MARTIN S. BURCK ASSOCIATES, INC.
200 North Wasco Court, Hood River, OR 97031
Phone 541.387.4422 855.387.4422 Fax 541.387.4813
MSBA@MSBAenvironmental.com

Geologic and Environmental Consulting Services

MSBA

Nancy Sawka
Oregon Department of Environmental Quality
Western Region - Salem Office
750 Front Street NE, Suite 120
Salem, OR 97301

July 10, 2024

Transmitted via USPS and email to: nancy.sawka@state.or.us

Subject: **Groundwater Investigation and Risk-Based Closure Report**
Former Younger Oil Keizer Texaco
3401 River Road North, Keizer, Oregon
DEQ File No. 24-03-0558

Dear Ms. Sawka,

Martin S. Burck Associates, Inc. has prepared the enclosed report on behalf of the Younger Oil Company for the automobile service station located at 3401 River Road North in Keizer, Oregon. MSBA performed groundwater investigation activities at the site in May 2014, February 2017, June 2019, and September 2019. Based on the results of this work, MSBA recommends a risk-based closure. The enclosed report presents 1) the results of groundwater investigation activities performed by MSBA, 2) a conceptual site model; 3) an evaluation of the potential risk to human health and safety with respect to the constituents of interest, receptors, and exposure pathways; and 4) a recommendation for a risk-based regulatory site closure. Please contact us if you have any questions.

Sincerely,
Martin S. Burck Associates, Inc.

Martin S. Burck

Martin S. Burck, LG/RG
Licensed/Registered Geologist; OR, WA, CA

Enclosure: Report

GROUNDWATER INVESTIGATION AND RISK-BASED CLOSURE REPORT

Former Younger Oil Keizer Texaco
3401 River Road North, Keizer, Oregon
DEQ File No. 24-03-0558

July 10, 2024

Prepared For:

Younger Oil Company
1550 Salem Ave SE
Albany, Oregon 97321

MARTIN S. BURCK ASSOCIATES, INC.
200 North Wasco Court, Hood River, OR 97031
Phone 541.387.4422 855.387.4422 Fax 541.387.4813
MSBA@MSBAenvironmental.com

Geologic and Environmental Consulting Services

MSBA

TABLE OF CONTENTS

TABLE OF CONTENTS (Continued)

FIGURES

TABLES

APPENDICES

GROUNDWATER INVESTIGATION AND RISK-BASED CLOSURE REPORT

Former Younger Oil Keizer Texaco
3401 River Road North, Keizer, Oregon
DEQ File No. 24-03-0558

1.0 INTRODUCTION

Martin S. Burck Associates, Inc. (MSBA) has prepared this report on behalf of Younger Oil Company regarding the automobile service station located at 3401 River Road North in Keizer, Oregon. The site location is illustrated on Figure 1. MSBA performed groundwater investigation activities at the site in May 2014, February 2017, June 2019, and September 2019. The following report presents 1) the results of groundwater investigation activities performed by MSBA, 2) a conceptual site model (CSM); and 3) an evaluation of the potential risk to human health and safety with respect to the constituents of interest (COIs), receptors, and exposure pathways. Based on the results of this work, MSBA recommends a risk-based closure.

Groundwater investigation activities presented in this report were performed in general accordance with the Oregon Department of Environmental Quality (DEQ) *UST Cleanup Manual* (USTCM) (updated May 2009) and the *Risk-Based Decision Making for the Remediation of Contaminated Sites* (RBDM) (updated May 2018) under Oregon Administrative Rules (OAR) 340-122-0205 through 340-122-0360. This work was also performed in general accordance with the MSBA General Field Methods and Procedures (FM&P) presented in Appendix A.

1.1 Site Description

The site is located at the northwest corner of the intersection of River Road North and Apple Blossom Avenue North (Figure 1). The site consists of a retail fuel and food mart on the west side of the property with three pump dispenser islands to the east. The site features are illustrated on Figure 2. One 10,000-gallon underground storage tank (UST), one 8,000-gallon UST, and one 5,000-gallon UST are located north of the retail fuel and food mart, beneath a concrete slab. Most of the site is covered with structures, asphalt pavement, or concrete slabs, except for a narrow landscaped area along the northern property line. The property is bounded by the Abbey's Pizza parking lot to the north, River Road North to the east, Apple Blossom Avenue North to the south, and an automobile service station to the west. The zoning for the site and surrounding properties is designated as Mixed-Use (MU), which allows commercial and residential uses within a single building. The site and adjacent properties are currently utilized for commercial purposes exclusively.

1.2 General Geologic and Hydrogeologic Setting

The site is located at an elevation of approximately 140 feet above mean sea level (msl) within the Claggett Creek watershed (Figure 1). Clagett Creek is located approximately 4,752 feet northeast of the site at the nearest point. The anticipated groundwater flow direction is northeast towards Clagett Creek. The closest body of surface water is an unnamed reservoir located approximately 1,650 feet southeast of the site. The second closest body of water is the Willamette River located 2,250 feet west of the site. The ground surface at the site is generally flat. Based on a review of the United States Department of Agriculture (USDA) Web Soil Survey, the regional soil type beneath the site is anticipated to consist of moderately well-drained silty clay loam from the surface to 0.8 foot below surface grade (bsg) and clay loam from 0.8 foot bsg to 5.4 feet bsg.

1.3 Offsite Release of Chlorinated Solvents

MSBA performed a search of the Environmental Cleanup Site Information (ECSI) database and determined that the site is located within an area of widespread groundwater contamination due to the offsite release of chlorinated solvents, including Trichloroethene (TCE), from one or more sources (ECSI No. 4012). There are no known current or former uses of the site associated with chlorinated solvents. The offsite release of chlorinated solvents is discussed in greater detail in Section 6.0.

1.4 Previous Work

In March 2003, a subsurface investigation was performed at the site by Aspen Environmental (Aspen) to characterize petroleum hydrocarbons (PHCs) in soil and groundwater. The soil and groundwater analytical data are summarized in Tables 1, 2, and 3. Soil samples ***3401-N@6.0***, ***3401-C@6.0***, and ***3401-S@6.0***, were collected beneath the three onsite dispensers at a depth of 6 feet bsg. The sample locations are illustrated on Figure 3. The soil samples were submitted for analysis of gasoline, which was not detected above the laboratory reporting limits (RLs) (Table 2; Figure 3). Groundwater samples were collected from previously installed monitoring wells MW-1, MW-2, and MW-3 and UST cavity observation well OW-1. The sample locations are illustrated on Figure 2. Groundwater samples ***MW-1***, ***MW-2***, ***MW-3***, and ***OW-1*** were submitted for analysis of RBDM volatile organic compounds (VOCs), which were detected in all four samples (Table 2). The sample collected from MW-1 was also analyzed for polycyclic aromatic hydrocarbons (PAHs) which were detected. The highest PHC concentrations were detected in observation well OW-1 on the north side of the UST cavity.

Between June 2003 and March 2004, Wohlers Environmental Services, Inc. (Wohlers) conducted quarterly groundwater monitoring and sampling activities at the site. Groundwater samples were collected from previously installed monitoring wells MW-1, MW-2, and MW-3 and analyzed for diesel, oil, and RBDM VOCs. VOCs were detected in the samples collected from MW-1, MW-2, and MW-3 (Table 2). Diesel was detected in samples collected from MW-1 and was not detected in MW-2 or MW-3. Oil was not detected above the laboratory RLs. The highest concentrations were detected at MW-2 on the north side of the UST cavity.

In June 2004, Wohlers collected additional groundwater samples from MW-1, MW-2, and MW-3 for analysis of gasoline and VOCs. Groundwater sample analytical results confirmed high concentrations of gasoline (70,600 parts per billion (ppb)) at MW-2 (Table 2). In July 2004, five borings were drilled onsite, four of which were completed as groundwater monitoring wells MW-4, MW-5, MW-6, and MW-7. Wohlers performed quarterly groundwater monitoring and sampling activities through March 2010. Groundwater sample analytical results consistently showed the highest concentrations of gasoline and VOCs at MW-2. Groundwater level data indicated an easterly flow direction at depths ranging from approximately 10 to 16 feet bsg. Groundwater level data collected by Wohlers are presented in Appendix B.

2.0 MSBA GROUNDWATER MONITORING AND SAMPLING - MAY 2014

The following presents the results of the groundwater monitoring and sampling performed by MSBA on May 30, 2014. Groundwater monitoring and sampling activities were performed in general accordance with the FM&P (Appendix A).

2.1 Monitoring Well Elevation Survey

MSBA completed a top-of-casing (TOC) elevation survey of monitoring wells MW-1 through MW-7 to evaluate the easterly flow direction established by Wohlers. Each TOC was surveyed to within plus or minus (+/-) 0.01 foot relative to a common temporary benchmark. A temporary benchmark was designated with an assumed elevation relative to the approximate surface elevation above mean sea level. The surveyed locations were marked on each casing for future reference and measuring. The survey information was recorded on a Site Survey Data Sheet, which is presented in Appendix C. The surveyed TOC elevations are presented in Table 4 and were generally consistent with the Wohlers survey.

2.2 Groundwater Level Monitoring

The depth to groundwater was measured below the top of casings (TOCs) in monitoring wells MW-1 through MW-7. The groundwater level data are summarized in Table 4 and a copy of the field Groundwater Level Data Sheet is presented in Appendix C. The depth to groundwater ranged between 11.26 feet (MW-1) and 13.32 feet (MW-4). The average depth to groundwater was 12.52 feet.

Contour lines depicting the groundwater surface elevation beneath the site were inferred from the May 2014 groundwater level data and are illustrated on Figure 4. Due to the anomalous groundwater level, monitoring well MW-1 was not used to calculate the groundwater contour lines. The orientation of the inferred contour lines indicates a general northeasterly groundwater flow direction with a high point near the UST cavities. The average estimated hydraulic gradient across the site was 0.007 foot per foot (rise/run). This flow direction and gradient are generally consistent with previous events performed by Wohlers.

2.3 Groundwater Sampling and Analytical Results

Groundwater samples were collected from wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 and submitted to Apex Labs (Apex) of Tigard, Oregon for laboratory analysis of the COIs gasoline using method NWTPH-Gx and RBDM VOCs using Environmental Protection Agency (EPA) method 8260B. The groundwater sample data are summarized in Table 2 and the results for gasoline, benzene, ethylbenzene, and naphthalene are illustrated on Figure 4. Copies of the field Groundwater Purge and Sample Data sheets are presented in Appendix C.

COIs were not detected in MW-1, MW-3, MW-6, and MW-7 (Table 2). Gasoline concentrations ranged from 109 ppb (***MW-5***) to 1,810 ppb (***MW-2***) (Figure 4). Benzene concentrations ranged from 1.68 ppb (***MW-4***) to 44.0 ppb (***MW-2***). The sample results were higher at MW-2, similar at MW-4, and lower at MW-5 compared to the previous sampling event (March 2010). A copy of the laboratory report is presented in Appendix D.

2.4 Investigation Derived Waste

Investigation derived waste consisting of purge and decontamination water generated during groundwater monitoring and sampling activities was placed in 5-gallon buckets and transported to the Younger Oil property located at 1550 Salem Avenue Southeast, Albany, Oregon where it was stored pending disposal.

3.0 MSBA GROUNDWATER MONITORING AND SAMPLING - FEBRUARY 2017

The following presents the results of groundwater monitoring and sampling performed by MSBA on February 22, 2017. Groundwater monitoring and sampling activities were performed in general accordance with the FM&P (Appendix A).

3.1 Groundwater Level Monitoring

The depth to groundwater was measured below the TOCs in monitoring wells MW-1 through MW-7. The groundwater level data are summarized in Table 4 and a copy of the field Groundwater Level Data Sheet is presented in Appendix C. The depth to groundwater ranged between 6.28 feet (MW-6) and 7.62 feet (MW-3). The average depth to groundwater was 7.01 feet which is 5.51 feet higher compared to the previous monitoring event (May 2014).

Contour lines depicting the groundwater surface elevation beneath the site were inferred from the February 2017 groundwater level data and are illustrated on Figure 5. The orientation of the inferred contour lines indicates a general northeasterly groundwater flow direction. The average estimated hydraulic gradient across the site was 0.015 foot per foot (rise/run). This flow direction and gradient are generally consistent with the previous event.

3.2 Groundwater Sampling and Analytical Results

Groundwater samples were collected from wells MW-2, MW-4, and MW-5 and submitted to Apex for laboratory analysis of the COIs gasoline using method NWTPH-Gx and RBDM VOCs using EPA method 8260B. Groundwater samples were shipped from Apex to BioLogic Resources, LLC of Portland, Oregon for laboratory analysis of hydrocarbon degrading bacteria using methodology referenced in the *Manual of Environmental Microbiology* (2nd edition, 2002: Chapter 84: Hydrocarbon degrading Bacteria). The groundwater sample data are summarized in Table 2 and the results for gasoline, benzene, ethylbenzene, and naphthalene are illustrated on Figure 5. Copies of the field Groundwater Purge and Sample Data sheets are presented in Appendix C.

COIs were not detected in MW-4 (Table 2). Gasoline was detected in sample ***MW-2*** at 105 ppb and was not detected in the remaining samples (Figure 5). Benzene was detected in sample ***MW-2*** at 1.14 ppb, ***MW-2*** at 1.59 ppm, and was not detected in the remaining sample. The sample results were lower compared to the previous sampling event (May 2014). A copy of the laboratory report is presented in Appendix D.

Hydrocarbon degrading bacteria were detected in sample ***MW-2*** at 100 colony forming units per milliliter (CFU/ml), ***MW-4*** at 300 CFU/ml, and ***MW-5*** at 100 CFU/ml. A copy of the laboratory report is presented in Appendix D.

3.3 Investigation Derived Waste

Investigation derived waste consisting of purge and decontamination water generated\ during groundwater monitoring and sampling activities was placed in 5-gallon buckets and transported to the Younger Oil property located at 1550 Salem Avenue Southeast, Albany, Oregon where it was stored pending disposal.

4.0 MSBA GROUNDWATER MONITORING AND SAMPLING - JUNE 2019

The following presents the results of groundwater monitoring and sampling performed by MSBA on June 27, 2019. Groundwater monitoring and sampling activities were performed in general accordance with the FM&P (Appendix A).

4.1 Groundwater Level Monitoring

The depth to groundwater was measured below the TOCs in monitoring wells MW-1 through MW-7. The groundwater level data are summarized in Table 4 and a copy of the field Groundwater Level Data Sheet is presented in Appendix C. The depth to groundwater ranged between 11.56 feet (MW-1) and 13.90 feet (MW-4). The average depth to groundwater was 13.08 feet which is 6.07 feet lower compared to the previous monitoring event (February 2017).

Contour lines depicting the groundwater surface elevation beneath the site were inferred from the June 2019 groundwater level data and are illustrated on Figure 6. Due to the anomalous groundwater level, monitoring well MW-1 was not used to calculate the groundwater contour lines. The orientation of the inferred contour lines indicates a general northeasterly groundwater flow direction with a high point near the UST cavities. The average estimated hydraulic gradient across the site was 0.004 foot per foot (rise/run). This flow direction and gradient are generally consistent with previous events.

4.2 Groundwater Sampling

Groundwater samples were collected from wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 and submitted to Apex for laboratory analysis of the COIs gasoline using method NWTPH-Gx and full list VOCs using EPA method 8260C. The groundwater sample analytical data are summarized in Table 2 and the results for gasoline, benzene, ethylbenzene, and naphthalene are illustrated on Figure 6. Copies of the field Groundwater Purge and Sample Data sheets are presented in Appendix C.

COIs were not detected in MW-3 (Table 2). Gasoline was detected in sample ***MW-4*** at 154 ppb, ***MW-2*** at 1,500 ppb, and was not detected in the remaining samples (Figure 6). Benzene was detected in sample ***MW-2*** at 45.8 ppb and was not detected in the remaining samples. TCE concentrations ranged from 3.78 ppb (***MW-1***) to 24.6 ppb (***MW-6***). The sample results were generally comparable to the previous event (February 2017) with the exception of MW-2 where concentrations increased. A copy of the laboratory report is presented in Appendix D.

4.3 Investigation Derived Waste

Investigation derived waste consisting of purge and decontamination water generated during groundwater monitoring and sampling activities was placed in 5-gallon buckets and transported to the Younger Oil property located at 1550 Salem Avenue Southeast, Albany, Oregon where it was stored pending disposal.

5.0 MSBA GROUNDWATER MONITORING AND SAMPLING - SEPTEMBER 2019

The following presents the results of groundwater monitoring and sampling performed by MSBA on September 16, 2019. Groundwater monitoring and sampling activities were performed in general accordance with the FM&P (Appendix A).

5.1 Groundwater Level Monitoring

The depth to groundwater was measured below the TOCs in monitoring wells MW-1 through MW-7. The groundwater level data are summarized in Table 4 and a copy of the field Groundwater Level Data Sheet is presented in Appendix C. The depth to groundwater ranged between 13.97 feet (MW-1) and 15.78 feet (MW-4). The average depth to groundwater was 14.96 feet which is 1.88 feet lower compared to the previous monitoring event (June 2019).

Contour lines depicting the groundwater surface elevation beneath the site were inferred from the September 2019 groundwater level data and are illustrated on Figure 7. The orientation of the inferred contour lines indicates a general northeasterly groundwater flow direction with a high point near the UST cavities. The average estimated hydraulic gradient across the site was 0.029 foot per foot (rise/run). This flow direction and gradient are generally consistent with previous events.

5.2 Groundwater Sampling and Analytical Results

Groundwater samples were collected from wells MW-1, MW-2, MW-3, MW-4, MW-5, MW-6, and MW-7 and submitted to Apex for laboratory analysis of the COIs gasoline using method NWTPH-Gx and full list VOCs using EPA method 8260C. The groundwater sample analytical data are summarized in Table 2 and the results for gasoline, benzene, ethylbenzene, and naphthalene are illustrated on Figure 7. Copies of the field Groundwater Purge and Sample Data sheets are presented in Appendix C.

COIs were not detected in MW-4 (Table 2). Gasoline was detected in sample ***MW-2*** at 208 ppb and was not detected in the remaining samples (Figure 7). Benzene was detected in sample ***MW-2*** at 2.40 ppb and was not detected in the remaining samples. TCE concentrations ranged from 1.12 ppb (***MW-2***) to 22.2 ppb (***MW-6***). The sample results were generally comparable to the previous event (June 2019) with the exception of MW-2 where concentrations decreased.

5.3 Investigation Derived Waste

Investigation derived waste consisting of purge and decontamination water generated during groundwater monitoring and sampling activities was placed in 5-gallon buckets and transported to the Younger Oil property located at 1550 Salem Avenue Southeast, Albany, Oregon where it was stored pending disposal.

6.0 SUMMARY OF GROUNDWATER MONITORING AND SAMPLING

MSBA completed groundwater monitoring and sampling activities in May 2014, February 2017, and June and September 2019. Groundwater levels were monitored and the inferred flow direction was toward the northeast, generally consistent with previous investigations performed by Wohlers. COIs were detected in one or more groundwater samples during all four sampling events at concentrations exceeding the Ingestion and Inhalation from Tapwater (IIT) pathway RBCs (Table 2). COIs were not detected in any samples collected during the four quarterly monitoring events at concentrations exceeding the Vapor Intrusion into Buildings (VIB), Volatilization to Outdoor Air (VOA), or Groundwater in Excavation (GWE) pathway RBCs. Based on the analytical results, it appears that PHC concentrations have attenuated significantly since the first samples were collected by Aspen in March 2003. Graphs illustrating gasoline and benzene concentrations versus time for monitoring wells MW-2, MW-4, and MW-5 are illustrated on Figure 8. Gasoline and benzene were not detected in MW-1, MW-3, MW-6, and MW-7 during any monitoring events conducted by MSBA, therefore graphs were not generated for these wells. MSBA attributes the decreasing concentrations to natural attenuation which is supported by the presence of petroleum degrading bacteria, as confirmed by laboratory analysis in November 2017 (Table 2).

TCE was detected in several monitoring wells at concentrations exceeding the IIT pathway RBCs (Table 2). However, chlorinated solvents, including TCE, are not typically associated with petroleum releases and there are no known current or former uses of the site that would indicate the potential presence of chlorinated solvents. MSBA performed a search of the ECSI database and determined that the site is located within an area of widespread TCE contamination identified as the "*Keizer-North Salem Groundwater Contamination Orphan Site*" (ECSI No. 4012). According to DEQ records, the TCE plume is partially attributed to a former dry cleaner (Keizer Kleaners; ECSI No. 4859) located north of the site at 4225 Cherry Avenue NE (Figure 1). Based on the large extent and relatively low, dispersed concentrations throughout the plume, additional sources are suspected up-gradient of the site. However, several investigations have been performed and no upgradient sources have been identified. Based on a review of the DEQ *Proposed Action Plan - Keizer - North Salem Groundwater Cleanup Project* (October 23, 2014), it appears that TCE concentrations at the site, which ranged from 1.12 ppb in monitoring well MW-2 (9/17/19) to 24.6 ppb in MW-6 (6/27/19) (Table 2), are generally comparable to concentrations throughout TCE plume and significantly lower than concentrations documented at the Keizer Kleaners property. The potential areal extent of the TCE plume and maximum TCE concentrations detected between 2010 and 2012 are depicted on the DEQ Figure presented in Appendix E. Since there are no known current or former uses of the site that would indicate the potential presence of chlorinated solvents and the concentrations at the site are generally low and consistent with concentrations throughout the plume, MSBA attributes the TCE detections to the DEQ documented offsite sources. Therefore, TCE will not be further evaluated for risk with respect to the onsite release.

Based on the presence of shallow groundwater beneath the site (Table 4 and Appendix B), MSBA concludes that PHCs in soil are limited to the extent of dissolved PHCs in groundwater. Based on the northeasterly flow direction and the June and September 2019 groundwater analytical results, the regulatory extent of PHCs appears to be defined by monitoring wells MW-1, MW-3, MW-5, and MW-7 (Table 2; Figures 6 and 7). However, benzene and naphthalene were detected at concentrations exceeding the IIT pathway RBCs exclusively in samples collected from down-gradient monitoring well MW-5 in May 2014 and February 2017. Therefore, MSBA conservatively calculated the rate of reduction (ROR) and estimated distance (ED) to the non-detect threshold (0 ppm) using the May 2014 benzene and naphthalene data from MW-2 and MW-5 to define the down-gradient extent of PHCs. The Locality of Facility (LOF) and associated ROR and ED calculations are presented on Figure 4.

7.0 CONCEPTUAL SITE MODEL INFORMATION

MSBA completed investigations necessary to develop a CSM appropriate for the site. The CSM investigations included: 1) a surface water assessment, 2) a beneficial water use survey, 3) an underground utility survey, 4) an ecological impact screening, and 5) a land use zoning evaluation.

7.1 Surface Water Assessment

A surface water assessment was performed including a review of the United States Geologic Survey (USGS) 7.5-minute series, Salem West Quadrangle, Oregon Topographic Map (Figure 1), Google Earth satellite imagery, and the United States Fish and Wildlife Service (USFWS) National Wetlands Mapper. The closest identified body of surface water is a freshwater pond located approximately 1,650 feet southeast of the site at its nearest point. The second closest body of water is the Willamette River located 2,250 feet west of the site at its nearest point. The closest identified wetland is a freshwater emergent wetland located approximately 1,850 feet west of the site at its nearest point. Based on their distance and location relative to the site, MSBA concludes the identified surface water bodies and wetland do not represent a concern with respect to the PHC release.

7.2 Beneficial Water Use Survey

MSBA completed a beneficial water use survey in general accordance with the DEQ document *Guidance for Conducting Beneficial Water Use Determinations at Environmental Cleanup Sites*, dated July 1, 1998. This survey included a review of the Water Resources Department (WRD) water well database, an evaluation of the municipal water sources and supply, and a door-to-door and mail-in survey of surrounding properties.

7.2.1 Water Resources Department Database Well Survey

A beneficial water use survey was conducted to identify any potential drinking or irrigation water wells within a 0.25-mile radius of the site as shown on Figure 9. MSBA reviewed the Oregon WRD database which listed 101 water well reports within the larger search area, which included Sections 10 and 11 of Township 7 South, Range 3 West. A copy of the well report query results spreadsheet is presented in Appendix E. Monitoring wells and geotechnical hole reports were not included in the database review. MSBA identified two well reports with addresses that are located within the search radius. The remaining well reports were associated with 1) water wells that plotted outside the 0.25-mile radius, 2) water wells that were previously abandoned, or 3) water wells that did not have addresses listed in the search summary and could not be precisely located.

