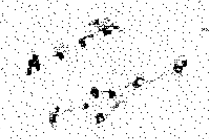
19. Discrepancy Indication Space

20. Facility Owner or Operator: Certification of receipt of non-hazardous materials covered by this manifest except as noted in Item 19.

Printed/Typed Name	Signature	Month Day Year
Aleesha Bertino	Aleesha Bertino	10 8 2015

GENERATOR COPY

SIGNATURE AND INFORMATION *MUST* BE LEGIBLE ON ALL COPIES



Bill To: **United Ref**

United Refinning
Kwik Fill Stations
PO Box 780
Warren PA, 16365

McCutcheon Ent., Inc.
250 Park Road, Apollo, PA 1561
724-568-3623

Ticket#: 76952
MANUAL ORIGINAL

IN: 9/26/2015 2:19:42PM
OUT: 8/26/2015 2:18:42PM
Operater: Franke73795

Bio Facility

Customer: United Ref
United Refinning
Kwik Fill Stations
PO Box 780
Warren PA, 16365

Hauler: BV5
Truck: N
Container:
JWO#: 0189342
Manifest#: 059001

GROSS lbs: 39,740.00
TARE lbs: 27,420.00
NET lbs: 12,320.00
ADJUSTED lbs: 12,320.00
Tons: 6.16

MATERIAL CODE/DESCRIPTION	QUANTITY	MEASURE	RATE	AMOUNT
999 - Oily Collants	6.16	ton	$0.00	$0.00
23 DRUMS				

Product Total: $0.00
Total Fees: $0.00
Total Taxes: $0.00
Ticket Total: $0.00

Frank Colwell

Monday through Friday 7AM - 4:30 PM
Saturday 8AM - 12 NOON

Site: UPA M061
227 E MAIN STREET
BRADFORD PA
MCKEAN COUNTY