The closest well identified in the database, MARI 57279, is located approximately 1,000 feet east of the site (Figure 9). A copy of the well report on file with WRD is presented in Appendix D. The well was installed in approximately 1947 and the intended use is not listed. The well has a total depth of 33 feet bsg and the "exposed" well casing is 2 inches in diameter. Additional information pertaining to the well construction and depth to groundwater was not included on the water well report. Based on the distance and limited extent of the PHC plume, this well does not represent a concern with respect to the PHC release.

The second closest well identified in the database, MARI 69497, is located approximately 1,200 feet northeast of the site (Figure 9). A copy of the well report on file with WRD is presented in Appendix D. The well was installed for domestic use and has a total depth of 120 feet bsg. Water was first encountered at a depth of 80 feet bsg and the static water level is 30 feet bsg. The well is constructed of 6-inch diameter solid steel casing from 1 foot above surface grade to 120 feet below surface grade. A bentonite seal is present from 21 feet bsg to surface grade. Based on the depth, distance, well construction, and limited extent of the PHC plume, this well does not represent a concern with respect to the PHC release.

7.2.2 Door-to-Door and Mail-In Water Well Survey

Door-to-door and mail-in surveys were conducted for the site and adjacent properties to confirm the presence or absence of potential wells with no discernable address/location or not listed on the WRD database. The survey forms were completed by property owners, knowledgeable parties, or by MSBA during telephone interviews with such individuals. No additional water wells were identified by the survey. The results of this survey are shown on Figure 10. Copies of the survey forms and phone memos are included in Appendix E.

7.2.3 Municipal Water Sources

According to the City of Keizer *Annual Drinking Water Quality Report* (2021), municipal water is supplied to the site and surrounding area by 15 deep water wells with total depths ranging from 100 to 450 feet bsg. None of the municipal water wells are located within a 0.25-mile radius of the site. The nearest municipal water well, MARI 55036, is located approximately 2,650 feet northwest of the site. Based on the depths, well construction, and distances, the municipal wells do not represent a concern with respect to the PHC release.

7.2.4 Beneficial Water Use Summary

MSBA evaluated the water well logs listed in the WRD database and two wells were identified within a 0.25-mile radius of the site. A door-to-door and main-in survey was also conducted for the site and adjacent properties and no water wells were identified (Figure 10). Municipal water is supplied by fifteen water wells. The nearest municipal water well is located approximately 2,650 feet northwest of the site. Based on the depths, distances, locations, well construction, and/or limited extent of the PHC plume, MSBA concludes that there are no water wells of concern with respect to the PHC release.

7.3 Underground Utility Survey

Information pertaining to underground utilities in the vicinity of the site is based on 1) a review of engineered drawings from the City of Keizer and City of Salem, 2) field observations of marked utilities prior to subsurface work, and 3) conversations with representatives from the City of Keizer and City of Salem Public Works Departments and private utility companies. The approximate locations of the underground utilities are illustrated on Figure 11.

An east-west trending, eight-inch diameter sanitary sewer utility is located along the northern property boundary (Figure 11). According to Mr. Jason Long of City of Salem Developmental Services, the sanitary sewer was installed in 1966 at an approximate depth of 12.5 feet bsg. The sanitary sewer lateral enters the station building at the northwest corner from the northern property boundary. The sanitary sewer main flows to the west before heading northward towards the Willow Lake Treatment Plant. The groundwater level is at times, higher than the depth of the sanitary sewer

utility. However, gasoline and related COIs have not been detected since 2017 and 2010 in MW-5 and MW-11, respectively, located closest to the sanitary sewer (Table 2, Figure 11). Therefore, it appears the sanitary sewer does not represent a preferential migration pathway for gasoline and related COIs in groundwater.

A north-south trending communications utility is located along the eastern property boundary, at approximate depths ranging from 7 to 8 feet bsg. MSBA contacted Utility Coordinator Will Vercoutere of Henkels and McCoy, who reported that this utility was installed in 2017 by directional drilling, which means there is no backfill around the casing that houses the utility. The groundwater level is higher at times than the depth of this communications utility. However, gasoline and related COIs have not been detected in nearby monitoring wells MW-3 and MW-5 since the utility was installed in 2017 (Table 2, Figure 11). In addition, there is no backfill, only native soil, around the utility due to the directional drilling installation. Therefore MSBA concludes that this communications utility does not represent a concern with respect to residual PHCs at the site.

Additional utilities including communications, water, storm sewer, electrical, and natural gas, are located beneath River Road North, further east, and south of the site at approximate depths ranging from 2.5 to 5 feet bsg (Figure 11). These utilities are above the highest seasonal groundwater level. All utility laterals exiting the site were outside the LOF. Based on the results of this survey, the identified underground utilities do not represent a concern with respect to the onsite release.

7.4 Ecological Impact Screening

Unless specifically requested, DEQ regulations (OAR 340-122-244(3)) do not require screening for potential ecological impacts if the site is devoid of threatened or endangered species or the following criteria are satisfied:

(a) Contaminated soils are only present at a depth greater than 3 feet below ground surface, or, if present at a shallower depth, such soils cover an area no greater than 0.125 acre;

(b) Surface water has not been affected by the release;

(c) Contaminated groundwater does not and is not reasonably likely to discharge to surface waters or otherwise reach the surface in a manner that might result in contact with ecological receptors; and

(d) Contaminated groundwater does not and is not reasonably likely to come into contact with aquatic sediments. (OAR 340-122-0244(3))

Based on the site data and conditions, all the criteria are satisfied and an ecological impact screening is not warranted.

7.5 Land Use Zoning Evaluation

The zoning for the site and surrounding properties is designated as Mixed-Use (MU), which allows commercial and residential uses within a single building or complex. However, due to the site location along River Road North, the highest and best use of the property is, and is expected to remain, commercial and residential development is not reasonably likely. Medium Density Residential (MDR) and Single Family Residential (RS) zoning districts are present to the east, and west beyond the MU district. The nearest residential building is an apartment complex located to the west within the MDR district, approximately 120 feet from the LOF (Figure 4). A modified copy of the City of Keizer interactive Zoning/Comprehensive Plan Map is presented as Figure 12. On March 18, 2021, MSBA contacted Mr. Shane Witham, City of Keizer Director of Community Development, and confirmed there are no current or anticipated future changes to the zoning in this area.

8.0 SOURCE, RECEPTOR, AND PATHWAY DETERMINATION

A CSM is prepared to evaluate the three primary elements of a site assessment that include: 1) Sources; 2) Receptors; and 3) Pathways. Together, these three elements can potentially cause risk to human health and safety. If any one of these three elements are absent, incomplete, or not applicable, there is no potential risk to human health and safety or the environment. A general explanation of the three primary elements of a CSM is presented below:

1) **Sources** - represent the constituents and the media (soil and groundwater) in which the constituents may be present. The constituents are independently evaluated as constituents of potential concern (COPCs) within each media they are present.

2) **Receptors** - include the representative segments of the human population (residents, occupational workers, construction workers, and excavation workers) that occupy or work within the site and vicinity based on zoning, current permitted land uses, and potential likely future uses of the property.

3) **Pathways** - represent the potential mechanisms of transport and routes of exposure (i.e. inhalation, ingestion, and dermal contact) that may provide a means of contact between the sources and the receptors.

The three primary elements of a CSM as they relate to this site are discussed in greater detail in the following sections.

8.1 SOURCES - Constituents/Media and COI/COPC Evaluation

In accordance with the RBDM guidance document, a list was developed to identify the COIs that require further evaluation with respect to the potential receptors and exposure pathways. The COIs include the source constituents known to be, or considered likely to be present based on the site history. Therefore, the COIs for gasoline, diesel, and their respective constituents based on the RBDM guidance document- Table 2.1, were included in this evaluation as presented in Table 5.

The screening levels used for this evaluation (Table 5) represent the most stringent RBCs for soil and groundwater for the applicable current and potential future receptors (Section 5.5) which were adapted from Appendix A of the RBDM guidance document. The maximum detected concentrations (MDCs) were evaluated with respect to the screening levels to determine whether individual COIs should be further evaluated as COPCs based on the following criteria:

1) Individual COIs will not be further evaluated as COPCs if they are: 1) detected at a concentration below the respective screening level; 2) not detected and one half of the laboratory RL, which was raised due to dilution required for analysis, is below the respective screening levels; or 3) not detected and the commonly achievable RL, which was not raised by sample dilution required for analysis, exceeds the respective screening levels (USTCM- Section 3.3.6: Detection Limits Versus RBCs).

2) Individual COIs will be further evaluated as COPCs if they are: 1) detected at a concentration exceeding the respective screening level; or 2) not detected and one half of the RL, which was raised by sample dilution required for analysis, exceeds the screening level (USTCM- Section 3.3.6: Detection Limits Versus RBCs).

8.1.1 COI/COPC Evaluation - Soil

The soil COIs were identified for further evaluation as COPCs by comparing the soil MDCs to the screening levels (Table 5) in accordance with the criteria presented above (Section 8.1). COIs with concentrations exceeding the screening levels were identified as COPCs. The soil COPCs include gasoline; ethylbenzene; naphthalene; 124-trimethylbenzene (124-TMB); and 1,3,5-trimethylbenzene (135-TMB) (Table 5).

8.1.2 COI/COPC Evaluation - Groundwater

The groundwater COIs were identified for further evaluation as COPCs by comparing the groundwater MDCs to the screening levels (Table 5) in accordance with the criteria presented above (Section 8.1). COIs with concentrations exceeding the screening levels were identified as COPCs. The groundwater COPCs included gasoline; diesel; oil; benzene; toluene; ethylbenzene; xylenes; naphthalene; 1,2-dibromoethane (EDB); 1,2-dichloroethane (EDC); 124-TMB; 135-TMB; TCE; chloroform; benzo(a)anthracene; benzo(a)pyrene; and dibenz(a,h)anthracene (Table 5).

8.2 RECEPTORS - Potential Receptor Evaluation

Potential receptors were evaluated based on the current and future zoning (Section 7.5), the current site and surrounding property uses, and the reasonably likely potential future uses. MSBA has determined that current and likely future property use is, and will remain, commercial. Therefore, occupational worker, construction worker, and excavation worker receptors will be evaluated. The zoning for the site is designated as MU, which allows commercial and residential uses within a single building or complex, therefore the resident receptor will also be evaluated.

8.3 PATHWAYS

The RBDM lists potential exposure pathways between the COPCs in the affected media and the applicable receptors. An exposure pathway is considered "complete" when site data and information indicates that a receptor is reasonably likely to contact a COPC. A potential exposure pathway is considered "incomplete" when site data and information indicate that a potential receptor is not reasonably likely to contact a COPC. If a potential exposure pathway is deemed complete, it is further evaluated for potential risk. CSM information was utilized for this evaluation, including general site information (Section 1.0); a Surface Water Assessment (Section 7.1); a Beneficial Water Use Survey (Section 7.2); an Underground Utility Survey (Section 7.3); and a Land Use Zoning Evaluation (Section 7.5). The following presents a summary and brief description of the potential exposure pathways and receptors that were evaluated for risk.

Soil Ingestion, Dermal Contact, and/or Inhalation (SIDCI): This pathway includes ingestion, dermal contact, and/or inhalation of residual COPCs in soil. The applicable potential receptors include residents, occupational workers, construction workers, and excavation workers.

Leaching to Groundwater (LGW): This pathway includes residual COPCs in soil leaching into groundwater and subsequently being ingested by potential receptors through groundwater supply wells. The applicable potential receptors include residents and occupational workers.

Ingestion and Inhalation from Tapwater (IIT): This pathway includes ingestion and/or inhalation of residual COPCs in groundwater from wells by potential receptors. The applicable potential receptors for this site include residents and occupational workers.

Groundwater in Excavation (GWE): This pathway includes dermal absorption and/or inhalation of COPCs in groundwater in excavations by potential receptors during construction or excavation activities. The applicable potential receptors for this site include construction and excavation workers.

Vapor Intrusion into Buildings (VIB): This pathway includes volatilization of residual COPCs from soil and groundwater to indoor air and inhalation by potential receptors. The applicable potential receptors for this site include residents and occupational workers.

Volatilization to Outdoor Air (VOA): This pathway includes volatilization of residual COPCs from soil and groundwater to outdoor air and inhalation by potential receptors. The applicable potential receptors for this site include residents occupational workers.

9.0 RISK ASSESSMENT

The following presents an evaluation of risk to the identified receptors for each of the applicable potential exposure pathways.

9.1 Soil Ingestion, Dermal Contact, and/or Inhalation (SIDCI)

COPCs were present in shallow soil (less than or equal to 3 feet bsg) in 2004 at concentrations exceeding the SIDCI pathway RBCs for the residential receptor (Table 1). RBCs for the occupational, construction, and excavation worker receptors were not exceeded. The nearest residence is located approximately 100 feet west of MW-6 where COPCs were detected in soil above the residential SIDCI exposure pathway RBCs. Current zoning (MU) allows commercial and residential uses within a single building or complex. However, the highest and best use of the property is consistent with its current use due to its location adjacent to River Road North. Therefore, it is not reasonably likely that the site will be used for residential purposes in the foreseeable future. In addition, most of the site is covered with structures, asphalt pavement, or concrete slabs and any subsurface disturbances would likely be performed by a construction/excavation worker receptors familiar with safety precautions related to PHCs. Based on the limited extent of the release and site conditions, MSBA concludes there is no elevated risk to human health and safety with respect to the SIDCI exposure pathway.

9.2 Ingestion and Inhalation from Tapwater (IIT)

COPCs were present in groundwater at concentrations exceeding the IIT pathway RBCs for the residential and occupational worker receptors (Tables 2 and 3). MSBA conducted a beneficial water use survey (Section 7.2) and determined there are no water wells of concern with respect to the PHC release. In addition, installation of new drinking water wells in the area is not likely due to the availability of municipal water and the documented presence of chlorinated solvents in groundwater

beneath the City of Keizer. Furthermore, groundwater analytical data indicate significant groundwater attenuation has occurred (Table 2; Figure 8) and concentrations are expected to continually decrease over time. Based on the documented attenuation, limited extent of the release, current and future absence of water wells, and site conditions, MSBA concludes there is no elevated risk to human health and safety with respect to the IIT exposure pathway.

9.3 Leaching to Groundwater (LGW)

COPCs were present in soil at concentrations exceeding the LGW pathway RBCs for the residential and occupational worker receptors (Table 1). Groundwater investigations confirmed that COPCs are present in the groundwater. As discussed in Section 9.2, there are no water wells of concern with respect to the PHC release. In addition, installation of new drinking water wells in the area is not likely due to the availability of municipal water and the documented presence of chlorinated solvents in groundwater beneath the City of Keizer. Furthermore, groundwater analytical data indicate significant groundwater attenuation has occurred (Table 2; Figure 8) and concentrations are expected to continually decrease over time. Based on the documented attenuation, limited extent of the release, current and future absence of water wells, and site conditions, MSBA concludes there is no elevated risk to human health and safety with respect to the LGW exposure pathway.

9.4 Groundwater in Excavation (GWE)

COPCs were present in groundwater at concentrations exceeding the GWE pathway RBCs for the construction and excavation worker receptors (Table 2). Based on the groundwater analytical data collected in May 2014, February 2017, and June and September 2019, it appears that COPC concentrations have decreased significantly due to natural attenuation and no longer exceed the GWE pathway RBCs. In addition, the property is an active service station and any subsurface disturbances would likely be performed by construction/excavation worker receptors familiar with safety precautions related to PHCs. Based on the documented attenuation, limited extent of the release, and site conditions, MSBA concludes there is no elevated risk to human health and safety with respect to the GWE exposure pathway.

9.5 Vapor Intrusion into Buildings (VIB)

COPCs were present in groundwater at concentrations exceeding the VIB pathway RBCs for the residential and occupational worker receptors (Table 2). Based on the groundwater analytical data collected by MSBA in May 2014, February 2017, and June and September 2019, it appears that COPC concentrations have decreased significantly due to natural attenuation and no longer exceed the residential and occupational VIB pathway RBCs. In addition, a total of 22 quarterly sampling

events have been performed since COIs were last detected at concentrations exceeding the occupational VIB RBCs in MW-2 (June 2004) (Table 2). The nearest residential building is an apartment complex located west of the site and approximately 120 feet from the LOF (Figure 4). Current zoning (MU) allows commercial and residential uses within a single building or complex. However, the highest and best use of the property is commercial and is expected to remain commercial due to its location along River Road North. Based on the documented attenuation, limited extent of the release, and site conditions, MSBA concludes there is no elevated risk to human health and safety with respect to the VIB exposure pathway.

9.6 Volatilization to Outdoor Air (VOA)

COPCs were present in groundwater at concentrations exceeding the VOA pathway RBCs for the residential receptor (Table 2). RBCs for the occupational worker receptors were not exceeded in any soil or groundwater sample collected at the site. Based on the groundwater analytical data collected by MSBA in May 2014, February 2017, and June and September 2019, it appears that COPC concentrations have decreased significantly due to natural attenuation and no longer exceed the residential VOA pathway RBCs. The nearest residential building is an apartment complex located west of the site and approximately 120 feet upgradient of the LOF (Figure 4). Current zoning (MU) allows commercial and residential uses within a single building or complex. However, the highest and best use of the property is commercial and is expected to remain commercial due to the site location along River Road North. Based on the documented attenuation, limited extent of the release, and site conditions, MSBA concludes there is no elevated risk to human health and safety with respect to the VOA exposure pathway.

9.7 Risk Assessment Summary

Gasoline and related COIs were detected, or had elevated RLs, that exceeded the applicable RBCs and were therefore, further evaluated for risk as COPCs. The zoning evaluation determined the site and vicinity are designated Mixed-Use (MU) and potential receptors were identified as residents, occupational workers, construction workers, and excavation workers. Potential exposure pathways between the identified COPCs and receptors included: 1) SIDCI; 2) LGW; 3) LGW; 4) GWE; 5) VIB; and 6) VOA. Based on the results of this risk evaluation, MSBA has determined there is no elevated risk to human health and safety with respect to the PHC release.

10.0 RECOMMENDATION FOR RISK-BASED REGULATORY SITE CLOSURE

A release originated from a regulated UST system and PHCs were detected in the subsurface soil and groundwater during site investigation activities conducted by Aspen and Wohlers. Additional groundwater monitoring and sampling activities were performed by MSBA in general accordance with the USTCM under OAR 340-122-0205 through 340-122-0360 and the RBDM. Soil and groundwater sample analytical data indicate that the remaining COIs are below the applicable RBCs, or the potential exposure pathways are incomplete or not reasonably likely to pose an elevated risk to human health and safety. Therefore, based on the current site conditions and circumstances, MSBA concludes there is no elevated risk to human health and safety or the environment with respect to the PHC release, and regulatory closure of the site is requested.

11.0 REMARKS AND SIGNATURES

The information/conclusions/recommendations contained in this report were arrived at in accordance with currently accepted professional geological and environmental practices at this time and location. No warranties are expressed or implied. This report was prepared solely for Younger Oil Company. MSBA is not responsible for the independent conclusions or actions of others derived from the information presented herein.

Information and opinions presented in this report are based on the collection and review of data from limited portions of the site and subsurface. MSBA is not responsible for conditions that may exist in portions of the site that were not investigated, for conditions that were not reported or properly presented to MSBA, or for future activities or investigations that may alter the current condition or understanding of the site.

Prepared By:
Martin S. Burck Associates, Inc.

Jon White / 7/10/24
Jon White Date
Project Manager

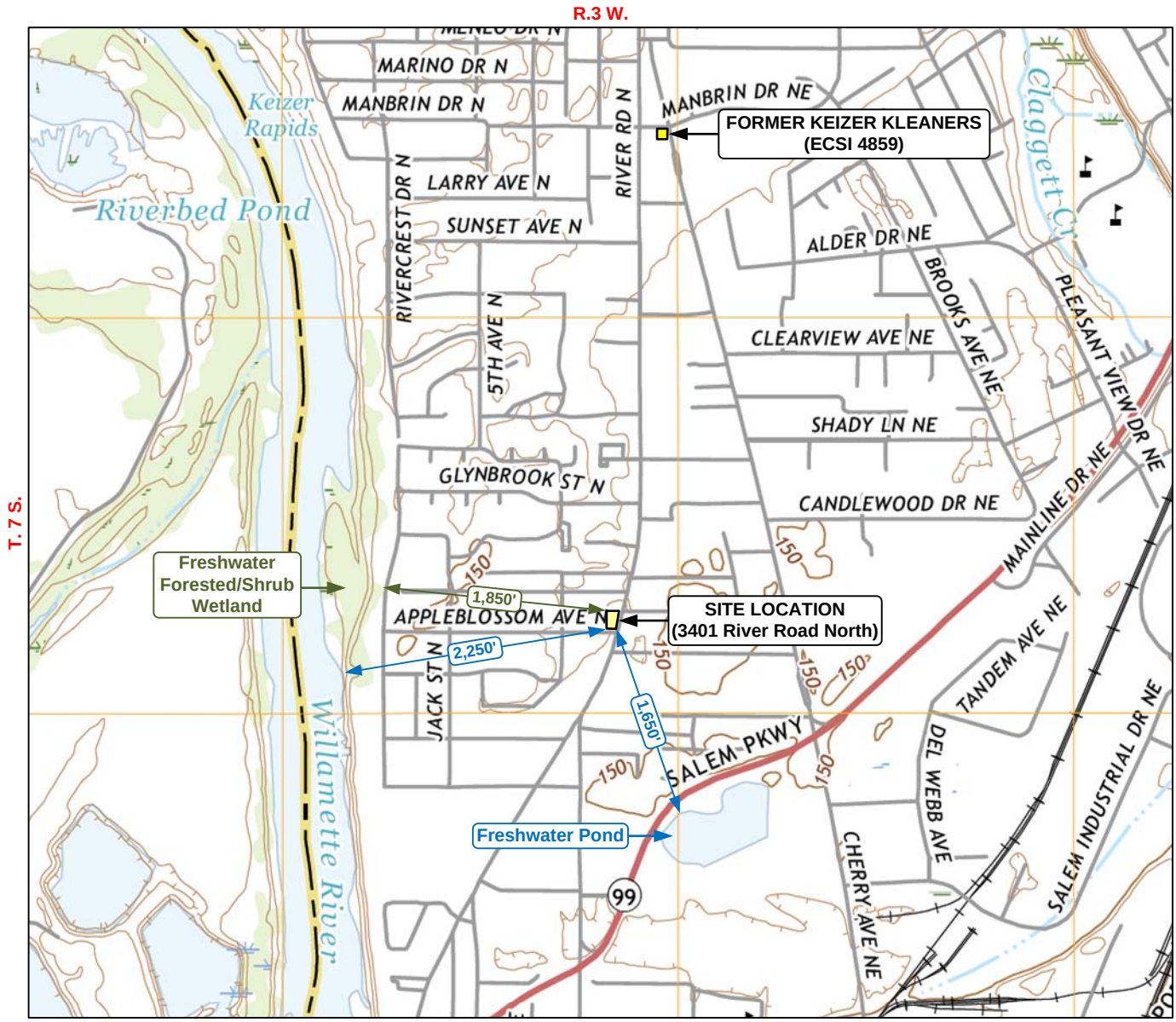
Reviewed by:

Martin S. Burck / 7/10/24
Martin S. Burck, LG/RG Date
Licensed/Registered Geologist; OR, WA, CA

Expires: 03/01/2025

S:\Project Files\Younger Oil\Keizer Texaco\MSBA Drafts\Closure Report\text.wpd

Figures



Adapted from: SALEM WEST QUADRANGLE, Oregon, 7.5 Minute Series,
USGS Topographic Map, 2020, Contour Interval: 10 Feet;
North American Vertical Datum of 1988

Revised: 7/9/2024 1:24 PM

MSBA
Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

NORTH

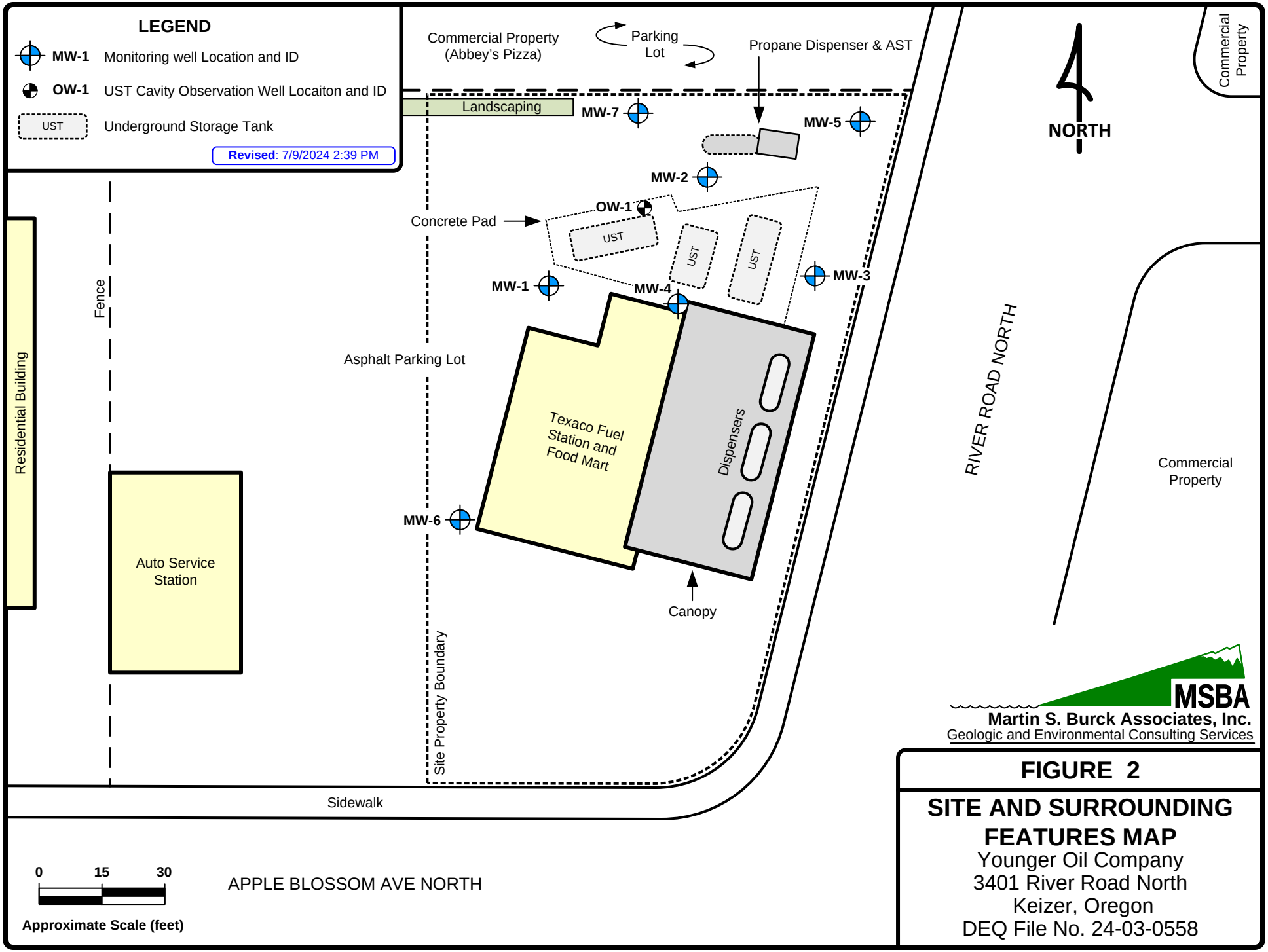
0 1/8 1/4
Approximate Scale (mile)

FIGURE 1

SITE LOCATION MAP

Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 1 Site Location.vsd



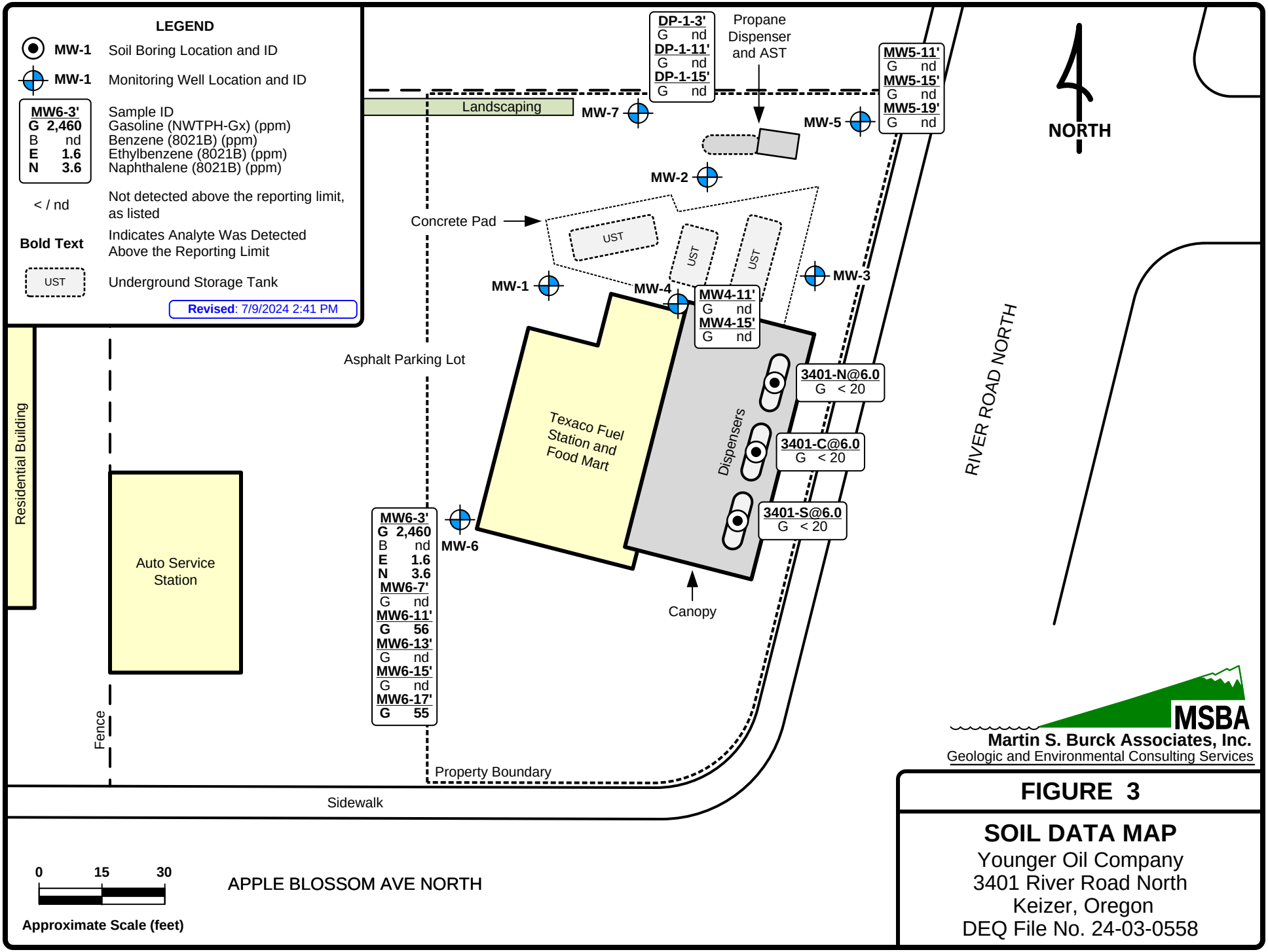
MSBA
Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

FIGURE 2

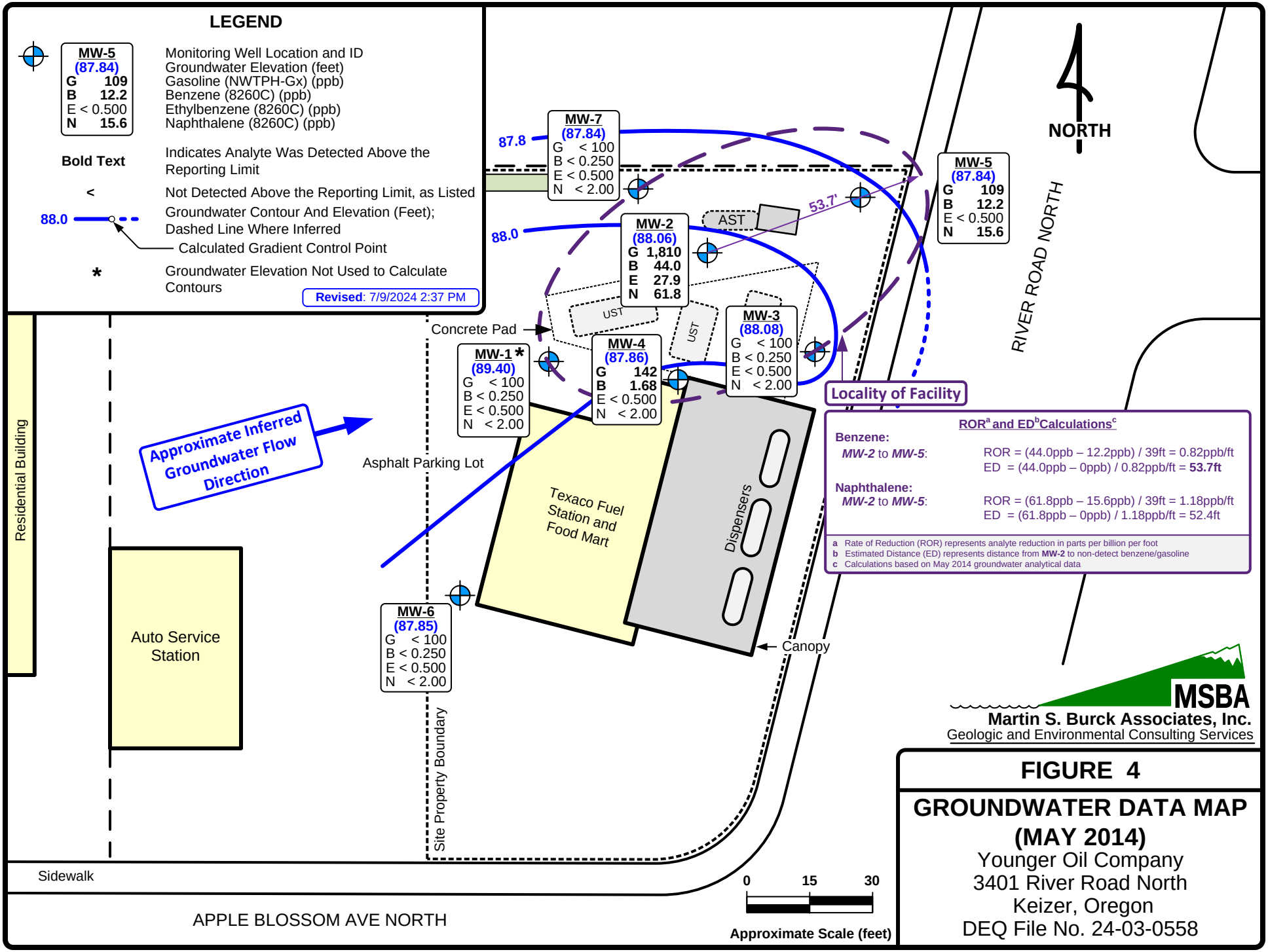
SITE AND SURROUNDING FEATURES MAP

Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

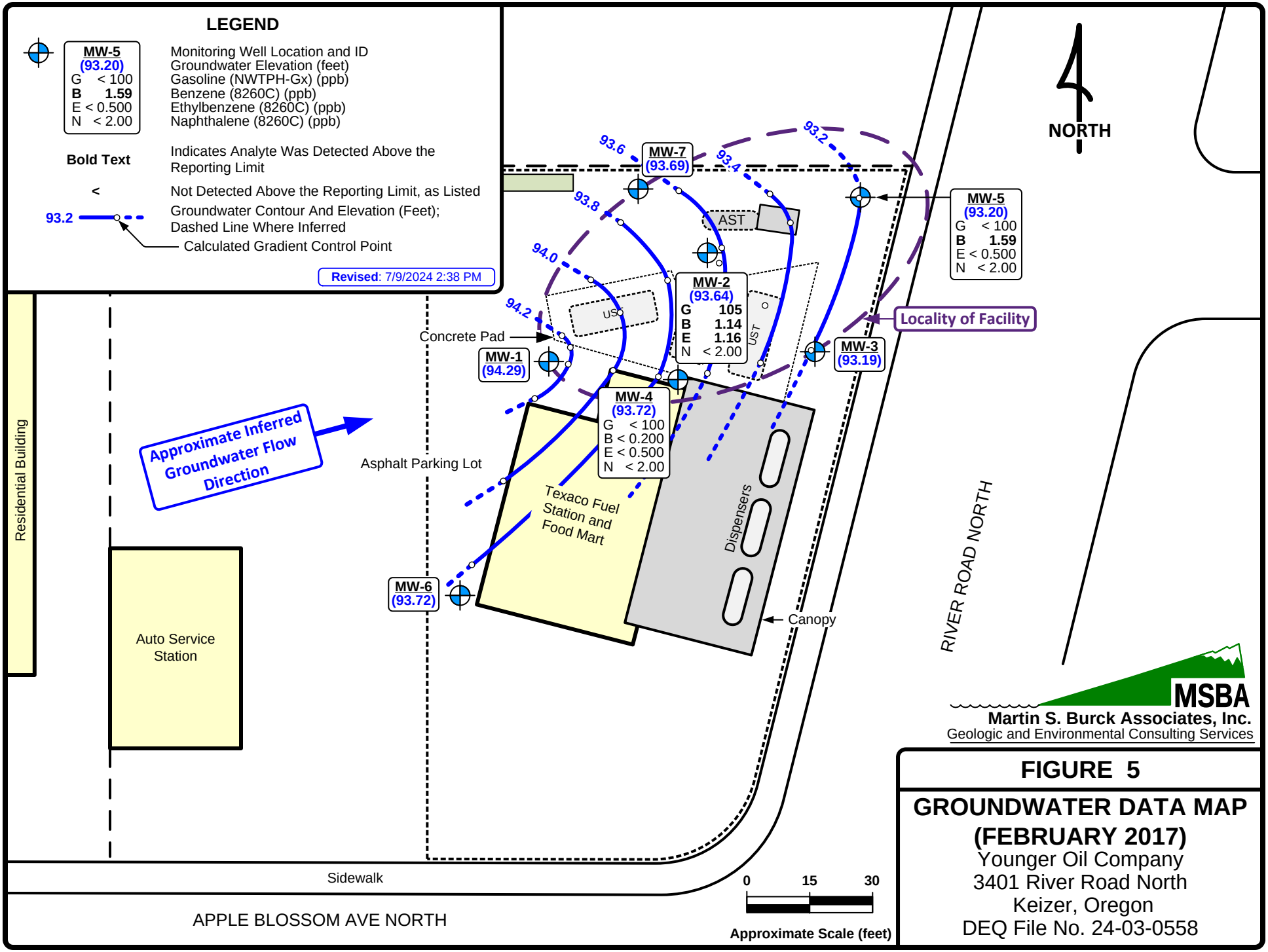
S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 2 Site Features Map.vsd



S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 3 Soil Data Map.vsd



S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 4 GW Data Map May 2014.vsd



MSBA
Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

FIGURE 5

GROUNDWATER DATA MAP (FEBRUARY 2017)

Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 5 GW Data Map Feb 2017.vsd

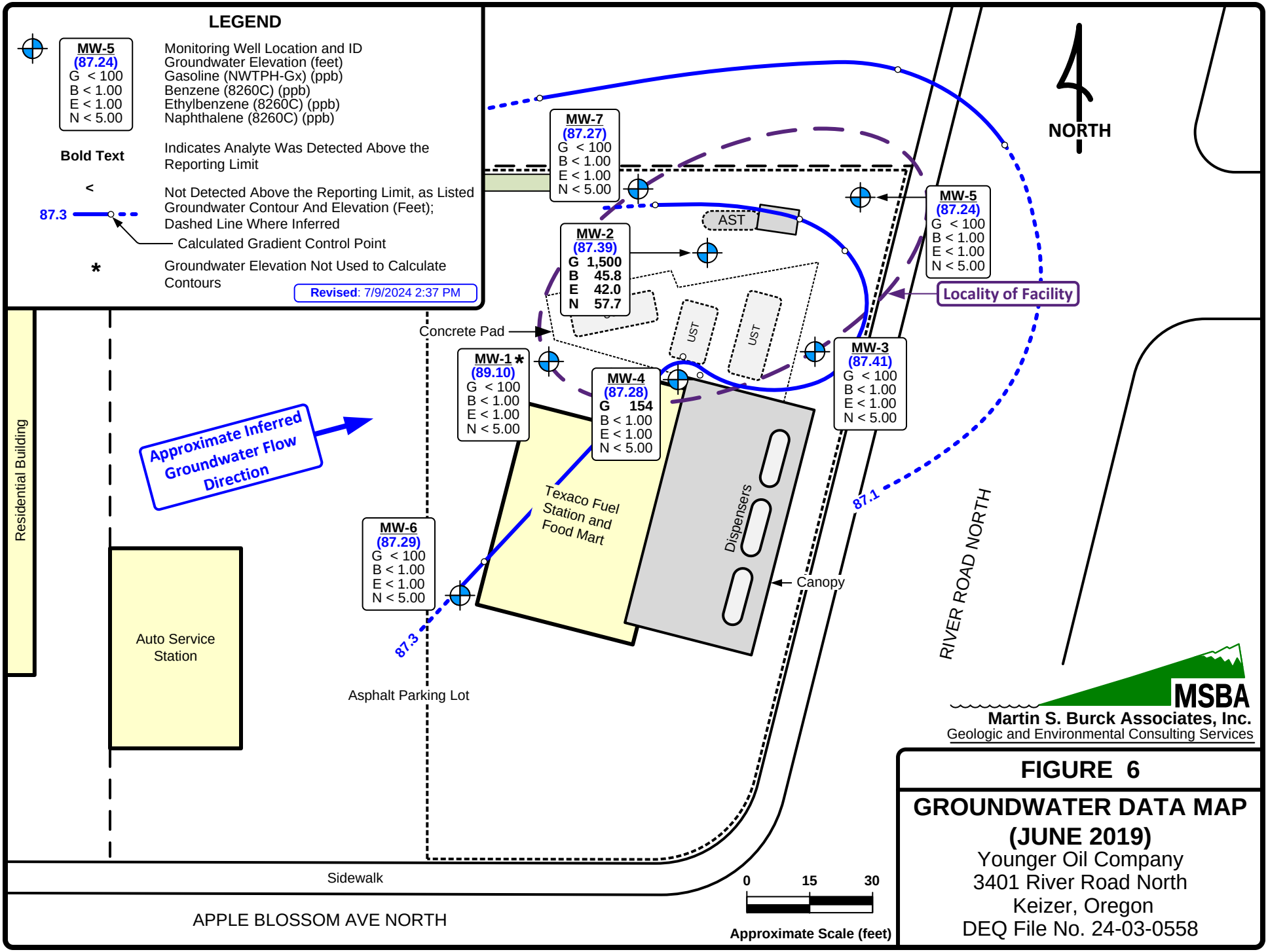


FIGURE 6

GROUNDWATER DATA MAP (JUNE 2019)

Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 6 GW Data Map June 2019.vsd

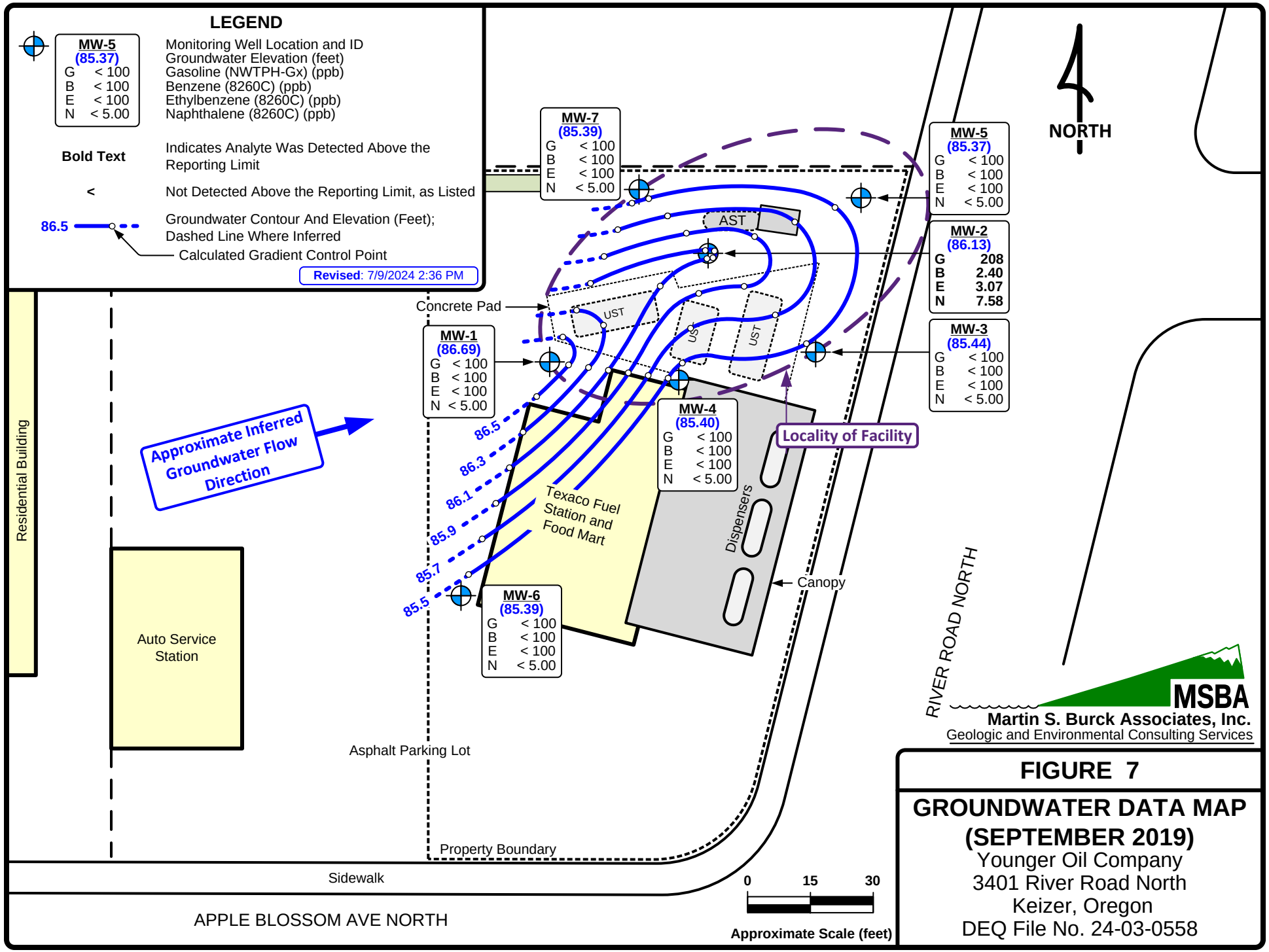


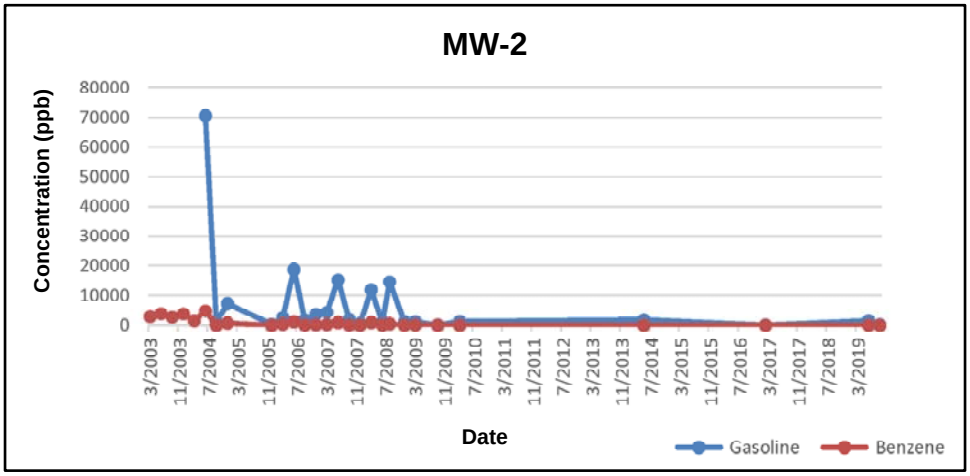
FIGURE 7

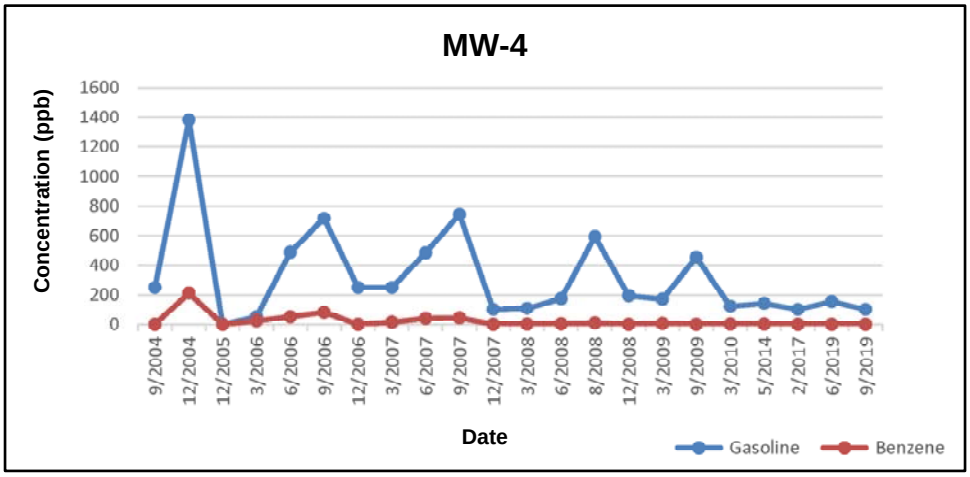
GROUNDWATER DATA MAP (SEPTEMBER 2019)

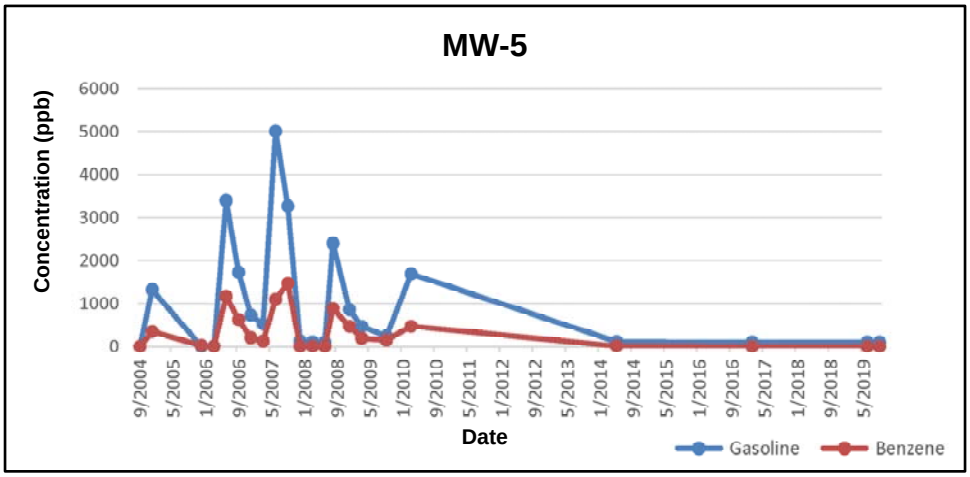
Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 7 GW Data Map Sep 2019.vsd

GASOLINE AND BENZENE CONCENTRATIONS OVER TIME







MSBA
Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

FIGURE 8

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

Revised: 12/28/2021 1:11 PM

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 8 Gx & B Over Time.vsd

LEGEND

MARI 57279 — Water Well Location and Associated WRD Well Log Number

Revised: 11/2/2022 9:14 AM

NORTH

0 220 440

Approximate Scale (feet)

MSBA

Martin S. Burck Associates, Inc.

Geologic and Environmental Consulting Services

FIGURE 9

WATER WELL LOCATION MAP

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 9 Water Well Loc Map.vsd

Adapted From Google Earth Imagery (7/26/18)

Revised: 7/9/2024 1:25 PM

NORTH

0 1/16 1/8

Approximate Scale (mile)

MSBA

Martin S. Burck Associates, Inc.

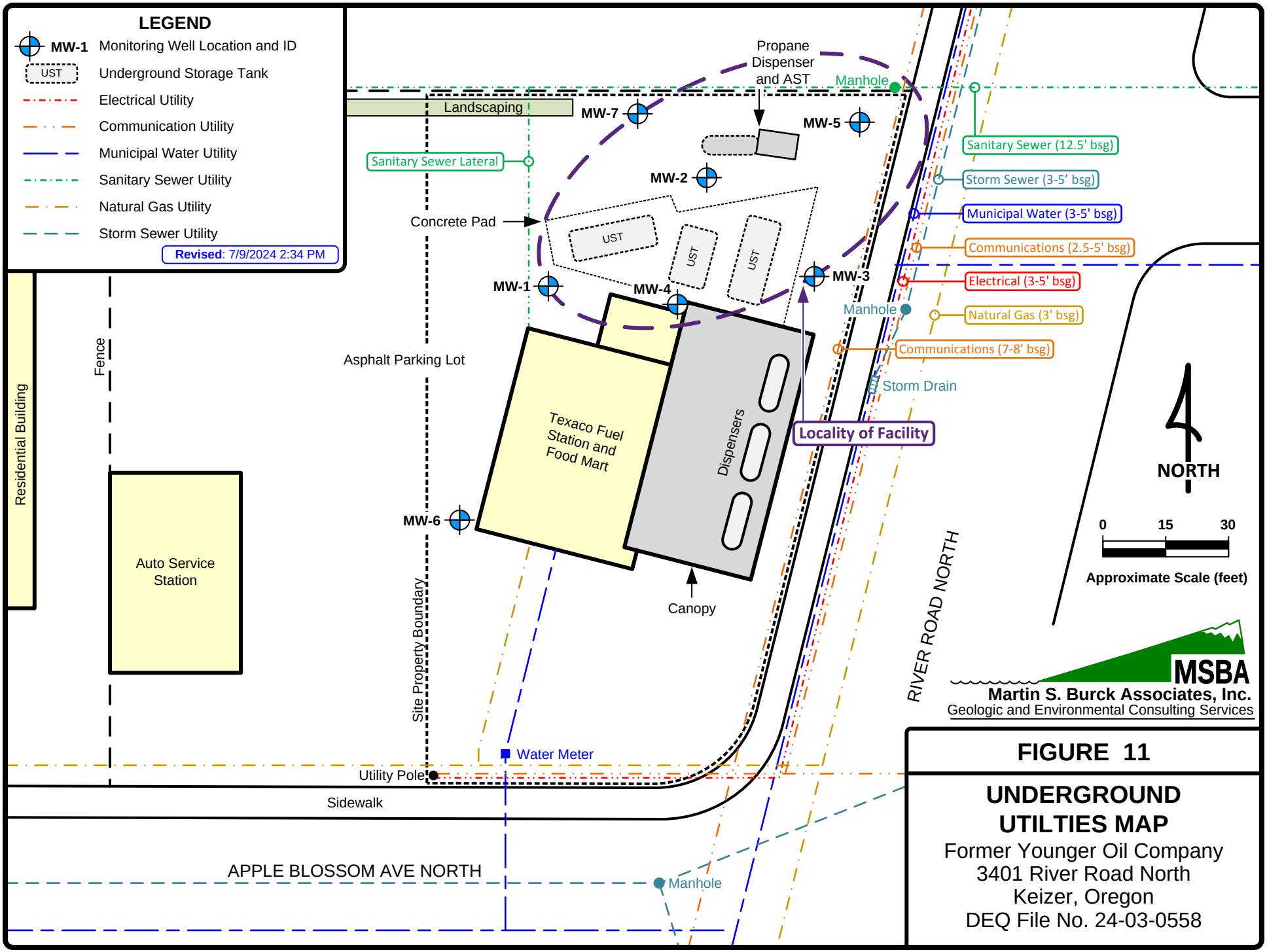
Geologic and Environmental Consulting Services

FIGURE 10

WATER WELL SURVEY MAP

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 10 Door to Door Survey Map.vsd



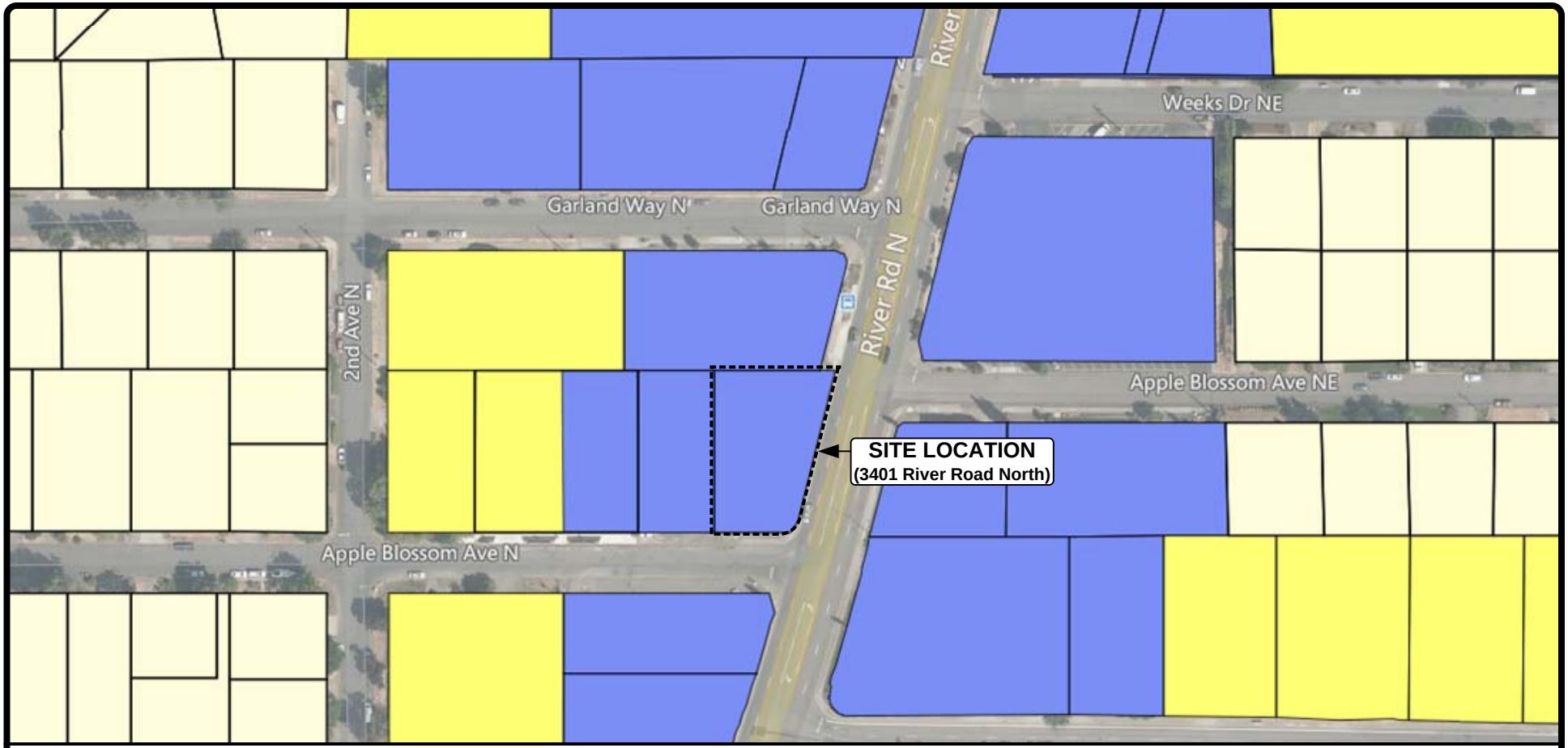
MSBA
Martin S. Burck Associates, Inc.
Geologic and Environmental Consulting Services

FIGURE 11

UNDERGROUND UTILTIES MAP

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 11 Underground Utilities.vsd



Adapted from: City of Keizer Interactive Zoning/Comprehensive Plan Map (updated December 2019)

LEGEND

- Mixed Use
- Medium Density Residential
- Residential Single Family

Revised: 11/3/2022 1:43 PM

NORTH

Not to Scale

MSBA

Martin S. Burck Associates, Inc.

Geologic and Environmental Consulting Services

FIGURE 12

LAND USE ZONING MAP

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

S:\Project Files\Younger Oil\Keizer Texaco\Figures & Aerial Photos\Closure Report\F 12 Zoning Map.vsd

Tables

TABLE 1
SOIL SAMPLE ANALYTICAL DATA
Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

Sample ID	Sample Date	Sample Depth (feet bsg) [a]	PHCs [b] (ppm) [c]			RBDM VOCs [d] (ppm)												TCLP Lead [e] (ppm)
			Gasoline	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	
Aspen Environmental Services, Inc., Samples																		
3401-N@6.0	03/18/03	6	< 20 [f]	- [g]	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3401-C@6.0	03/18/03	6	< 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
3401-S@6.0	03/18/03	6	< 20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wohlers Environmental Services, Inc., Samples																		
MW-4-11'	07/07/04	11	nd [h]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-4-15'	07/07/04	15	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5-11'	07/07/04	11	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5-15'	07/07/04	15	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-5-19'	07/07/04	19	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6-3'	07/07/04	3	**2,460** [i, j]	-	-	nd	**0.2**	**1.6**	**14.5**	**3.6**	-	-	-	**1.7**	**3.9**	**30.9**	**11.5**	nd
MW-6-7'	07/07/04	7	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6-11'	07/07/04	11	**56**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6-13'	07/07/04	13	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6-15'	07/07/04	15	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
MW-6-17'	07/07/04	17	**55**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP-1-3' (MW-7)	07/07/04	3	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP-1-11' (MW-7)	07/07/04	11	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DP-1-15' (MW-7)	07/07/04	15	nd	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

TABLE 1 (continued)

TABLE 1
SOIL SAMPLE ANALYTICAL DATA
Former Younger Oil Company
DEQ File No. 24-03-0558

Sample ID	Sample Date	Sample Depth (feet bsg) [a]	PHCs [b] (ppm) [c]			RBDM VOCs [d] (ppm)											TCLP Lead [e] (ppm)
			Gasoline	Diesel	Heavy Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	
DEQ Soil Risk-Based Concentrations (RBC) - Updated May 2018																		
LGW [k]	Residential		31	9,500	9,500	0.023	84	0.22	23	0.077	0.0001	0.0028	0.11	96	-- [l]	10	11	30
	Occupational Worker		130	> Max [m]	> Max	0.10	490	0.90	100	0.34	0.0006	0.013	0.54	> Csat [n]	--	48	53	30
SIDCI [o]	Residential		1,200	1,100	1,100	8.2	5,800	34	1,400	5.3	0.16	3.6	250	3,500	--	430	430	400
	Occupational Worker		20,000	14,000	14,000	37	88,000	150	25,000	23	0.73	16	1,100	57,000	--	6,900	6,900	800
	Construction Worker		9,700	4,600	4,600	380	28,000	1,700	20,000	580	9.0	200	12,000	27,000	--	2,900	2,900	800
	Excavation Worker		> Max	> Max	> Max	11,000	770,000	49,000	560,000	16,000	250	5,600	320,000	750,000	--	81,000	81,000	800
VIB [p]	Residential		94	> Max	> Max	0.16	> Csat	1.3	160	6.4	0.012	0.077	8.5	> Csat	--	140	98	NV [q]
	Occupational Worker		> Max	> Max	> Max	2.1	> Csat	17	> Csat	83	0.16	1.0	110	> Csat	--	> Csat	> Csat	NV
VOA [r]	Residential		5,900	> Max	> Max	11	> Csat	36	> Csat	6.4	0.15	3.4	340	> Csat	--	> Csat	> Csat	NV
	Occupational Worker		69,000	> Max	> Max	50	> Csat	160	> Csat	83	0.65	15	1,500	> Csat	--	> Csat	> Csat	NV

a Depth of sample in feet below surface grade (bsg)
b Petroleum hydrocarbons (PHCs) were analyzed using NWTPH method Gx (gasoline) and Dx (diesel and oil)
c Numerical analytical data reported in parts per million (ppm)
d Volatile organic compounds (VOCs) were analyzed using EPA method 8260B
e Lead analyzed using toxicity characteristic leaching procedure (TCLP)
f (<) Analyte concentration not detected above the laboratory reporting limit, as listed
g (-) Not analyzed/not available
h (nd) Not Detected above the laboratory reporting limit as noted in tables provided by Wohler's Environmental Services, Inc. Laboratory reports not available
i Bold value indicates analyte concentration exceeds laboratory reporting limit
j Yellow shading indicates the analyte concentration (or one-half the laboratory reporting limit) exceeds an RBC. The exceeded RBC is also shaded
k Leaching to Groundwater (LGW) RBCs for the residential and occupational receptors
l (--) Not available (Oregon DEQ has not established an RBC value for the respective analyte)
m (> MAX) "The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, these substances are not expected to pose risks in the scenario shown" (Appendix A, RBDM, 2018)
n (> Csat) "This soil RBC exceeds the limit of three-phase equilibrium partitioning" (Appendix A, RBDM, 2018)
o Soil Ingestion, Dermal Contact, and Inhalation (SIDCI) RBCs for the residential and occupational, construction, and excavation worker receptors
p Vapor Intrusion into Buildings (VIB) RBCs for the residential and occupational receptors
q (NV) "This chemical is considered "nonvolatile" for the purposes of the exposure calculations" (Appendix A, RBDM, 2018)
r Volatilization to Outdoor Air (VOA) RBCs for the residential and occupational receptors

S:\Project Files\Younger Oil\Keizer Texaco\Tables\(0) CURRENT TABLES\[T 1 Soil Data.xls]T 5

TABLE 2
GROUNDWATER SAMPLE ANALYTICAL DATA -
PHCs, VOCs, AND HYDROCARBON DEGRADING BACTERIA

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PHCs [a] (ppb) [b]			VOCs [c] (ppb)																				Hydrocarbon Degrading Bacteria [d] (CFU/ml) [e]
						RBDM VOCs												Detected Additional VOCs								
			Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trimethylbenzene	cis-1,2-Dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Chloroform	
Monitoring Well Samples																										
MW-1	3/18/03	Aspen	- [f]	-		**38** [g,h]	< 2 [i]	< 2	< 2	**4**	< 2	< 2	< 2	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/17/03	Wohlers	-	**380**	< 500	**31**	**23**	**4**	**31**	**2**	< 2	< 2	< 5	< 2	< 2	**4**	**2**	-	-	-	-	-	-	-	-
	9/5/03	Wohlers	-	**460**	< 500	**1.17**	< 1	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/22/03	Wohlers	-	**550**	< 500	**2**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/30/04	Wohlers	-	**950**	< 500	**1**	< 2	< 2	**2**	**4**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/23/04	Wohlers	< 250	**4,470**	< 500	**1**	< 2	< 2	**2**	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/13/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	< 250	**910**	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-		< 0.50	< 2	< 2	< 2	**4**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	< 2	**1,400**	< 380	**3.5**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	< 250	< 250	< 500	**1.4**	< 2	< 2	**3**	< 2	< 2	< 2	< 5	**4**	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	< 250	< 250	< 500	**1.0**	< 2	< 2	< 2	**2**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	**725**	< 250	< 500	**14**	**7**	**11**	**49**	**3**	< 2	< 2	< 5	< 2	< 2	**14**	**4**	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	**125**	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	**151**	-	-	**2.36**	< 2	< 2	< 2	**4**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	< 100	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	< 100	-	-	**0.44**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	< 100	-	-	< 0.3	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	< 100	-	-	< 0.3	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	< 100	-	-	< 0.35	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-	-	-	-	-	-
	9/16/09	Wohlers	< 100	-	-	< 0.30	< 1	< 1	< 2	< 0.25	< 2	**1**	< 2	< 2	< 2	< 2	< 2	-	-	-	**1**	**4.3**	-	-	-
	3/23/10	Wohlers	< 100	-	-	< 0.30	< 1	< 1	< 2	**0.30**	< 0.10	< 0.10	< 2	< 2	< 2	< 2	< 2	-	-	-	**1.4** [j]	**7**	-	-	-
	5/30/14	MSBA	< 100	-	-	< 0.250	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	< 0.500	< 1.00	< 1.00	-	-	-	-	-	-	-	-
	2/22/17	MSBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/27/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**3.78**	< 1.00	< 5.00	-
	9/16/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**3.14**	< 1.00	< 5.00	-

TABLE 2 (continued)

TABLE 2 (continued)
GROUNDWATER SAMPLE ANALYTICAL DATA - PHCs, VOCs, AND HYDROCARBON DEGRADING BACTERIA
Former Younger Oil Company
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PHCs [a] (ppb) [b]			VOCs [c] (ppb)																			
						RBDM VOCs												Detected Additional VOCs							
			Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trimethylbenzene	cis-1,2-Dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Chloroform	Hydrocarbon Degrading Bacteria [d] (CFU/ml) [e]
MW-2	3/18/03	Aspen	-	-	-	**2,986**	**712**	**354**	**1,940**	**246**	< 2	< 2	< 2	**55**	**110**	**660**	**155**	-	-	-	-	-	-	-	-
	6/17/03	Wohlers	-	< 250	< 500	**3,980**	**3,423**	**758**	**4,696**	**422**	< 2	< 2	< 2	< 2	< 2	**1,347**	**386**	-	-	-	-	-	-	-	-
	9/5/03	Wohlers	-	< 250	< 500	**2,750**	**2,190**	**620**	**3,710**	**394**	< 2	**46**	< 5	**75**	**147**	**1,014**	**336**	-	-	-	-	-	-	-	-
	12/22/03	Wohlers	-	< 250	< 500	**3,840**	**4,400**	**418**	**6,520**	**557**	< 2	< 2	< 5	**28**	**24**	**1,352**	**411**	-	-	-	-	-	-	-	-
	3/30/04	Wohlers	-	< 250	< 500	**1,500**	**1,350**	**563**	**2,940**	**310**	< 2	< 2	< 5	**69**	**133**	**996**	**290**	-	-	-	-	-	-	-	-
	6/23/04	Wohlers	**70,600**	< 250	< 500	**4,880**	**4,000**	**1,064**	**6,520**	**313**	< 2	< 2	**7**	**110**	**204**	**2,630**	**481**	-	-	-	-	-	-	-	-
	9/13/04	Wohlers	**1,170**	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	**6**	< 2	< 2	< 2	**26**	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	**7,360**	< 250	< 500	**751**	**167**	**73**	**1,040**	**149**	< 2	< 2	< 5	**17**	**12**	**389**	**136**	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-	-	**20**	**4**	< 2	**130**	**6**	< 2	< 2	< 5	< 2	< 2	< 2	**73**	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	**2,600**	**820**	< 440	**380**	**61**	**37**	**520**	**49**	< 0.50	< 0.50	< 0.50	**17**	**4.8**	**84**	**120**	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	**18,700**	< 250	< 500	**1,200**	**669**	**347**	**1,970**	**231**	< 2	< 2	< 5	**246**	**126**	**957**	**230**	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	**1,800**	< 250	< 500	**129.5**	4	**56**	**35**	**29**	< 2	< 2	< 5	**43**	**34**	**58**	**5**	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	**3,770**	< 250	< 500	**223**	**66**	**35**	**518**	**98**	< 2	< 2	< 5	< 2	**17**	**183**	**37**	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	**4,420**	< 250	< 500	**299**	**72**	**50**	**615**	**147**	< 2	< 2	< 5	**16**	**22**	**175**	**41**	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	**15,200**	< 250	< 500	**860**	**260**	**290**	**1,260**	**158**	< 2	< 2	< 5	**48**	**61**	**502**	**120**	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	**1,980**	-	-	**123**	**28**	**55**	**131**	**51**	< 2	< 2	< 5	**33**	**35**	**96**	**13**	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	**520**	-	-	**21.78**	**2**	< 2	**45**	**12**	< 2	< 2	< 5	< 2	< 2	**19**	**4**	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	**11,800**	-	-	**932**	**186**	**120**	**1,055**	**246**	< 2	< 2	< 5	**34**	**45**	**317**	**62**	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	**1,080**	-	-	**96.4**	**4**	**16**	**65**	**64**	< 2	< 2	< 5	**4**	**6**	**45**	**8**	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	**14,600**	-	-	**478**	**231**	**192**	**822**	**214**	< 2	< 2	< 4	**61**	**75**	**457**	**108**	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	**1,180**	-	-	**37.2**	**4**	**5**	**119**	**26**	< 2	< 2	< 4	**2**	**4**	**54**	**11**	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	**1,200**	-	-	**60**	**14**	**17**	**260**	**76**	< 1	< 1	< 1	**7**	**11**	**140**	**28**	-	**2.5**	-	-	-	-	-	-
	9/16/09	Wohlers	**141**	-	-	**0.4**	< 1	< 1	< 2	< 0.25	< 2	**4**	< 2	< 2	< 2	< 2	< 2	-	-	-	**4**	**27**	-	-	-
	3/23/10	Wohlers	**1,280**	-	-	**20.3**	**4**	**7**	**84**	**25.30**	< 0.10	< 0.10	< 2	**5**	**6**	**65**	**8**	-	-	-	**0.6** [j]	**5**	-	-	-
	5/30/14	MSBA	**1,810**	-	-	**44.0**	**6.45**	**27.9**	**173**	**61.8**	< 0.500	< 0.500	< 1.00	**7.45**	**13.2**	**122**	**19.3**	-	-	-	-	-	-	-	-
	2/22/17	MSBA	**105**	-	-	**1.14**	< 1.00	**1.16**	**6.54**	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	-	**5.16**	< 1.00	-	-	-	-	-	-	-	**100**
	6/27/19	MSBA	**1,500**	-	-	**45.8**	**5.45**	**42.0**	**87.5**	**57.7**	< 1.00	< 1.00	< 1.00	**20.6**	**26.3**	**149**	**13.4**	**3.61**	**7.05**	**50.0**	< 1.00	< 1.00	< 1.00	< 5.00	-
	9/16/19	MSBA	**208**	-	-	**2.40**	< 1.00	**3.07**	**8.72**	**7.58**	< 1.00	< 1.00	< 1.00	**2.47**	**2.60**	**20.6**	< 1.00	< 1.00	**1.18**	**10.2**	< 1.00	**1.12**	< 1.00	< 5.00	-

TABLE 2 (continued)

TABLE 2 (continued)
GROUNDWATER SAMPLE ANALYTICAL DATA - PHCs, VOCs, AND HYDROCARBON DEGRADING BACTERIA
Former Younger Oil Company
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PHCs [a] (ppb) [b]			VOCs [c] (ppb)																			Hydrocarbon Degrading Bacteria [d] (CFU/ml) [e]
						RBDM VOCs											Detected Additional VOCs								
			Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trimethylbenzene	cis-1,2-Dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Chloroform	
MW-3	3/18/03	Aspen	-	-	-	**704**	**10**	**15**	**88**	**153**	< 2	< 2	< 5	**16**	**15**	**135**	**4**	-	-	-	-	-	-	-	-
	6/17/03	Wohlers	-	< 250	< 500	**465**	**18**	**44**	**19**	**23**	< 2	< 2	< 5	**8**	**13**	**8**	< 2	-	-	-	-	-	-	-	-
	9/5/03	Wohlers	-	< 250	< 500	**78**	< 2	**2**	**4**	< 2	< 2	< 3	< 5	**2**	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/22/03	Wohlers	-	< 250	< 500	**859**	**91**	**25**	**131**	**67**	< 2	< 2	< 5	**12**	**15**	**30**	**8**	-	-	-	-	-	-	-	-
	3/30/04	Wohlers	-	< 250	< 500	**148**	**22**	**78**	**200**	**85**	< 2	< 2	< 5	**10**	**13**	**112**	**6**	-	-	-	-	-	-	-	-
	6/23/04	Wohlers	**1,450**	< 250	< 500	**177**	**16**	**27**	**30**	**36**	< 2	< 2	< 5	**18**	**30**	**21**	< 2	-	-	-	-	-	-	-	-
	9/13/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	**6**	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	**622**	< 250	< 500	**74**	< 2	**4**	**12**	**8**	< 2	< 2	< 5	< 2	< 2	**2**	< 2	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-	-	< 0.50	< 2	< 2	< 2	**2**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	**43**	< 170	< 430	**11**	< 0.50	< 0.50	**2.9**	**6.7**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	**1,480**	< 250	< 500	**167**	**21**	**29**	**99**	**7**	< 2	< 2	< 5	**7**	**8**	**22**	**5**	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	< 250	< 250	< 500	**1.5**	< 2	< 2	**3**	**16**	< 2	< 2	< 5	< 2	< 2	**3**	< 2	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	**388**	< 250	< 500	**9.2**	**3**	**5**	**22**	**3**	< 2	< 2	< 5	< 2	< 2	**8**	< 2	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	< 100	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	**485**	-	-	**24.87**	< 2	< 2	**3**	**4**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	**103**	-	-	**4.71**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	**157**	-	-	**3.39**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	**171**	-	-	**0.46**	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	**421**	-	-	**12.7**	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	< 100	-	-	**2.6**	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-	-	-	-	-	-
	9/16/09	Wohlers	< 100	-	-	< 0.30	< 1	< 1	< 2	< 0.25	< 2	< 2	< 2	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/23/10	Wohlers	< 100	-	-	**2.0**	< 1	< 1	< 2	**0.40**	< 0.10	< 0.10	< 2	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	5/30/14	MSBA	< 100	-	-	< 0.250	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	< 0.500	< 1.00	< 1.00	-	-	-	-	-	-	-	-
	2/22/17	MSBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/27/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00	-
	9/16/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**3.69**	< 1.00	< 5.00	-

TABLE 2 (continued)

TABLE 2 (continued)
GROUNDWATER SAMPLE ANALYTICAL DATA - PHCs, VOCs, AND HYDROCARBON DEGRADING BACTERIA
Former Younger Oil Company
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PHCs [a] (ppb) [b]			VOCs [c] (ppb)																			
						RBDM VOCs												Detected Additional VOCs							
			Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trimethylbenzene	cis-1,2-Dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Chloroform	Hydrocarbon Degrading Bacteria [d] (CFU/ml) [e]
MW-4	9/13/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	**8**	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	**1,380**	< 250	< 500	**211**	**2**	**2**	**4**	< 2	< 2	< 2	< 5	**8**	**9**	< 2	**3**	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-	-	<0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	**51**	< 170	< 440	**24**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	**0.98**	< 0.50	< 0.50	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	**487**	< 250	< 500	**50.5**	< 2	**3**	< 2	< 2	< 2	< 2	< 5	< 2	**7**	< 2	< 2	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	**717**	< 250	< 500	**80.2**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	**4**	**4**	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	**< 250**	< 250	< 500	**0.6**	< 2	< 2	< 1	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	**< 250**	< 250	< 500	**15**	< 2	< 2	< 2	**4**	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	**484**	< 250	< 500	**40.1**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	**4**	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	**744**	-	-	**43**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	**5**	**3**	< 2	< 2	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	< 100	-	-	**0.3**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	**107**	-	-	**1.92**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	**174**	-	-	**3.40**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	**593**	-	-	**8.38**	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	**194**	-	-	**0.73**	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	**170**	-	-	**6.4**	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-	-	**5.3**	-	-	-
	9/16/09	Wohlers	**453**	-	-	**1.1**	< 1	< 1	< 2	< 0.25	< 2	< 2	< 2	< 2	< 2	< 2	< 2	-	-	-	-	**6**	-	-	-
	3/23/10	Wohlers	**123**	-	-	**2.3**	< 1	< 1	< 2	**0.40**	< 0.10	< 0.10	< 2	< 2	< 2	< 2	< 2	-	-	-	**0.31** [j]	**3**	**0.1** [j]	**1** [j k]	-
	5/30/14	MSBA	**142**	-	-	**1.68**	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	**0.510**	< 1.00	< 1.00	-	-	-	-	-	-	-	-
	2/22/17	MSBA	< 100	-	-	< 0.200	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	-	< 1.00	< 1.00	-	-	-	-	-	-	-	**300**
	6/27/19	MSBA	**154**	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00	-
	9/16/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 5.00	-
MW-5	9/13/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	**1,320**	< 250	< 500	**349**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-	-	**24**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	**7**	< 190	< 480	**3.5**	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	**3,400**	< 250	< 500	**1,170**	**16**	**32**	**69**	**34**	< 2	< 2	< 5	**7**	**9**	**45**	**6**	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	**1,730**	< 250	< 500	**627.0**	< 2	**7**	**2**	**3**	< 2	< 2	< 5	**3**	**3**	**4**	< 2	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	**729**	< 250	< 500	**205**	< 2	**3**	**3**	< 2	< 2	< 2	< 5	< 2	< 2	**3**	< 2	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	**518**	< 250	< 500	**125**	**3**	**7**	**19**	**6**	< 2	< 2	< 5	< 2	< 2	**7**	< 2	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	**5,010**	< 250	< 500	**1,100**	**8**	**110**	**206**	**26**	< 2	< 2	< 5	**10**	**14**	**75**	**20**	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	**3,270**	-	-	**1,470**	**2**	**97**	**50**	**58**	< 2	< 2	< 5	**16**	**33**	**74**	**9**	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	**129**	-	-	**1.7**	< 2	< 2	< 2	**4****	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	**107**	-	-	**4.07**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	< 100	-	-	**0.33**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	**2,400**	-	-	**883**	< 2	**5**	**4**	**24**	< 2	< 2	< 4	**3**	**3**	**2**	**4**	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	**861**	-	-	**472**	< 2	< 2	< 2	**2**	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	**470**	-	-	**190**	**1.4**	< 1	< 2	**1.7**	< 1	< 1	< 1	**1.9**	**3.5**	< 1	< 1	-	-	-	**1.3**	**5.7**	-	-	-
	9/16/09	Wohlers	**234**	-	-	**152**	< 1	< 2	< 2	**0.3**	< 2	**1**	< 2	**2**	**3**	< 2	< 2	-	-	-	**1**	**5**	-	-	-
	3/23/10	Wohlers	**1,690**	-	-	**469**	**4**	**13**	**43**	**19.20**	< 0.10	< 0.10	< 2	**6**	**10**	**8**	< 2	-	-	-	**0.9** [j]	-	-	-	-
	5/30/14	MSBA	**109**	-	-	**12.2**	< 1.00	< 0.500	< 1.50	**15.6**	< 0.500	< 0.500	< 1.00	< 1.00	< 0.500	< 1.00	< 1.00	-	-	-	-	-	-	-	-
	2/22/17	MSBA	< 100	-	-	**1.59**	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	-	< 1.00	< 1.00	-	-	-	-	-	-	-	**100**
	6/27/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**10.1**	< 1.00	< 5.00	-
	9/16/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**1.78**	**17.1**	< 1.00	< 5.00	-

TABLE 2 (continued)

TABLE 2 (continued)
GROUNDWATER SAMPLE ANALYTICAL DATA - PHCs, VOCs, AND HYDROCARBON DEGRADING BACTERIA
Former Younger Oil Company
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PHCs [a] (ppb) [b]			VOCs [c] (ppb)																			Hydrocarbon Degrading Bacteria [d] (CFU/ml) [e]
						RBDM VOCs											Detected Additional VOCs								
			Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichroloethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trimethylbenzene	cis-1,2-Dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Chloroform	
MW-6	9/13/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-	-	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	< 2	< 160	< 400	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	**254**	< 250	< 500	< 0.30	< 2	< 2	< 1	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	< 250	< 250	< 500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	< 100	< 250	< 500	**1.0**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	< 100	-	-	**0.57**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	< 100	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	< 100	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	< 100	-	-	**0.35**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	**127**	-	-	**2**	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	**146**	-	-	< 0.3	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	< 100	-	-	< 0.35	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-	-	-	-	-	-
	9/16/09	Wohlers	**128**	-	-	**0.5**	< 1	< 1	< 2	< 0.25	< 2	**7**	< 2	< 2	< 2	< 2	< 2	-	-	-	**7**	**44**	-	-	-
	3/23/10	Wohlers	**115**	-	-	**0.3**	< 1	< 1	< 2	**0.30**	< 0.10	< 0.10	< 2	< 2	< 2	< 2	< 2	-	-	-	**5**	**27**	**0.2** [i]	-	-
	5/30/14	MSBA	< 100	-	-	< 0.250	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	< 0.500	< 1.00	< 1.00	-	-	-	-	-	-	-	-
	2/22/17	MSBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/27/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**3.62**	**24.6**	< 1.00	< 5.00	-
	9/16/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**2.77**	**22.2**	< 1.00	< 5.00	-
MW-7	9/13/04	Wohlers	< 250	< 250	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 3	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/7/04	Wohlers	< 250	**1,330**	< 500	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/05	Wohlers	< 250	-	-	< 0.50	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/29/06	Wohlers	< 2	< 110	< 290	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	-	-	-	-	-	-	-	-
	6/28/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/26/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 2	< 2	< 0.10	< 0.10	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/28/06	Wohlers	< 250	< 250	< 500	< 0.30	< 2	< 2	< 1	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/15/07	Wohlers	< 250	< 250	< 500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/25/07	Wohlers	< 100	< 250	< 500	**0.8**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	9/15/07	Wohlers	**100**	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/16/07	Wohlers	**110**	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/12/08	Wohlers	< 100	-	-	< 0.30	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	6/12/08	Wohlers	< 100	-	-	**0.53**	< 2	< 2	< 2	< 2	< 2	< 2	< 5	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	8/20/08	Wohlers	**115**	-	-	**0.32**	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	12/29/08	Wohlers	**147**	-	-	< 0.3	< 2	< 2	< 2	< 2	< 2	< 2	< 4	< 2	< 2	< 2	< 2	-	-	-	-	-	-	-	-
	3/17/09	Wohlers	< 100	-	-	< 0.35	< 1	< 1	< 2	< 1	< 1	< 1	< 1	< 1	< 1	< 1	< 1	-	-	-	-	-	-	-	-
	9/16/09	Wohlers	**121**	-	-	< 0.30	< 1	< 1	< 2	< 0.25	< 2	< 6	< 2	< 2	< 2	< 2	< 2	-	-	-	**6**	**42**	-	-	-
	3/23/10	Wohlers	< 100	< 250	-	< 0.30	< 1	< 1	< 2	< 0.25	< 0.10	< 0.10	< 2	< 2	< 2	< 2	< 2	-	-	-	**3.5**	**18.6**	**0.1** [i]	-	-
	5/30/14	MSBA	< 100	-	-	< 0.250	< 1.00	< 0.500	< 1.50	< 2.00	< 0.500	< 0.500	< 1.00	< 1.00	< 0.500	< 1.00	< 1.00	-	-	-	-	-	-	-	-
	2/22/17	MSBA	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	6/27/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**2.99**	**22.6**	< 1.00	< 5.00	-
	9/16/19	MSBA	< 100	-	-	< 1.00	< 1.00	< 1.00	< 3.00	< 5.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	< 1.00	**2.15**	**14.8**	< 1.00	< 5.00	-

TABLE 2 (continued)

TABLE 2 (continued)
GROUNDWATER SAMPLE ANALYTICAL DATA -
PHCs, VOCs, AND HYDROCARBON DEGRADING BACTERIA
Former Younger Oil Company
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PHCs [a] (ppb) [b]			VOCs [c] (ppb)																				Hydrocarbon Degrading Bacteria [d] (CFU/ml) [e]
						RBDM VOCs													Detected Additional VOCs							
			Gasoline	Diesel	Oil	Benzene	Toluene	Ethylbenzene	Xylenes	Naphthalene	1,2-Dibromoethane	1,2-Dichloroethane	Methyl Tert Butyl Ether	Isopropylbenzene	n-Propylbenzene	1,2,4-Trimethylbenzene	1,3,5-Trimethylbenzene	n-Butylbenzene	sec-Butylbenzene	1,2,3-Trimethylbenzene	cis-1,2-Dichloroethene	Trichloroethene (TCE)	Tetrachloroethene (PCE)	Chloroform	
UST Cavity Observation Well Grab Sample																										
OW-1	3/18/03	Aspen	-	-	-	**4,747**	**245**	< 100	**134**	**351**	< 100	< 100	< 100	< 100	< 100	< 100	< 100	-	-	-	-	-	-	-	-
DEQ Groundwater Risk-Based Concentrations (RBCs) Updated May 2018																										
IIT [l]	Residential		110	100	100	0.46	1,100	1.5	190	0.17	0.0075	0.17	14	440	-- [m]	54	59	--	--	--	36	0.49	12	0.22	--
	Occupational Worker		450	430	430	2.1	6,300	6.4	830	0.72	0.034	0.78	68	2,000	--	250	280	--	--	--	260	3.3	48	0.98	--
VIB [n]	Residential		22,000	> S [o]	> S	210	> S	620	86,000	840	45	300	67,000	> S	--	50,000	36,000	--	--	--	> S	200	3,700	120	--
	Occupational Worker		> S	> S	> S	2,800	> S	8200	> S	11,000	590	3,900	870,000	> S	--	> S	> S	--	--	--	> S	3,700	48,000	1,600	--
VOA [p]	Residential		> S	> S	> S	3,100	> S	9,900	> S	3,600	180	2,100	350,000	> S	--	> S	> S	--	--	--	> S	3,300	64,000	1,400	--
	Occupational Worker		> S	> S	> S	14,000	> S	43,000	> S	16,000	790	9,000	1,500,000	> S	--	> S	> S	--	--	--	> S	20,000	> S	6,300	--
GWE [q]	Construction Worker		14,000	> S	> S	1,800	220,000	4,500	23,000	500	27	630	63,000	51,000	--	6,300	7,500	--	--	--	18,000	430	5,600	720	--
	Excavation Worker																								

a Petroleum hydrocarbons (PHCs) were analyzed using NWTPH methods Gx (gasoline) and Dx (diesel and oil)
b Analytical results for PHCs and VOCs reported in parts per billion (ppb)
c Volatile organic compounds (VOCs) analyzed using EPA method 8260B or C
d Hydrocarbon degrading bacteria analyzed using method referenced in *Manual of Environmental Microbiology (2nd Edition, 2002: Chapter 84: Hydrocarbon Degrading Bacteria)*
e Analytical results for hydrocarbon degrading bacteria reported in colony-forming units per milliliter (CFU/ml)
f (-) Not analyzed/Not Available
g Bold value indicates analyte concentration exceeds the laboratory reporting limit
h Yellow Shading indicates the analyte concentration (or one-half the laboratory reporting limit) exceeds an RBC. The exceeded RBC is also shaded
i (<) Analyte concentration not detected above the laboratory reporting limit, as listed
j According to the laboratory, the result represents a "tentative identification" or "estimate"
k Likely laboratory contaminant
l Ingestion and Inhalation from Tapwater (IIT) RBCs for the residential and occupational receptors
m (--) Oregon Department of Environmental Quality has not established an RBC value for respective analyte
n Vapor Intrusion into Buildings (VIB) RBCs for the residential and occupational receptors
o (> S) "This groundwater RBC exceeds the solubility limit" (Appendix A, RBDM, 2018)
p Volatilization to Outdoor Air (VOA) RBCs for the residential and occupational receptors
q Groundwater in Excavation (GWE) RBCs for the construction and excavation worker receptors

S:\Project Files\Younger Oil\Keizer Texaco\Tables\(0) CURRENT TABLES\[T 2 GW PHCs & VOCs.xls]T 3

TABLE 3
GROUNDWATER SAMPLE ANALYTICAL DATA - PAHs

Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

Sample ID	Sample Date	Collected By	PAHs [a] (ppb) [b]															
			Acenaphthene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene
MW-1	3/18/03	Aspen	**0.2** [c]	< 0.1 [d]	-	< 0.1 [e]	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.7**	< 0.1	**0.2**	**0.2**	**0.1**
	3/30/04	Wohlers	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.3**	< 0.1	**0.2**	< 0.1	< 0.1
	6/23/04	Wohlers	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	**0.4**	< 0.2	**0.3**	< 0.2	**0.4**
	3/29/06	Wohlers	< 0.04	< 0.04	< 0.04	**0.09**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	**0.05**	< 0.04	**0.05**	**0.05**	**0.9**	**0.05**	**0.05**
MW-2	6/23/04	Wohlers	**0.2**	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	**0.3**	< 0.2	**372**	**0.2**	< 0.2
	3/29/06	Wohlers	< 0.05	**0.05**	**0.05**	**0.5**	**0.05**	**0.05**	< 0.05	**0.05**	**0.05**	< 0.05	< 0.05	**0.1**	< 0.05	**41.2**	**0.05**	**0.1**
MW-3	6/23/04	Wohlers	**0.2**	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.1**	**0.2**	< 0.1	**56**	< 0.1	< 0.1
	12/7/04	Wohlers	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**4.7**	< 0.1	< 0.1
MW-4	12/7/04	Wohlers	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	**0.6**	< 0.1	< 0.1
DEQ Soil Risk-Based Concentrations (RBCs) - Revised May 2018																		
IIT [f]	Residential		510	- - [g]	> S [h]	0.030	0.025	0.25	- -	> S	> S	0.025	> S	280	> S	0.17	- -	110
	Occupational Worker		2,500	- -	> S	0.38	0.47	> S	- -	> S	> S	0.47	> S	1,300	> S	0.72	- -	> S
VIB [i]	Residential		> S	- -	> S	> S	NV [j]	NV	- -	NV	NV	NV	NV	> S	NV	840	- -	> S
	Occupational Worker		> S	- -	> S	> S	NV	NV	- -	NV	NV	NV	NV	> S	NV	11,000	- -	> S
VOA [k]	Residential		> S	- -	> S	> S	NV	NV	- -	NV	NV	NV	NV	> S	NV	3,600	- -	> S
	Occupational Worker		> S	- -	> S	> S	NV	NV	- -	NV	NV	NV	NV	> S	NV	16,000	- -	> S
GWE [l]	Construction Worker Excavation Worker		> S	- -	> S	> S	> S	> S	- -	> S	> S	> S	> S	> S	> S	500	- -	> S

a Polycyclic aromatic hydrocarbons (PAHs) analyzed using EPA method 8270D SIM
b Analytical results reported in parts per billion (ppb)
c Bold value indicates analyte concentration exceeds the laboratory reporting limit
d (<) Analyte concentration not detected above the laboratory reporting limit, as listed
e Yellow shading indicates the analyte concentration (or one-half the laboratory reporting limit) exceeds an RBC. The exceeded RBC is also shaded
f Ingestion and Inhalation from Tapwater (IIT) RBCs for the residential and occupational receptors
g (- -) Not applicable (Oregon Department of Environmental Quality (DEQ) has not established a cleanup level for the respective analyte)
h (> S) "This groundwater RBC exceeds the solubility limit" (Appendix A, RBDM, 2018)
i Vapor Intrusion into Buildings (VIB) RBCs for the residential and occupational receptors
j (NV) "This chemical is considered "nonvolatile" for the purposes of the exposure calculations" (Appendix A, RBDM, 2018)
k Volatilization to Outdoor Air (VOA) RBCs for the residential and occupational receptors
l Groundwater in Excavation (GWE) RBCs for the construction and excavation worker receptors

S:\Project Files\Younger Oil\Keizer Texaco\Tables\(0) CURRENT TABLES\[T 3 GW PAHs.xls]T 4

TABLE 4
GROUNDWATER LEVEL DATA

Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

Well ID	Date	Top of Casing Elevation [a]	Depth to Water (feet) [b]	Groundwater Elevation [c]	Variance [d]
MW-1	5/30/14	100.66	11.26	89.40	- [e]
	2/22/17		6.37	94.29	+ 4.89
	6/27/19		11.56	89.10	- 5.19
	9/16/19		13.97	86.69	- 2.41
MW-2	5/30/14	100.82	12.76	88.06	-
	2/22/17		7.18	93.64	+ 5.58
	6/27/19		13.43	87.39	- 6.25
	9/16/19		14.69	86.13	- 1.26
MW-3	5/30/14	100.81	12.73	88.08	-
	2/22/17		7.62	93.19	+ 5.11
	6/27/19		13.40	87.41	- 5.78
	9/16/19		15.37	85.44	- 1.97
MW-4	5/30/14	101.18	13.32	87.86	-
	2/22/17		7.46	93.72	+ 5.86
	6/27/19		13.90	87.28	- 6.44
	9/16/19		15.78	85.40	- 1.88
MW-5	5/30/14	100.54	12.70	87.84	-
	2/22/17		7.34	93.20	+ 5.36
	6/27/19		13.30	87.24	- 5.96
	9/16/19		15.17	85.37	- 1.87
MW-6	5/30/14	100.00	12.15	87.85	-
	2/22/17		6.28	93.72	+ 5.87
	6/27/19		12.71	87.29	- 6.43
	9/16/19		14.61	85.39	- 1.90
MW-7	5/30/14	100.54	12.70	87.84	-
	2/22/17		6.85	93.69	+ 5.85
	6/27/19		13.27	87.27	- 6.42
	9/16/19		15.15	85.39	- 1.88

a Reference elevation surveyed relative to a benchmark (MW-6 top of casing) with assumed elevation of 100.00 feet
b Depth to groundwater measured in feet from the surveyed location at the top of each well casing to the groundwater surface
c Elevation of measured groundwater surface in monitoring wells relative to assumed elevation of benchmark
d Variance represents the rise or fall of the groundwater level since the previous monitoring event. Positive (+) indicates rise/increase, Negative (-) indicates fall/decrease
e (–) Not applicable / not available

S:\Project Files\Younger Oil\Keizer Texaco\Tables\(0) CURRENT TABLES\[T 4 GW Level Data.xls]T 1

TABLE 5
CONSTITUENTS OF INTEREST
Former Younger Oil Company
3401 River Road North
Keizer, Oregon
DEQ File No. 24-03-0558

	Constituents of Interest (COIs)	Maximum Detected Concentrations (MDCs)		Screening Levels [a]		Constituents of Potential Concern (COPCs) [b]	
		Soil (ppm) [c]	Groundwater (ppb) [d]	Soil (ppm)	Groundwater (ppb)	Soil	Groundwater
PHCs	Gasoline	2,460	70,600	31	110	**Yes**	**Yes**
	Diesel	- [e]	4,470	1,100	100	-	**Yes**
	Oil	-	< 500 [f]	1,100	100	-	**Yes**
RBDM and Detected Additional VOCs [h]	Benzene	nd [g]	4,880	0.023	0.46	No [g]	**Yes**
	Toluene	0.2	4,400	84	1,100	No	**Yes**
	Ethylbenzene	1.6	1,064	0.22	1.5	**Yes**	**Yes**
	Xylenes	14.5	6,520	23	190	No	**Yes**
	Naphthalene	3.6	557	0.077	0.17	**Yes**	**Yes**
	Methyl tert-butyl ether	-	< 100	0.11	14	-	No
	1,2-Dibromoethane	-	< 2	0.00012	0.0075	-	**Yes**
	1,2-Dichloroethane	-	46	0.003	0.17	-	**Yes**
	Isopropylbenzene	1.7	246	96	440	No	No
	1,2,4-Trimethylbenzene	3.9	2,630	10	54	**Yes**	**Yes**
	1,3,5-Trimethylbenzene	30.9	481	11	59	**Yes**	**Yes**
	cis-1,2-Dichloroethene	11.5	7	0.63	36	No	No
	Trichloroethene (TCE)	-	44	0.013	0.49	-	No [i]
	Tetrachloroethene (PCE)	-	< 1.0	0.46	12	-	No
	Chloroform	-	< 5.0	0.0034	0.22	-	**Yes**
PAHs	Acenaphthene	-	0.2	4,700	510	-	No
	Anthracene	-	< 0.2	23,000	- - [j]	-	No
	Benz(a)anthracene	-	0.5	1	0.030	-	**Yes**
	Benzo(a)pyrene	-	< 0.2	0.11	0.025	-	**Yes**
	Benzo(b)fluoranthene	-	< 0.2	1.1	0.25	-	No
	Benzo(k)flouranthene	-	< 0.2	11	- -	-	No
	Chrysene	-	< 0.2	110	- -	-	No
	Dibenz(a,h)anthracene	-	< 0.2	0.11	0.025	-	**Yes**
	Flouranthene	-	0.1	2,400	- -	-	No
	Fluorene	-	0.7	3,100	390	-	No
	Indeno(1,2,3-cd)pyrene	-	< 0.2	1.1	- -	-	No
	Pyrene	-	0.4	1,800	110	-	No

a **Screening levels listed as the most stringent risk-based concentrations for applicable receptors presented in Appendix A of the RBDM (May 2018)**
b **"Yes" indicates that the maximum detected constituent concentration was above the screening level, or the constituent was not detected but one-half of the maximum reporting limit was above the screening level. "No" indicates that the maximum detected constituent concentration was below the screening level, or the constituent was not detected and one-half the maximum reporting limit was below the screening level**
c **Soil sample analytical data reported in parts per million (ppm)**
d **Groundwater sample analytical data reported in parts per billion (ppb)**
e **(-) Not Analyzed**
f **(<) Analyte concentration not detected above the reporting limit, as listed**
g **(nd) Not detected above the laboratory reporting limit as noted in tables provided by Wholer's Environmental Services, Inc. Laboratory reports not available**
h **Detected additional VOCs only listed for analytes with DEQ established clean-up levels**
i **TCE will not be evaluated as a COPC based on the following: 1) there are no known current or former uses of the site that would indicate the potential presence of TCE, 2) the site is located within an area of widespread TCE contamination (see ECSI No. 4012 and ECSI No. 4859), and 3) the concentrations are generally low and comparable to concentrations throughout the TCE plume.**
j **(- -) Analyte is considered "nonvolatile" for the purposes of exposure calculations, the groundwater risk-based concentration exceeds the solubility limit, or the soil vapor risk-based concentration exceeds the vapor pressure of the pure chemical**

S:\Project Files\Younger Oil\Keizer Texaco\Tables\(0) CURRENT TABLES\[T 5 COIs.xlsx]T 5

Appendix A

Field Methods and Procedures

MARTIN S. BURCK ASSOCIATES, INC.
200 North Wasco Court, Hood River, OR 97031
Phone 541.387.4422 855.387.4422 Fax 541.387.4813
MSBA@MSBAenvironmental.com

Geologic and Environmental Consulting Services

FIELD METHODS AND PROCEDURES

The following section presents the general methods and procedures that are utilized to complete field activities. These activities include advancing borings and collecting soil and groundwater samples for laboratory analyses. Samples are collected, preserved, and transported for analysis in general accordance with DEQ methodology as presented in OAR 340-122-345 "Sample Collection Methods," and OAR 340-122-218 “Sampling and Analysis.” If not specified by current DEQ regulations, sampling and analytical methods are implemented in general accordance with EPA protocol and/or commonly accepted industry standards for this time and place.

Utility Locating

Utilities, including overhead and underground, are identified and located prior to conducting work at the site. For overhead utilities, a safe minimum working distance is maintained with all sampling equipment dependant on the activity. For drilling or direct push equipment, a minimum 15-20 foot buffer is recommended. For other work such as excavation by backhoe, hand augering, hand probing, etc., a minimum distance is maintained such that the sampling equipment cannot come in contact with the utilities.

Underground utilities are located by contacting Utility Notification Center (UNC) for all underground sampling, excavation, and all other activities performed below the surface. The notification is performed at least 48 hours in advance of the work or as required by local laws and regulations to allow sufficient time for marking of the affected utilities. When warranted, MSBA will arrange on-site meetings with the contracted locators for the utilities to resolve any issues of proximity to the planned work.

In addition to contacting the UNC, MSBA may also perform one or more of the following activities intended to help prevent incidental contact with underground utilities during subsurface activities.

1) **Field Observation**: MSBA observes the site and surroundings for any signs of overhead and/or underground utilities.

2) **Private Utility Locate**: MSBA may contract with private utility locators if warranted to provide additional clarification of potential utilities and their locations.

3) **Hand Clearing**: MSBA may clear up to a maximum of the first five feet of subsurface soil for potential underground utilities by hand digging, hand augering, or air knifing.

Grab Soil Sampling

Grab soil samples are collected by hand or using a decontaminated shovel or hand trowel directly from surface/shallow soil or the sidewalls/base of a test pit or excavation area up to a depth of 4 feet below surface grade (bsg). At depths deeper than 4 feet bsg, soil samples are collected from an excavator bucket. The excavator bucket may be decontaminated prior to sampling. Just prior to collecting each sample, approximately 3 inches of soil is scraped away from the sampling surface. Soil samples are collected with a minimum amount of disturbance.

Soil samples are placed into laboratory provided wide-mouth glass jars, leaving as little headspace as possible. Soil samples are also collected in 40 milliliter (ml) volatile organic analysis (VOA) EPA method 5035 vials with a preservative. The jar is immediately sealed firmly with a Teflon-lined screw cap. After the samples are properly sealed, they are placed in an ice chest with ice and maintained at a temperature of 4° C (+/- 2° C) until preparation for analysis by the laboratory. Soil samples are analyzed within the laboratory designated hold times.

Disposable latex gloves are worn by the sampler and discarded after each sample. Sampling equipment is thoroughly cleaned and decontaminated between sampling events to help eliminate the potential for cross-contamination between samples. Each sample is clearly labeled with a unique name. A written record is maintained which includes, but is not limited to, the date, time, and location where the sample is collected, and any conditions which may have affected the sample integrity.

Drilling Method and Soil Sampling

Subsurface explorations are completed using drilling equipment operated by a licensed drilling subcontractor. The drilling method is selected based on the anticipated subsurface conditions. In general, push-probe or hollow-stem methods are utilized for softer silty soils and sonic or air-rotary methods are utilized for harder, rocky conditions. An MSBA representative oversees and directs the explorations and obtains all soil and groundwater samples.

Soil samples are collected by MSBA and placed into laboratory provided wide-mouth glass jars, leaving as little headspace as possible. Soil samples are also collected in 40 ml VOA EPA method 5035 vials with a preservative. The jar is immediately sealed firmly with a Teflon-lined screw cap. After the samples are properly sealed, they are placed in an ice chest with ice and maintained at a temperature of 4° C (+/- 2° C) until preparation for analysis by the laboratory. Soil samples are analyzed within the laboratory designated hold times.

Disposable latex gloves are worn by the sampler and discarded after each sample. Sampling equipment is thoroughly cleaned and decontaminated between sampling events to help eliminate the potential for cross-contamination between samples. Each sample is clearly labeled with a unique name. A written record is maintained which includes, but is not limited to, the date, time, and location where the sample is collected, and any conditions which may have affected the sample integrity. The soil type and other pertinent information is recorded on a field Subsurface Exploration Log.

Hand Auger Soil Boring and Sampling

Auger borings are advanced by hand. Samples of soil are collected directly from the barrel of the auger at the target depth or as warranted based on observed conditions. A written record is maintained which includes, but is not limited to, the date, time, and location where the sample is collected, and any unusual conditions which may affect the sample integrity.

Soil samples are collected by MSBA and placed into laboratory provided wide-mouth glass jars, leaving as little headspace as possible. Soil samples are also collected in 40 ml VOA EPA method 5035 vials with a preservative. The jar is immediately sealed firmly with a Teflon-lined screw cap. After the samples are properly sealed, they are placed in an ice chest with ice and maintained at a temperature of 4° C (+/- 2° C) until preparation for analysis by the laboratory. Soil samples are analyzed within the laboratory designated hold times.

Disposable latex gloves are worn by the sampler and discarded after each sample. Sampling equipment is thoroughly cleaned and decontaminated between sampling events to help eliminate the potential for cross-contamination between samples. Each sample is clearly labeled with a unique name. A written record is maintained which includes, but is not limited to, the date, time, and location where the sample is collected, and any conditions which may have affected the sample integrity. The soil type and other pertinent information is recorded on a field Subsurface Exploration Log.

Soil Field Screening Methods

Field screening methods consist of visual observations, water sheen screening, and/or headspace vapor screening using a MiniRAE photoionization detector (PID). Visual screening methods include observations of staining, discoloration, and other indicators of petroleum. Water sheen screening involves placing a small amount of soil into water and making observations of any sheens. Water sheen classifications are made as follows:

No Sheen:	No visible sheen on the water surface.
Slight Sheen:	Faint and dull sheen with no color; dissipates quickly. Naturally occurring organic matter may produce a slight sheen.
Moderate Sheen:	May have some color or iridescence; spread of sheen is irregular to flowing; most of water surface covered with sheen.
Heavy Sheen:	Obvious color and iridescence; spread is rapid; entire water surface may be covered with sheen.

Headspace vapor screening is conducted by creating a small hole in the soil core or placing a small portion of soil into a Zip-Loc bag and sealing it shut. The probe of the PID is inserted into the soil core. The soil sample within the bag is allowed to volatilize and the probe of the PID is inserted into the bag. The reported accuracy of a MiniRAE PID is 10% discrepancy at concentrations between 1 and 2,000 ppm and 20% discrepancy at concentrations greater than 2,000 ppm. The PID is calibrated in accordance with the manufacturer recommended procedures prior to each day of use.

Temporary Well Installation

Following completion of the soil borings, temporary wells may be installed to allow for groundwater level monitoring and sample collection. Following completion of the groundwater level monitoring and sampling, the temporary well is abandoned within 72 hours in accordance with the Oregon Water Resources Department standards.

Well Development

Following installation, the temporary wells are developed to remove fines and to enhance the recharge and representative quality of water if sufficient water column and recharge is present. The development is performed using a bailer or pump (peristaltic or submersible). The well may be surged prior to development. Well development continues until the discharge is relatively sediment free. Well development may be discontinued if there is insufficient recharge.

Monitoring Well Elevation Survey

The top of each well casing is surveyed to within plus or minus (+/-) 0.01-foot relative to a common temporary benchmark. A temporary benchmark is designated with an assumed elevation relative to the approximate surface elevation above mean sea level (msl). The surveyed locations are marked on each casing for future reference and measuring. The purpose of the survey is to allow precise correlation of measured groundwater levels between each of the wells at the site. The survey information is recorded on a survey data sheet.

Groundwater Level Monitoring

The depth to groundwater (water level) is measured with an electronic, hand-held, water level indicator. The probe of the indicator is lowered in the well until contact with groundwater completes a circuit causing a buzzer to activate. The depth to water, measured from the surveyed point at the top of the well casing, is read directly from a graduated cord attached to the probe with marked increments of 0.01-foot. The groundwater level data is recorded on a groundwater level data sheet.

If present, free product thickness in a well is measured with an electronic, hand-held oil/water interface probe. The oil/water interface probe is lowered into the well until contact with fluids initiates a signal tone. An intermittent tone indicates water and a continuous tone indicates product. A measuring tape in increments of 0.01-foot is attached to the probe and is used to measure thickness of product in a well.

Groundwater Sampling

Prior to collecting a sample for laboratory analysis, the depth to water is measured and the wetted casing length and corresponding well volume is calculated. A minimum of three well volumes of groundwater is then purged with a bailer, submersible pump or peristaltic pump to remove potentially stagnant groundwater and allow the surrounding formation water to enter the well for sampling. During the purging process, the pH, conductivity, and turbidity may be monitored until these parameters are stabilized to confirm that representative formation water is collected for analysis. Stable parameters are generally defined by three successive readings within plus or minus 0.1 for pH, 3 percent for conductivity, and 10 percent for turbidity. Parameter stabilization is typically achieved in less than three well volumes.

After purging, a groundwater sample is collected when the water level in the well has recharged to within 85 percent of the initial static water level. If the desired amount of recharge is not achieved within a period of 60 minutes, the sample is collected and the deficient water level is recorded. If the water column does not contain sufficient volume, the sample may be collected incrementally as recharge allows. The sample is collected from the well using a bailer, submersible pump, or peristaltic pump with dedicated tubing, under low flow conditions to minimize the loss of volatile components, if present.

The groundwater is transferred into laboratory provided 40 ml glass VOA vials, one liter amber glass jars, and 250 ml polyethylene bottles. Some containers may contain a preservative. The type of container, and whether or not it is preserved, is determined by the type of laboratory analysis to be performed. Groundwater samples collected in VOAs are transferred with minimal agitation and sealed with Teflon-lined septum lids so that no head space is present. Samples collected in VOA vials are submitted for volatile organic compound (VOC) analysis. The vials may contain 2-5 drops of dilute HCL as a preservative increasing the sample hold time from 7 to 14 days. Groundwater samples are collected in preserved or non-preserved one liter amber glass jars for analysis of non-volatile petroleum constituents. Groundwater samples are collected in non-preserved 250 ml polyethylene bottles for analysis of metals. Samples collected for analysis of dissolved metals are filtered in the field to remove 0.45 micron size particles or immediately upon receipt by the laboratory. Samples collected for analysis of total metals are not filtered. Groundwater purge and sample data is recorded on a Purge and Sample Data sheet. After the samples are properly sealed, they are placed immediately in an ice chest with ice and maintained at a temperature of 4° C (+/- 2° C) until being prepared by the laboratory for analysis.

Chain-of-Custody and Labeling

The Chain-of-Custody (COC) is a form that documents the custody of a sample from the time of origin to the time of disposal or destruction. A COC is initiated in the field at the time the samples are collected. The sampler documents such information as the time, date, type of sample, and requested analyses. Any individual in custody of the samples, including the laboratory, is required to document the transfer of custody (beginning with the sampler) by signing the COC (including date and time of transfer).

Equipment Decontamination

Equipment used to collect soil and groundwater samples such as; bailers, water level indicators, etc., is decontaminated prior to each use. Strict decontamination procedures are utilized to help eliminate the potential for cross-contamination between samples and sample locations.

The decontamination procedure includes a thorough washing in tap water with Liquinox followed by two rinses in tap water and a third and final spray rinse using distilled water. If time permits, the sampling equipment is allowed to air dry. Disposable latex gloves are worn during sampling to help eliminate the potential for cross-contamination by the sampler. The gloves are discarded after each sample event and a new pair is utilized for each subsequent sampling event.

Investigation Derived Waste

Investigation derived waste (IDW) accumulated during the explorations typically consists of soil, groundwater, or decontamination and rinse waters. Soil and water are collected and placed into suitable containers. A label is affixed to each storage container including the date, contents, and contact information. The containers are stored onsite in a secure location pending disposal at an authorized facility. Disposable items such as sampling gloves, paper towels, and plastic sheeting are placed into plastic garbage bags and disposed in a municipal trash receptacle.

SOIL BORING LOG

Site Address:

Boring Number

Page Number

1 of

MSBA

Martin S. Burck Associates, Inc.

Geologic and Environmental Consulting Services

Drilling Contractor

Drilling Method

Start (Date - Time)

Finish (Date - Time)

Elevation (Top of Well Casing)

Logged By

Sample Number	PID reading (ppm)	Sample Recovery (inches)	Depth (feet) Sample Interval	Soil Description
			0	

Comments:

Sample diameter : _____

Total Depth : _____

Hole abandonment : _____

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order ( )

Project: _____

Date: _____ Sampled By: _____

MONITORING WELL INFORMATION

Well Number: _____ General Location: _____

Well Diameter (in): _____ Total Depth (ft): _____ Depth to Groundwater (ft): _____

Wetted Casing Length (ft): _____ One Well Volume (gals): _____ No. of Well Volumes to Purge: _____

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): _____ Purge Method (Pump, Bailer, etc.): _____

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments

Comments: ≥ 85% static water column ≤ feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time _____ Appearance ☐ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☐ Ice Chest & Ice ☐ Other

Containers ( ) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☐ Preserved ☐ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☐ Gx ☐ Dx ☐ BTEX ☐ RBDM VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☐ Peristaltic Pump

Comments _____

Comments _____

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

SITE SURVEY DATA

Project: _____

Date: _____ Surveyed By: _____

Location	Backsight (+)	Foresight (-)	Instrument Height	Elevation	Comments

Benchmark location sketch

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER LEVEL DATA

Project: _____

Date: _____ Measured By: _____

Well No.	Time	DTW	Ref. Elev.	GW Elev.	Comments

Appendix B

Historic Groundwater Level Data

TABLE 1 *(Page 1 of 4)*

GROUNDWATER ELEVATION DATA

YOUNGER OIL COMPANY
3401 RIVER ROAD NORTH
KEIZER, OREGON
WES Project No. 06-0163

MONITORING WELL ID	DATE	TOC ELEVATION (feet AMSL)	DEPTH TO WATER (feet below TOC)	GROUNDWATER ELEVATION (feet AMSL)
MW-1	06/17/03	135.93	11.39	124.54
	09/05/03		15.10	120.83
	12/22/03		13.33	122.60
	03/30/04		10.66	125.27
	06/23/04		13.46	122.47
	09/13/04		15.63	120.30
	12/07/04		15.52	120.41
	12/29/05		11.27	124.66
	03/29/06		9.72	126.21
	06/28/06		12.31	123.62
	09/26/06		15.83	120.10
	12/28/06		10.05	125.88
	03/15/07		10.55	125.38
	06/25/07		13.77	122.16
	09/15/07		15.82	120.11
	12/06/07		12.85	123.08
	03/12/08		11.28	124.65
	06/12/08		12.69	122.34
	08/20/08		14.90	121.03
	12/29/08		13.65	122.28
	03/17/09		12.22	123.71
	09/16/09		16.02	119.91
	03/23/10		11.10	124.83
MW-2	06/17/03	136.10	12.35	124.75
	09/05/03		15.33	120.77
	12/22/03		13.87	122.23
	03/30/04		11.42	124.68
	06/23/04		13.96	122.14
	09/13/04		16.06	120.04
	12/07/04		15.88	120.22
	12/29/05		12.18	123.92
	03/29/06		10.61	125.49
	06/28/06		13.11	122.99
	09/26/06		16.24	119.86
	12/28/06		10.17	125.93
	03/15/07		10.96	125.14

TABLE 1 *(Page 2 of 4)*

GROUNDWATER ELEVATION DATA

YOUNGER OIL COMPANY
3401 RIVER ROAD NORTH
KEIZER, OREGON
WES Project No. 06-0163

MONITORING WELL ID	DATE	TOC ELEVATION (feet AMSL)	DEPTH TO WATER (feet below TOC)	GROUNDWATER ELEVATION (feet AMSL)
MW-2 (cont.)	06/25/07	136.10	14.14	121.96
	09/15/07		16.30	119.80
	12/06/07		13.05	123.05
	03/12/08		11.59	124.51
	06/12/08		13.11	122.99
	08/20/08		15.41	120.69
	12/29/08		13.25	122.85
	03/17/09		12.32	123.78
	09/16/09		16.22	119.88
	03/23/10		12.22	123.88
MW-3	06/17/03	136.09	12.33	123.76
	09/05/03		15.21	120.88
	12/22/03		13.81	122.28
	03/30/04		11.61	124.48
	06/23/04		13.90	122.19
	09/13/04		16.05	120.04
	12/07/04		15.91	120.18
	12/29/05		12.41	123.68
	03/29/06		9.89	126.20
	06/28/06		12.96	123.13
	09/26/06		16.21	119.88
	12/28/06		11.01	125.08
	03/15/07		10.58	125.51
	06/25/07		14.12	121.97
	09/15/07		16.31	119.78
	12/06/07		13.70	122.39
	03/12/08		11.70	124.39
	06/12/08		13.25	122.84
	08/20/08		15.43	120.66
	12/29/08		14.46	121.63
	03/17/09		13.08	123.01
	09/16/09		16.27	119.82
	03/23/10		12.13	123.96

TABLE 1 *(Page 3 of 4)*

GROUNDWATER ELEVATION DATA

YOUNGER OIL COMPANY
3401 RIVER ROAD NORTH
KEIZER, OREGON
WES Project No. 06-0163

MONITORING WELL ID	DATE	TOC ELEVATION (feet AMSL)	DEPTH TO WATER (feet below TOC)	GROUNDWATER ELEVATION (feet AMSL)
MW-4	09/13/04	136.33	16.39	119.94
	12/07/04		16.18	120.15
	12/29/05		12.80	123.53
	03/29/06		11.02	125.31
	06/28/06		13.55	122.78
	09/26/06		16.59	119.74
	12/28/06		10.53	125.80
	03/15/07		11.24	125.09
	06/25/07		14.55	121.78
	09/15/07		16.68	119.65
	12/06/07		14.14	122.19
	03/12/08		12.25	124.08
	06/12/08		13.72	122.61
	08/20/08		15.85	120.48
	12/29/08		14.84	121.49
	03/17/09		13.51	122.82
	09/16/09		16.63	119.70
	03/23/10		12.65	123.68
MW-5	09/13/04	135.81	15.82	119.99
	12/07/04		15.70	120.11
	12/29/05		12.21	123.60
	03/29/06		10.43	125.38
	06/28/06		12.95	122.86
	09/26/06		15.99	119.82
	12/28/06		9.94	125.87
	03/15/07		10.61	125.20
	06/25/07		14.96	120.85
	09/15/07		16.11	119.70
	12/06/07		13.51	122.30
	03/12/08		11.65	124.16
	06/12/08		13.15	122.66
	08/20/08		15.24	120.57
	12/29/08		14.18	121.63
	03/17/09		12.91	122.90
	09/16/09		16.01	119.80

TABLE 1 *(Page 4 of 4)*

GROUNDWATER ELEVATION DATA

YOUNGER OIL COMPANY
3401 RIVER ROAD NORTH
KEIZER, OREGON
WES Project No. 06-0163

MONITORING WELL ID	DATE	TOC ELEVATION (feet AMSL)	DEPTH TO WATER (feet below TOC)	GROUNDWATER ELEVATION (feet AMSL)
MW-5 (cont.)	03/23/10	135.81	12.04	123.77
MW-6	09/13/04	135.25	15.25	120.00
	12/07/04		15.12	120.13
	12/29/05		11.66	123.59
	03/29/06		9.86	125.39
	06/28/06		12.39	122.86
	09/26/06		15.39	119.86
	12/28/06		9.37	125.88
	03/15/07		10.06	125.19
	06/25/07		13.38	121.87
	09/15/07		15.54	119.71
	12/06/07		13.00	122.25
	03/12/08		11.04	124.21
	06/12/08		12.56	122.69
	08/20/08		15.04	120.21
	12/29/08		13.72	121.53
	03/17/09		12.35	122.90
	09/16/09		15.50	119.75
	03/23/10		11.48	123.77
MW-7	09/13/04	135.78	15.78	120.00
	12/07/04		15.66	120.12
	12/29/05		12.07	123.71
	03/29/06		10.42	125.36
	06/28/06		12.93	122.85
	09/26/06		15.95	119.83
	12/28/06		9.88	125.90
	03/15/07		10.61	125.17
	06/25/07		13.94	121.84
	09/15/07		16.10	119.68
	12/06/07		13.51	122.27
	03/12/08		11.65	124.13
	06/12/08		13.15	122.63
	08/20/08		15.22	120.56
	12/29/08		14.22	121.56
	03/17/09		12.89	122.89
	09/16/09		16.04	119.74
	03/23/10		12.04	123.74

AMSL = Above Mean Sea Level TOC = Top of Casing MW = Monitoring Well

Appendix C

Field Data Sheets

- Site Survey Data
- Groundwater Level Data
- Groundwater Purge and Sample Data

Site Survey Data

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

SITE SURVEY DATA

Project: Younger - Keizer

Date: 5/30/14 Surveyed By: Jon White

Location	Backsight (+)	Foresight (-)	Instrument Height	Elevation	Comments
MW-6	6.06		106.06	100.00	TBM-1
MW-1		5.40		100.66	
MW-4		4.88		101.18	
MW-2		5.24		100.82	
MW-3		5.25		100.81	
MW-5		5.52		100.54	
MW-7		5.52		100.54	
MW-6	5.90		105.90	100.00	TBM-1 ; turn
MW-1		5.24		100.66	
MW-4		4.73		101.17	
MW-2		5.09		100.81	
MW-3		5.10		100.80	
MW-6	5.68		105.68	100.00	TBM-1 ; turn
MW-5		5.15		100.53	
MW-7		5.14		100.54	

Benchmark location sketch

Groundwater Level Data

5/30/2014

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER LEVEL DATA

Project: Younger-Keizer

Date: 5/30/14 Measured By: Jon White

Well No.	Time	DTW	Ref. Elev.	GW Elev.	Comments
MW-3	11:15	12.07			Total Depth = 19.6
MW-1	11:25	11.25			Total Depth = 19.6
MW-7	11:30	12.71			
MW-6	11:35	12.15			
MW-4	11:42	13.32			
MW-2	11:48	12.76			Total Depth = 19.6
MW-5	12:01	12.70			
MW-3	3:07	12.73			
MW-1	3:12	11.26	100.66	89.40	✓[1]
MW-7	3:19	12.70	100.54	87.84	✓
MW-6	3:15	12.15	100.00	87.85	✓
MW-4	3:23	13.32	101.18	87.86	✓
MW-2	3:26	12.76	100.82	88.06	✓
MW-5	3:29	12.70	100.54	87.84	✓
MW-3	5:15	12.73	100.81	88.08	✓

1. (✓) DTW is within 0.01' of previous measurement

Groundwater Level Data

2/22/2017

MARTIN S. BURCK ASSOCIATES, INC

MSBA

GROUNDWATER LEVEL DATA

Project: Younger-Keizer

Date: 2/22/17 Measured By: Jan White

Well No.	Time	DTW	Ref. Elev.	GW Elev.	Comments
MW-6	12:52	6.29			
MW-1	12:59	6.60			
MW-7	13:08	6.87			
MW-3	13:17	7.81			
MW-4	13:25	7.48			
MW-5	13:33	7.37			
MW-2	13:41	8.44			
MW-6	1433	6.28	100.00	93.72	
MW-1	1437	6.37	100.66	94.29	
MW-7	1442	6.85	100.54	93.69	
MW-3	1449	7.62	101.81	93.19	
MW-4	1453	7.46	101.18	93.72	
MW-5	1458	7.34	100.54	93.20	
MW-2	1502	7.18	100.82	93.64	

Groundwater Level Data

6/27/2019

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER LEVEL DATA

Project: Younger - Keizer

Date: 6/27/19 Measured By: Jn White

Well No.	Time	DTW	Ref. Elev.	GW Elev.	Comments
MW-3	07:53	13.41			
MW-1	07:55	11.57			
MW-7	07:58	13.27			
MW-6	08:02	12.71			
MW-4	08:04	13.91			
MW-5	08:06	13.31			
MW-2	08:09	13.42			
MW-3	08:14	13.40	100.81	87.41	✓[1]
MW-1	08:17	11.56	100.66	89.10	✓
MW-7	08:19	13.27	100.54	87.27	✓
MW-6	08:21	12.71	100.00	87.29	✓
MW-4	08:24	13.90	101.18	87.28	✓
MW-5	08:26	13.30	100.54	87.24	✓
MW-2	08:28	13.43	100.82	87.39	✓

1. (✓) DTW is within 0.01' of previous measurement

Groundwater Level Data

9/16/2019

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER LEVEL DATA

Project: Yaunger - Kaizer

Date: 9/16/19 Measured By: Jon White

Well No.	Time	DTW	Ref. Elev.	GW Elev.	Comments
MW-3	08:31	15.37			
MW-1	08:33	14.62			
MW-7	08:36	15.12			
MW-6	08:38	14.61			
MW-5	08:40	15.07			
MW-4	08:42	15.78			
MW-2	08:45	14.69			
MW-3	08:48	15.37	100.81	85.44	✓1.
MW-1	08:50	13.98	100.66	-	
MW-7	08:52	15.15	100.54	-	
MW-6	08:54	14.61	100.00	85.39	✓
MW-5	08:57	15.17	100.54	-	
MW-4	08:59	15.78	101.18	85.40	✓
MW-2	09:02	14.69	100.82	-	
MW-1	09:04	13.97	100.66	86.69	✓
MW-7	09:06	15.15	100.54	85.39	✓
MW-5	09:08	15.17	100.54	85.37	✓
MW-2	09:10	14.69	100.82	86.13	✓

1. (✓) Depth to water is within 0.01' of previous measurement.

Groundwater Purge and Sample Data

5/30/2014

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (5)

Project: Younger - Keizer

Date: 5/30/14 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-1 General Location: NW corner of Station building

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 11.26

Wetted Casing Length (ft): 8.34 One Well Volume (gals): 1.42 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 4.25 Purge Method (Pump, Bailer, etc.): Bailer

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
4:59	Dry	2	2					wait for 85% water column
5:29	16.60	—	—					
5:57	15.25	—	—					1hr elapsed; OK to sample

Comments: ≥ 85% static water column ≤ 12.51 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 5:59 Appearance ☐ Clear ☑ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☐ Dx ☐ BTEX ☑ RBDM VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☑ PVC Bailer ☐ Peristaltic Pump

Comments

Comments

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (4)

Project: Younger - Keizer

Date: 5/30/14 Sampled By: JW

MONITORING WELL INFORMATION

Well Number: MW-2 General Location: S of AST

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 12.76

Wetted Casing Length (ft): 6.84 One Well Volume (gals): 1.16 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 3.5 Purge Method (Pump, Bailer, etc.): Bailer

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
5:34	13.25	3.5	3.5					OK to sample

Comments: ≥ 85% static water column ≤ 13.79 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 5:46 Appearance ☐ Clear ☑ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ RBDM VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☑ PVC Bailer ☐ Peristaltic Pump

Comments

Comments

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (7)

Project: Younger - Keizer

Date: 5/30/14 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-3 General Location: N of dispensers

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 12.73

Wetted Casing Length (ft): 6.87 One Well Volume (gals): 1.17 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 3.5 Purge Method (Pump, Bailer, etc.): Bailer

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
6:50	Dry	1.3	1.3					wait for 85% water column
7:20	13.76	—	—					ok to sample

Comments: ≥ 85% static water column ≤ 13.76 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 7:22 Appearance ☐ Clear ☑ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ RBDM VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☑ PVC Bailer ☐ Peristaltic Pump

Comments

Comments

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (3)

Project: Younger - Keizer

Date: 5/30/14 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-4 General Location: NE corner of Station Building

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 13.32

Wetted Casing Length (ft): 6.68 One Well Volume (gals): 0.13 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .4 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
5:08	13.34	.6	.6					ok to sample

Comments: ≥ 85% static water column ≤ 14.32 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 5:12 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☐ Dx ☐ BTEX ☑ RBDM VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (6)

Project: Younger - Keizer

Date: 5/30/14 Sampled By: NE corner of site

MONITORING WELL INFORMATION

Well Number: MW-5 General Location: NE corner of site

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 12.70

Wetted Casing Length (ft): 7.30 One Well Volume (gals): .15 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .45 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
6:18	12.77	.5	.5					OK to sample

Comments: ≥ 85% static water column ≤ 13.79 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 6:29 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ RBDM VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (2)

Project: younger - keizer

Date: 5/30/14 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-6 General Location: sw corner of station building

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 12.15

Wetted Casing Length (ft): 7.85 One Well Volume (gals): .16 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .5 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
4:47	12.15	.5	.5					ok to sample

Comments: ≥ 85% static water column ≤ 13.32 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 4:48 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ RBDM VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump

Comments

Comments

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (1)

Project: Younger - Keizer

Date: 5/30/14 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-7 General Location: NW of AST

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 12.70

Wetted Casing Length (ft): 7.30 One Well Volume (gals): .15 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .5 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
4:24	12.69	.5	.5					DIC to sample

Comments: ≥ 85% static water column ≤ 13.80 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 4:27 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☐ Dx ☐ BTEX ☑ RBDM VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump

Comments

Comments

Groundwater Purge and Sample Data

2/22/2017

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (3)

Project: Younger-Keizer

Date: 2/22/17 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-2 General Location: S of AST

Well Diameter (in): 2" Total Depth (ft): 19.6' Depth to Groundwater (ft): 7.18'

Wetted Casing Length (ft): 12.42' One Well Volume (gals): 2.1 gal No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 6.3 gal Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	Comments
1600	7.18	0	0				begin purge
1610	7.54	2.0	2.0				
1628	8.16	4.5	6.5				OK to sample

Comments: ≥ 85% static water column ≤ 9.04 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 1633 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ☑ Preserved ☐ HCL ( ) 1 liter Amber ☐ Preserved ☐ HCL (1) 500 ml Poly ☐ Preserved ☐ HCL

Requested Analyses: ☐ BTEX ☐ PAHs ☑ Other ☑ RBDM VOCs ☐ Dissolved Pb

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump

Comments: gasoline, Pet. degrading Bac.

Comments: Pump tubing set ~2 feet below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (1)

Project: Younger - Keizer

Date: 2/22/17 Sampled By: Jan White

MONITORING WELL INFORMATION

Well Number: MW-4 General Location: NE corner of Station

Well Diameter (in): 3/4" Total Depth (ft): 20' Depth to Groundwater (ft): 7.46'

Wetted Casing Length (ft): 12.54' One Well Volume (gals): .25 gal No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .75 gal Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	Comments
1518	7.46	0	0				begin purge
1524	7.54	1.0	1.0				OK to sample

Comments: ≥ 85% static water column ≤ 9.34 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 1530 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber (1) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☐ BTEX ☐ PAHs ☑ Other ☑ RBDM VOCs ☐ Dissolved Pb

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump

Comments gasoline; Pet. Degrading Bac.

Comments Pump tubing set ~2 feet below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (2)

Project: Younger - Keizer

Date: 2/22/17 Sampled By: Jan White

MONITORING WELL INFORMATION

Well Number: MW-5 General Location: sidewalk @ NE corner of site

Well Diameter (in): 3/4" Total Depth (ft): 20' Depth to Groundwater (ft): 7.34'

Wetted Casing Length (ft): 12.66' One Well Volume (gals): .25 gal No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .75 gal Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	Comments
1540	7.34	0	0				begin purge
1546	7.42	1.0	1.0				OK to sample

Comments: ≥ 85% static water column ≤ 9.24 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 1552 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber (1) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☐ BTEX ☑ RBDM VOCs ☐ PAHs ☐ Dissolved Pb ☑ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump

Comments: gasoline; Petrol. Degrading Bac.

Comments: Pump tubing set ~2' below gw surface

Groundwater Purge and Sample Data

6/27/2019

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (2)

Project: Younger - Keizer

Date: 6/27/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-1 General Location: SW corner of UST cavity

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 11.56

Wetted Casing Length (ft): 8.04 One Well Volume (gals): 1.37 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 4.1 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
09:41	11.56	ø	ø					begin purge
09:56	Dry	1.5	1.5					well dry; wait for 85% WC
10:16	18.73	—	—					
10:53	17.56	—	—					1 hr elapsed; OK to collect sample

Comments: ≥ 85% static water column ≤ 12.77 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 10:56 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☐ Dx ☐ BTEX ☑ ~~RBDM~~ VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~ 2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (7)

Project: Younger-Keizer

Date: 6/27/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-2 General Location: S of AST

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 13.43

Wetted Casing Length (ft): 6.17 One Well Volume (gals): 1.05 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 3.2 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
11:46	13.43	ø	ø					begin purge
12:25	13.47	3.5	3.5					OK to sample

Comments: ≥ 85% static water column ≤ 14.36 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 12:28 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( )1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☐ Dx ☐ BTEX ☑ ~~RBDM~~ VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (1)

Project: Younger - Keizer

Date: 6/27/19 Sampled By: Jm White

MONITORING WELL INFORMATION

Well Number: mw-3 General Location: N of Dispenser Island

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 13.40

Wetted Casing Length (ft): 6.20 One Well Volume (gals): 1.05 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 3.2 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
08:42	13.41	ø	ø					begin purge
08:59	Dry	2.5	2.5					well dry; wait for 85% wc
09:06	15.10	–	–					
09:17	14.27	~	–					ok to sample

Comments: ≥ 85% static water column ≤ 14.33 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 09:20 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ ~~VGx~~ ☐ Dx ☐ BTEX ☑ ~~RBDM~~ VOCs ☐ PAHs ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected w/ tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (5)

Project: Younger-Keizer

Date: 6/27/19 Sampled By: Jan White

MONITORING WELL INFORMATION

Well Number: MW-4 General Location: NE corner of Station Building

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 13.90

Wetted Casing Length (ft): 6.10 One Well Volume (gals): 0.12 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 0.4 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
11:07	13.90	Ø	Ø					begin purge
11:18	14.06	.5	.5					ok to sample

Comments: ≥ 85% static water column ≤ 14.82 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 11:20 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~ 2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (6)

Project: Younger-Keizer

Date: 6/27/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-5 General Location: NE corner of site

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 13.30

Wetted Casing Length (ft): 6.70 One Well Volume (gals): 0.13 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 0.4 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
11:28	13.30	∅	∅					begin purge
11:39	13.47	.5	.5					ok to sample

Comments: ≥ 85% static water column ≤ 14.31 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 11:40 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly
☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (4)

Project: Younger - Keizer

Date: 6/27/15 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-6 General Location: SW corner of Station Building

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 12.71

Wetted Casing Length (ft): 7.29 One Well Volume (gals): 0.15 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 1.5" = 0.092; 2" = 0.17; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

Total Purge Volume (gals): 0.5 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
10:22	12.71	ø	ø					begin purge
10:37	12.72	.5	.5					OK to sample

Comments: ≥ 85% static water column ≤ 13.80 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 10:40 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ☑ Preserved ☑ HCL ( ) 1 liter Amber ☐ Preserved ☐ HCL ( ) 500 ml Poly ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (3)

Project: Younger-Keizer

Date: 6/27/19 Sampled By: Jn White

MONITORING WELL INFORMATION

Well Number: MW-7 General Location: Northwestern-most well

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 13.27

Wetted Casing Length (ft): 6.73 One Well Volume (gals): 0.13 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 0.4 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
10:01	13.27	0	0					begin purge
10:08	13.39	.5	.5					ok to sample

Comments: ≥ 85% static water column ≤ 14.28 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 10:10 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (3) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

Groundwater Purge and Sample Data

9/16/2019

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (4)

Project: Younger - Keizer

Date: 9/16/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-1 General Location: SW corner of UST cavity

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 13.97

Wetted Casing Length (ft): 5.63 One Well Volume (gals): 0.96 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 2.9 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
09:31	13.97	0	0					Start purge
09:43	Dry	1.0	1.0					well Dry; wait for 85% water column
10:10	18.89	–	–					
10:48	18.34	–	–					1 hr elapsed; ok to collect sample

Comments: ≥ 85% static water column ≤ 14.81 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 1050 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly ☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~ 0.5 feet below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (7)

Project: Younger - Keizer

Date: 9/16/19 Sampled By: Jon Wh.

MONITORING WELL INFORMATION

Well Number: MW-2 General Location: S. of AST

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 14.69

Wetted Casing Length (ft): 4.91 One Well Volume (gals): 0.83 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 2.5 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
11:39	14.69	∅	∅					
11:52	Dry	1.0	1.0					well Dry; wait for 85% water column
12:01	15.35	–	–					Reached 85% water column; OK to Sample

Comments: ≥ 85% static water column ≤ 15.43 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 12:05 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (2)

Project: Yanmger-Keizer

Date: 9/16/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-3 General Location: N. of dispensers

Well Diameter (in): 2 Total Depth (ft): 19.6 Depth to Groundwater (ft): 15.37

Wetted Casing Length (ft): 4.23 One Well Volume (gals): 0.72 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 1.5" = 0.092; 2" = 0.17; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

Total Purge Volume (gals): 2.2 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
09:15	15.37	∅	∅					start purge
09:24	Dry	.75	.75					well dry; wait for 85% water column
09:44	17.95	-	-					
10:08	16.41	-	-					
10:16	16.00	-	-					reached 85% WC; OK to collect sample

Comments: ≥ 85% static water column ≤ 16.00 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 10:20 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2 feet below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (5)

Project: Younger - Keizer

Date: 9/16/19 Sampled By: Jn White

MONITORING WELL INFORMATION

Well Number: MW-4 General Location: NE corner of station Building

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 15.78

Wetted Casing Length (ft): 4.22 One Well Volume (gals): .08 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .25 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
11:02	15.78	ø	ø					begin purge
11:08	15.83	.25	.25					ok to sample

Comments: ≥ 85% static water column ≤ 16.41 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 11:10 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~BBBM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (6)

Project: Yaunger-Keizer

Date: 9/16/19 Sampled By: Ian White

MONITORING WELL INFORMATION

Well Number: MW-5 General Location: NE corner of site @ sidewalk

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 15.17

Wetted Casing Length (ft): 4.83 One Well Volume (gals): .1 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): .3 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
11:19	15.16	0	0					begin purge
11:27	15.17	.5	.5					OK to sample

Comments: ≥ 85% static water column ≤ 15.89 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 11:30 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (3)

Project: Yaunger-Keizer

Date: 9/16/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-6 General Location: SW corner of Statum Building

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 14.61

Wetted Casing Length (ft): 5.39 One Well Volume (gals): 0.11 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 0.33 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
10:33	14.61	0	0					Start purge
10:38	14.63	.5	.5					OK to Sample

Comments: ≥ 85% static water column ≤ 15.42 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 1040 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~ 2 feet below gw surface

MARTIN S. BURCK ASSOCIATES, INC.

MSBA

GROUNDWATER PURGE AND SAMPLE DATA

Sample Order (1)

Project: Younger - Keizer

Date: 9/16/19 Sampled By: Jon White

MONITORING WELL INFORMATION

Well Number: MW-7 General Location: NW of AST

Well Diameter (in): 0.75 Total Depth (ft): 20 Depth to Groundwater (ft): 15.15

Wetted Casing Length (ft): 4.85 One Well Volume (gals): 0.1 No. of Well Volumes to Purge: 3

WELL CAPACITY (Gallons Per Foot): **0.75"** = 0.02; **1"** = 0.04; **1.25"** = 0.06; **1.5"** = 0.092; **2"** = 0.17; **3"** = 0.37; **4"** = 0.65; **5"** = 1.02; **6"** = 1.47; **12"** = 5.88

Total Purge Volume (gals): 0.3 Purge Method (Pump, Bailer, etc.): peristaltic pump

WELL DEVELOPMENT/PURGING INFORMATION

Time	Depth to Water	Gallons Purged	Cumulative Total	T	C	pH	TDS	Comments
09:48	15.15	✗	✗					Start Purge
09:57	15.18	.5	.5					OK to Sample

Comments: ≥ 85% static water column ≤ 15.88 feet DtW WELL TYPE:

GROUNDWATER SAMPLE INFORMATION

Collection Time 10:00 Appearance ☑ Clear ☐ Cloudy ☐ Turbid Thermal Preservation ☑ Ice Chest & Ice ☐ Other

Containers (6) 40 ml VOAs ( ) 1 liter Amber ( ) 500 ml Poly

☑ Preserved ☑ HCL ☐ Preserved ☐ HCL ☐ Preserved ☐ HCL

Requested Analyses: ☑ Gx ☑ ~~RBDM~~ VOCs ☐ Dx ☐ PAHs ☐ BTEX ☐ Other

Collection Method ☐ Disposable Bailer ☐ PVC Bailer ☑ Peristaltic Pump Comments

Comments Sample collected with tubing set ~2' below gw surface

Appendix D

Groundwater Sample Laboratory Reports

- Sample Date: 5/30/14 (Apex #A4F0009)
- Sample Date: 2/22/17 (Apex #A7B0749)
- Sample Date: 2/22/17 (Apex #A7B0748)
- Sample Date: 6/27/19 (Pace #L1115647)
- Sample Date: 9/16/19 (Pace #L1141775)

Sample Date: 5/30/14 (Apex #A4F0009)

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, July 2, 2014

Jonathan White
Martin S. Burck Associates, Inc
200 N. Wasco Court
Hood River, OR 97031

RE: Kaiser / [none]

Enclosed are the results of analyses for work order A4F0009, which was received by the laboratory on 6/2/2014 at 11:07:00AM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: cwoodcock@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Christina M. Woodcock For Darrell Auvil, Project Manager

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

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-1	A4F0009-01	Water	05/30/14 17:59	06/02/14 11:07
MW-2	A4F0009-02	Water	05/30/14 17:46	06/02/14 11:07
MW-3	A4F0009-03	Water	05/30/14 19:22	06/02/14 11:07
MW-4	A4F0009-04	Water	05/30/14 17:12	06/02/14 11:07
MW-5	A4F0009-05	Water	05/30/14 18:29	06/02/14 11:07
MW-6	A4F0009-06	Water	05/30/14 16:48	06/02/14 11:07
MW-7	A4F0009-07	Water	05/30/14 16:27	06/02/14 11:07

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-1 (A4F0009-01)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	ND	---	0.100	mg/L	1	06/02/14 16:32	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 95 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*97 %*	*Limits: 50-150 %*	"	"	"	
MW-2 (A4F0009-02)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	**1.81**	---	0.100	mg/L	1	06/02/14 17:28	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*99 %*	*Limits: 50-150 %*	"	"	"	
MW-3 (A4F0009-03)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	ND	---	0.100	mg/L	1	06/02/14 17:57	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*94 %*	*Limits: 50-150 %*	"	"	"	
MW-4 (A4F0009-04)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	**0.142**	---	0.100	mg/L	1	06/02/14 18:25	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 99 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*96 %*	*Limits: 50-150 %*	"	"	"	
MW-5 (A4F0009-05)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	**0.109**	---	0.100	mg/L	1	06/02/14 18:53	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 97 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*94 %*	*Limits: 50-150 %*	"	"	"	
MW-6 (A4F0009-06)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	ND	---	0.100	mg/L	1	06/02/14 19:21	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 101 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*127 %*	*Limits: 50-150 %*	"	"	"	
MW-7 (A4F0009-07)			**Matrix: Water**		**Batch: 4060021**			
Gasoline Range Organics	ND	---	0.100	mg/L	1	06/02/14 19:49	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 105 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*122 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

ANALYTICAL SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-1 (A4F0009-01)			**Matrix: Water**		**Batch: 4060021**			
Benzene	ND	---	0.250	ug/L	1	06/02/14 16:32	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
n-Propylbenzene	ND	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*104 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*105 %*	*Limits: 80-120 %*	"	"	"	
MW-2 (A4F0009-02)			**Matrix: Water**		**Batch: 4060021**			
Benzene	**44.0**	---	0.250	ug/L	1	06/02/14 17:28	EPA 8260B	
Toluene	**6.45**	---	1.00	"	"	"	"	
Ethylbenzene	**27.9**	---	0.500	"	"	"	"	
Xylenes, total	**173**	---	1.50	"	"	"	"	
Naphthalene	**61.8**	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	**7.45**	---	1.00	"	"	"	"	
n-Propylbenzene	**13.2**	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	**122**	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	**19.3**	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*98 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*104 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	
MW-3 (A4F0009-03)			**Matrix: Water**		**Batch: 4060021**			
Benzene	ND	---	0.250	ug/L	1	06/02/14 17:57	EPA 8260B	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

ANALYTICAL SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-3 (A4F0009-03)			**Matrix: Water**		**Batch: 4060021**			
Toluene	ND	---	1.00	ug/L	1	"	EPA 8260B	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
n-Propylbenzene	ND	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*104 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	
MW-4 (A4F0009-04)			**Matrix: Water**		**Batch: 4060021**			
Benzene	**1.68**	---	0.250	ug/L	1	06/02/14 18:25	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
n-Propylbenzene	**0.510**	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*99 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*103 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*103 %*	*Limits: 80-120 %*	"	"	"	
MW-5 (A4F0009-05)			**Matrix: Water**		**Batch: 4060021**			
Benzene	**12.2**	---	0.250	ug/L	1	06/02/14 18:53	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

ANALYTICAL SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-5 (A4F0009-05)			**Matrix: Water**		**Batch: 4060021**			
Ethylbenzene	ND	---	0.500	ug/L	1	"	EPA 8260B	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	**15.6**	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
n-Propylbenzene	ND	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*98 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*104 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	
MW-6 (A4F0009-06)			**Matrix: Water**		**Batch: 4060021**			
Benzene	ND	---	0.250	ug/L	1	06/02/14 19:21	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
n-Propylbenzene	ND	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 104 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*101 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*104 %*	*Limits: 80-120 %*	"	"	"	
MW-7 (A4F0009-07)			**Matrix: Water**		**Batch: 4060021**			
Benzene	ND	---	0.250	ug/L	1	06/02/14 19:49	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

ANALYTICAL SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-7 (A4F0009-07)			**Matrix: Water**		**Batch: 4060021**			
Xylenes, total	ND	---	1.50	ug/L	1	"	EPA 8260B	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
n-Propylbenzene	ND	---	0.500	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: Dibromofluoromethane (Surr)			*Recovery: 103 %*	*Limits: 80-120 %*	"	"	"	
1,4-Difluorobenzene (Surr)			*102 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*100 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*103 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4060021 - EPA 5030B									Water			
Blank (4060021-BLK1)					Prepared: 06/02/14 13:00 Analyzed: 06/02/14 16:04							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 96 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*93 %*	*50-150 %*			*"*					
LCS (4060021-BS2)					Prepared: 06/02/14 13:00 Analyzed: 06/02/14 15:36							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.456	---	0.100	mg/L	1	0.500	---	91	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 98 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*98 %*	*50-150 %*			*"*					
Duplicate (4060021-DUP1)					Prepared: 06/02/14 14:34 Analyzed: 06/02/14 17:00							
QC Source Sample: MW-1 (A4F0009-01)												
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	ND	---	---	---	30%	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 97 %*	*Limits: 50-150 %*			*Dilution: 1x*					
1,4-Difluorobenzene (Sur)			*97 %*	*50-150 %*			*"*					

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

QUALITY CONTROL (QC) SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4060021 - EPA 5030B							**Water**					
Blank (4060021-BLK1)					Prepared: 06/02/14 13:00 Analyzed: 06/02/14 16:04							
EPA 8260B												
Benzene	ND	---	0.250	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	"	"	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	2.00	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	
n-Propylbenzene	ND	---	0.500	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	---	---	---	---	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*		*Dilution: 1x*					
1,4-Difluorobenzene (Surr)			*99 %*		*80-120 %*		*"*					
Toluene-d8 (Surr)			*104 %*		*80-120 %*		*"*					
4-Bromofluorobenzene (Surr)			*105 %*		*80-120 %*		*"*					
LCS (4060021-BS1)					Prepared: 06/02/14 13:00 Analyzed: 06/02/14 15:08							
EPA 8260B												
Benzene	17.3	---	0.250	ug/L	1	20.0	---	86	70-130%	---	---	
Toluene	18.1	---	1.00	"	"	"	---	91	"	---	---	
Ethylbenzene	18.1	---	0.500	"	"	"	---	90	"	---	---	
Xylenes, total	56.7	---	1.50	"	"	60.0	---	95	"	---	---	
Naphthalene	19.9	---	2.00	"	"	20.0	---	100	"	---	---	
Methyl tert-butyl ether (MTBE)	17.5	---	1.00	"	"	"	---	87	"	---	---	
Isopropylbenzene	19.1	---	1.00	"	"	"	---	96	"	---	---	
n-Propylbenzene	19.5	---	0.500	"	"	"	---	97	"	---	---	
1,2,4-Trimethylbenzene	20.4	---	1.00	"	"	"	---	102	"	---	---	
1,3,5-Trimethylbenzene	20.1	---	1.00	"	"	"	---	101	"	---	---	
1,2-Dibromoethane (EDB)	19.1	---	0.500	"	"	"	---	96	"	---	---	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

QUALITY CONTROL (QC) SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4060021 - EPA 5030B									**Water**			
LCS (4060021-BS1)					Prepared: 06/02/14 13:00 Analyzed: 06/02/14 15:08							
1,2-Dichloroethane (EDC)	18.2	---	0.500	ug/L	"	"	---	91	"	---	---	
Surr: Dibromofluoromethane (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*98 %*		*80-120 %*			*"*				
Toluene-d8 (Surr)			*103 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*104 %*		*80-120 %*			*"*				
Duplicate (4060021-DUP1)					Prepared: 06/02/14 14:34 Analyzed: 06/02/14 17:00							
QC Source Sample: MW-1 (A4F0009-01)												
EPA 8260B												
Benzene	ND	---	0.250	ug/L	1	---	ND	---	---	---	30%	
Toluene	ND	---	1.00	"	"	---	ND	---	---	---	30%	
Ethylbenzene	ND	---	0.500	"	"	---	ND	---	---	---	30%	
Xylenes, total	ND	---	1.50	"	"	---	ND	---	---	---	30%	
Naphthalene	ND	---	2.00	"	"	---	ND	---	---	---	30%	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	---	ND	---	---	---	30%	
Isopropylbenzene	ND	---	1.00	"	"	---	ND	---	---	---	30%	
n-Propylbenzene	ND	---	0.500	"	"	---	ND	---	---	---	30%	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	---	ND	---	---	---	30%	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	---	ND	---	---	---	30%	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	---	ND	---	---	---	30%	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	---	ND	---	---	---	30%	
Surr: Dibromofluoromethane (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*			*Dilution: 1x*				
1,4-Difluorobenzene (Surr)			*99 %*		*80-120 %*			*"*				
Toluene-d8 (Surr)			*103 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*104 %*		*80-120 %*			*"*				
Matrix Spike (4060021-MS1)					Prepared: 06/02/14 14:34 Analyzed: 06/02/14 20:17							
QC Source Sample: MW-7 (A4F0009-07)												
EPA 8260B												
Benzene	18.6	---	0.250	ug/L	1	20.0	ND	93	70-130%	---	---	
Toluene	18.6	---	1.00	"	"	"	ND	93	"	---	---	
Ethylbenzene	18.6	---	0.500	"	"	"	ND	93	"	---	---	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

QUALITY CONTROL (QC) SAMPLE RESULTS

RBCA Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 4060021 - EPA 5030B							**Water**					
Matrix Spike (4060021-MS1)					Prepared: 06/02/14 14:34 Analyzed: 06/02/14 20:17							
QC Source Sample: MW-7 (A4F0009-07)												
Xylenes, total	57.7	---	1.50	ug/L	"	60.0	ND	96	"	---	---	
Naphthalene	19.5	---	2.00	"	"	20.0	ND	98	"	---	---	
Methyl tert-butyl ether (MTBE)	18.2	---	1.00	"	"	"	ND	91	"	---	---	
Isopropylbenzene	19.5	---	1.00	"	"	"	ND	98	"	---	---	
n-Propylbenzene	19.4	---	0.500	"	"	"	ND	97	"	---	---	
1,2,4-Trimethylbenzene	19.8	---	1.00	"	"	"	ND	99	"	---	---	
1,3,5-Trimethylbenzene	19.9	---	1.00	"	"	"	ND	99	"	---	---	
1,2-Dibromoethane (EDB)	19.0	---	0.500	"	"	"	ND	95	"	---	---	
1,2-Dichloroethane (EDC)	19.3	---	0.500	"	"	"	ND	97	"	---	---	

Surr: Dibromofluoromethane (Surr)	*Recovery: 104 %*	*Limits: 80-120 %*	*Dilution: 1x*	
1,4-Difluorobenzene (Surr)	*100 %*	*80-120 %*	*"*	
Toluene-d8 (Surr)	*100 %*	*80-120 %*	*"*	
4-Bromofluorobenzene (Surr)	*101 %*	*80-120 %*	*"*	

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene to Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4060021							
A4F0009-01	Water	NWTPH-Gx (MS)	05/30/14 17:59	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-02	Water	NWTPH-Gx (MS)	05/30/14 17:46	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-03	Water	NWTPH-Gx (MS)	05/30/14 19:22	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-04	Water	NWTPH-Gx (MS)	05/30/14 17:12	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-05	Water	NWTPH-Gx (MS)	05/30/14 18:29	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-06	Water	NWTPH-Gx (MS)	05/30/14 16:48	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-07	Water	NWTPH-Gx (MS)	05/30/14 16:27	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00

RBCA Compounds (BTEX+) by EPA 8260B

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 4060021							
A4F0009-01	Water	EPA 8260B	05/30/14 17:59	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-02	Water	EPA 8260B	05/30/14 17:46	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-03	Water	EPA 8260B	05/30/14 19:22	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-04	Water	EPA 8260B	05/30/14 17:12	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-05	Water	EPA 8260B	05/30/14 18:29	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-06	Water	EPA 8260B	05/30/14 16:48	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00
A4F0009-07	Water	EPA 8260B	05/30/14 16:27	06/02/14 14:34	5mL/5mL	5mL/5mL	1.00

Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20

Notes and Definitions

Qualifiers:

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepency with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

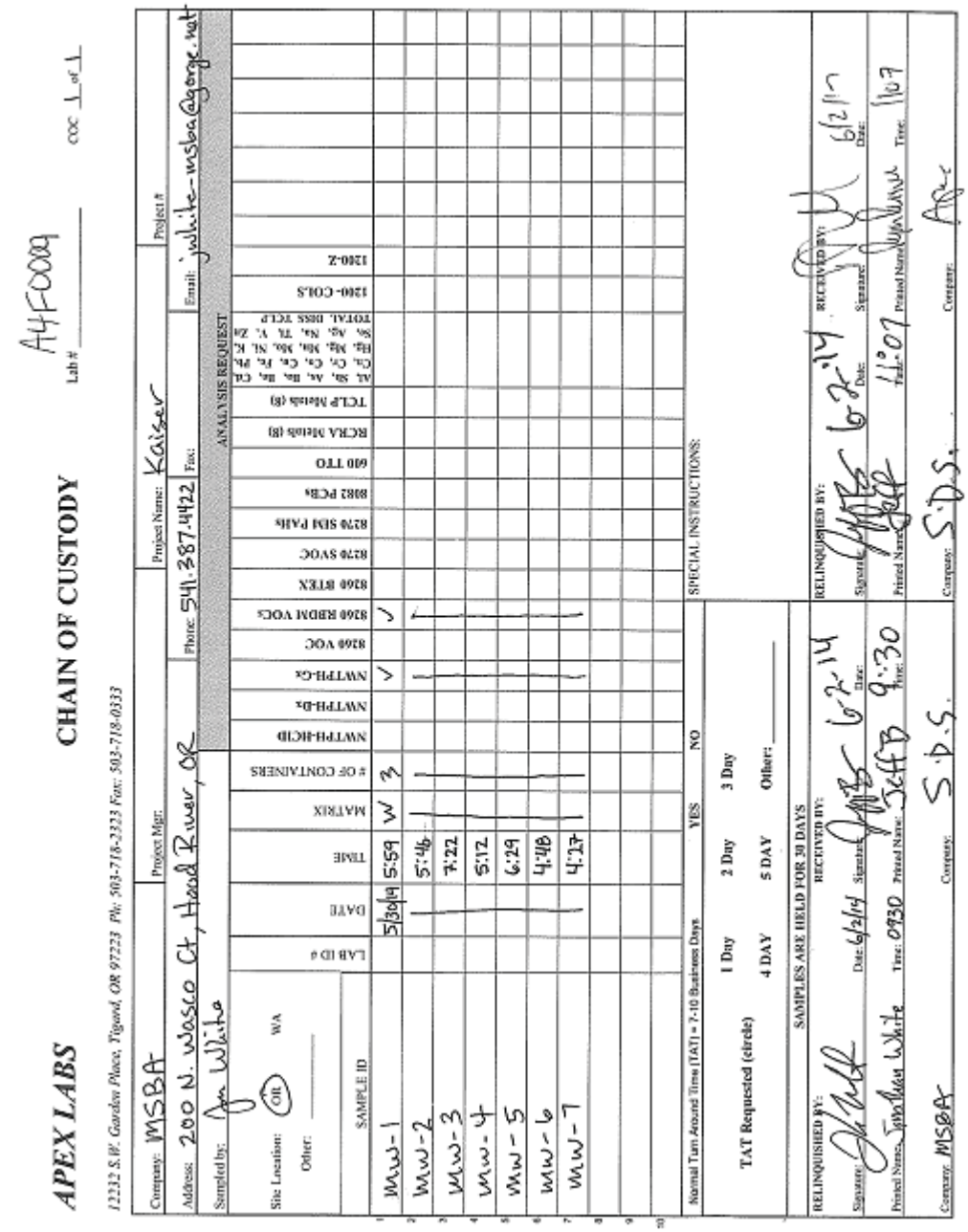
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Christina M. Woodcock For Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Kaiser**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	07/02/14 16:20



Apex Laboratories

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

Christina M. Woodcock For Darrell Auvil, Project Manager

Sample Date: 2/22/17 (Apex #A7B0749)

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Thursday, March 2, 2017

Jonathan White
Martin S. Burck Associates, Inc
200 N. Wasco Court
Hood River, OR 97031

RE: Younger-Keizer / [none]

Enclosed are the results of analyses for work order A7B0749, which was received by the laboratory on 2/23/2017 at 12:05:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

Darrell Auvil, Project Manager

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

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	A7B0749-01	Water	02/22/17 16:33	02/23/17 12:05
MW-4	A7B0749-02	Water	02/22/17 15:30	02/23/17 12:05
MW-5	A7B0749-03	Water	02/22/17 15:52	02/23/17 12:05

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

ANALYTICAL SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-2 (A7B0749-01)			**Matrix: Water**		**Batch: 7020880**			
Gasoline Range Organics	**0.105**	---	0.100	mg/L	1	02/23/17 19:36	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 88 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*100 %*	*Limits: 50-150 %*	"	"	"	
MW-4 (A7B0749-02)			**Matrix: Water**		**Batch: 7020880**			
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/23/17 18:41	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 85 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*99 %*	*Limits: 50-150 %*	"	"	"	
MW-5 (A7B0749-03)			**Matrix: Water**		**Batch: 7020880**			
Gasoline Range Organics	ND	---	0.100	mg/L	1	02/23/17 19:09	NWTPH-Gx (MS)	
Surrogate: 4-Bromofluorobenzene (Sur)			*Recovery: 88 %*	*Limits: 50-150 %*	"	"	"	
1,4-Difluorobenzene (Sur)			*119 %*	*Limits: 50-150 %*	"	"	"	

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

ANALYTICAL SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-2 (A7B0749-01)			**Matrix: Water**		**Batch: 7020880**			
Benzene	**1.14**	---	0.200	ug/L	1	02/23/17 19:36	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	**1.16**	---	0.500	"	"	"	"	
Xylenes, total	**6.54**	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	**5.16**	---	1.00	"	"	"	"	Q-42
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 104 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*90 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*86 %*	*Limits: 80-120 %*	"	"	"	
MW-4 (A7B0749-02)			**Matrix: Water**		**Batch: 7020880**			
Benzene	ND	---	0.200	ug/L	1	02/23/17 18:41	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	"	"	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*90 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*87 %*	*Limits: 80-120 %*	"	"	"	
MW-5 (A7B0749-03)			**Matrix: Water**		**Batch: 7020880**			
Benzene	**1.59**	---	0.200	ug/L	1	02/23/17 19:09	EPA 8260B	
Toluene	ND	---	1.00	"	"	"	"	
Ethylbenzene	ND	---	0.500	"	"	"	"	
Xylenes, total	ND	---	1.50	"	"	"	"	
Naphthalene	ND	---	2.00	"	"	"	"	

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

ANALYTICAL SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Date Analyzed	Method	Notes
MW-5 (A7B0749-03)			**Matrix: Water**		**Batch: 7020880**			
Methyl tert-butyl ether (MTBE)	ND	---	1.00	ug/L	1	"	EPA 8260B	
Isopropylbenzene	ND	---	1.00	"	"	"	"	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	"	"	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	"	"	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	"	"	
Surrogate: 1,4-Difluorobenzene (Surr)			*Recovery: 106 %*	*Limits: 80-120 %*	"	"	"	
Toluene-d8 (Surr)			*90 %*	*Limits: 80-120 %*	"	"	"	
4-Bromofluorobenzene (Surr)			*87 %*	*Limits: 80-120 %*	"	"	"	

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

QUALITY CONTROL (QC) SAMPLE RESULTS

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020880 - EPA 5030B									**Water**			
Blank (7020880-BLK1)					Prepared: 02/23/17 15:55 Analyzed: 02/23/17 17:46							
NWTPH-Gx (MS)												
Gasoline Range Organics	ND	---	0.100	mg/L	1	---	---	---	---	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 86 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*100 %*		*50-150 %*				*"*			
LCS (7020880-BS2)					Prepared: 02/23/17 15:55 Analyzed: 02/23/17 17:18							
NWTPH-Gx (MS)												
Gasoline Range Organics	0.441	---	0.100	mg/L	1	0.500	---	88	70-130%	---	---	
Surr: 4-Bromofluorobenzene (Sur)			*Recovery: 86 %*		*Limits: 50-150 %*				*Dilution: 1x*			
1,4-Difluorobenzene (Sur)			*100 %*		*50-150 %*				*"*			

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

QUALITY CONTROL (QC) SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020880 - EPA 5030B									Water			
Blank (7020880-BLK1)					Prepared: 02/23/17 15:55 Analyzed: 02/23/17 17:46							
EPA 8260B												
Benzene	ND	---	0.200	ug/L	1	---	---	---	---	---	---	
Toluene	ND	---	1.00	"	"	---	---	---	---	---	---	
Ethylbenzene	ND	---	0.500	"	"	---	---	---	---	---	---	
Xylenes, total	ND	---	1.50	"	"	---	---	---	---	---	---	
Naphthalene	ND	---	2.00	"	"	---	---	---	---	---	---	
Methyl tert-butyl ether (MTBE)	ND	---	1.00	"	"	---	---	---	---	---	---	
Isopropylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	
1,2,4-Trimethylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	
1,3,5-Trimethylbenzene	ND	---	1.00	"	"	---	---	---	---	---	---	
1,2-Dibromoethane (EDB)	ND	---	0.500	"	"	---	---	---	---	---	---	
1,2-Dichloroethane (EDC)	ND	---	0.500	"	"	---	---	---	---	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 105 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*91 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*89 %*		*80-120 %*			*"*				
LCS (7020880-BS1)					Prepared: 02/23/17 15:55 Analyzed: 02/23/17 16:50							
EPA 8260B												
Benzene	20.0	---	0.200	ug/L	1	20.0	---	100	70-130%	---	---	
Toluene	19.6	---	1.00	"	"	"	---	98	"	---	---	
Ethylbenzene	20.5	---	0.500	"	"	"	---	102	"	---	---	
Xylenes, total	64.0	---	1.50	"	"	60.0	---	107	"	---	---	
Naphthalene	18.3	---	2.00	"	"	20.0	---	91	"	---	---	
Methyl tert-butyl ether (MTBE)	19.7	---	1.00	"	"	"	---	99	"	---	---	
Isopropylbenzene	20.6	---	1.00	"	"	"	---	103	"	---	---	
1,2,4-Trimethylbenzene	22.8	---	1.00	"	"	"	---	114	"	---	---	
1,3,5-Trimethylbenzene	21.8	---	1.00	"	"	"	---	109	"	---	---	
1,2-Dibromoethane (EDB)	21.1	---	0.500	"	"	"	---	106	"	---	---	
1,2-Dichloroethane (EDC)	19.9	---	0.500	"	"	"	---	99	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 102 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*87 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*84 %*		*80-120 %*			*"*				
Matrix Spike (7020880-MS1)					Prepared: 02/23/17 16:32 Analyzed: 02/23/17 20:04							
QC Source Sample: MW-2 (A7B0749-01)												
EPA 8260B												

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

QUALITY CONTROL (QC) SAMPLE RESULTS

RBDM Compounds (BTEX+) by EPA 8260B

Analyte	Result	MDL	Reporting Limit	Units	Dil.	Spike Amount	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 7020880 - EPA 5030B							**Water**					
Matrix Spike (7020880-MS1)					Prepared: 02/23/17 16:32 Analyzed: 02/23/17 20:04							
QC Source Sample: MW-2 (A7B0749-01)												
EPA 8260B												
Benzene	22.8	---	0.200	ug/L	1	20.0	1.14	108	70-130%	---	---	
Toluene	21.0	---	1.00	"	"	"	ND	105	"	---	---	
Ethylbenzene	23.8	---	0.500	"	"	"	1.16	113	"	---	---	
Xylenes, total	79.7	---	1.50	"	"	60.0	6.54	122	"	---	---	
Naphthalene	20.5	---	2.00	"	"	20.0	ND	102	"	---	---	
Methyl tert-butyl ether (MTBE)	20.5	---	1.00	"	"	"	ND	103	"	---	---	
Isopropylbenzene	23.5	---	1.00	"	"	"	ND	117	"	---	---	
1,2,4-Trimethylbenzene	32.9	---	1.00	"	"	"	5.16	138	"	---	---	Q-01
1,3,5-Trimethylbenzene	24.2	---	1.00	"	"	"	0.540	118	"	---	---	
1,2-Dibromoethane (EDB)	22.2	---	0.500	"	"	"	ND	111	"	---	---	
1,2-Dichloroethane (EDC)	20.7	---	0.500	"	"	"	ND	103	"	---	---	
Surr: 1,4-Difluorobenzene (Surr)			*Recovery: 101 %*		*Limits: 80-120 %*			*Dilution: 1x*				
Toluene-d8 (Surr)			*88 %*		*80-120 %*			*"*				
4-Bromofluorobenzene (Surr)			*84 %*		*80-120 %*			*"*				

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

SAMPLE PREPARATION INFORMATION

Gasoline Range Hydrocarbons (Benzene through Naphthalene) by NWTPH-Gx

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020880							
A7B0749-01	Water	NWTPH-Gx (MS)	02/22/17 16:33	02/23/17 16:32	5mL/5mL	5mL/5mL	1.00
A7B0749-02	Water	NWTPH-Gx (MS)	02/22/17 15:30	02/23/17 16:32	5mL/5mL	5mL/5mL	1.00
A7B0749-03	Water	NWTPH-Gx (MS)	02/22/17 15:52	02/23/17 16:32	5mL/5mL	5mL/5mL	1.00

RBDM Compounds (BTEX+) by EPA 8260B

Prep: EPA 5030B

Lab Number	Matrix	Method	Sampled	Prepared	Sample Initial/Final	Default Initial/Final	RL Prep Factor
Batch: 7020880							
A7B0749-01	Water	EPA 8260B	02/22/17 16:33	02/23/17 16:32	5mL/5mL	5mL/5mL	1.00
A7B0749-02	Water	EPA 8260B	02/22/17 15:30	02/23/17 16:32	5mL/5mL	5mL/5mL	1.00
A7B0749-03	Water	EPA 8260B	02/22/17 15:52	02/23/17 16:32	5mL/5mL	5mL/5mL	1.00

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

Notes and Definitions

Qualifiers:

Q-01	Spike recovery and/or RPD is outside acceptance limits.
Q-42	Matrix Spike and/or Duplicate analysis was performed on this sample. % Recovery or RPD for this analyte is outside laboratory control limits. (Refer to the QC Section of Analytical Report.)

Notes and Conventions:

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis. Results listed as 'wet' or without 'dry'designation are not dry weight corrected.
RPD	Relative Percent Difference
MDL	If MDL is not listed, data has been evaluated to the Method Reporting Limit only.
WMSC	Water Miscible Solvent Correction has been applied to Results and MRLs for volatiles soil samples per EPA 8000C.
Batch QC	Unless specifically requested, this report contains only results for Batch QC derived from client samples included in this report. All analyses were performed with the appropriate Batch QC (including Sample Duplicates, Matrix Spikes and/or Matrix Spike Duplicates) in order to meet or exceed method and regulatory requirements. Any exceptions to this will be qualified in this report. Complete Batch QC results are available upon request. In cases where there is insufficient sample provided for Sample Duplicates and/or Matrix Spikes, a Lab Control Sample Duplicate (LCS Dup) is analyzed to demonstrate accuracy and precision of the extraction and analysis.
Blank Policy	Apex assesses blank data for potential high bias down to a level equal to ½ the method reporting limit (MRL), except for conventional chemistry and HCID analyses which are assessed only to the MRL. Sample results flagged with a B or B-02 qualifier are potentially biased high if they are less than ten times the level found in the blank for inorganic analyses or less than five times the level found in the blank for organic analyses. For accurate comparison of volatile results to the level found in the blank; water sample results should be divided by the dilution factor, and soil sample results should be divided by 1/50 of the sample dilution to account for the sample prep factor. Results qualified as reported below the MRL may include a potential high bias if associated with a B or B-02 qualified blank. B and B-02 qualifications are not applied to J qualified results reported below the MRL.
---	QC results are not applicable. For example, % Recoveries for Blanks and Duplicates, % RPD for Blanks, Blank Spikes and Matrix Spikes, etc.
***	Used to indicate a possible discrepancy with the Sample and Sample Duplicate results when the %RPD is not available. In this case, either the Sample or the Sample Duplicate has a reportable result for this analyte, while the other is Non Detect (ND).

Apex Laboratories

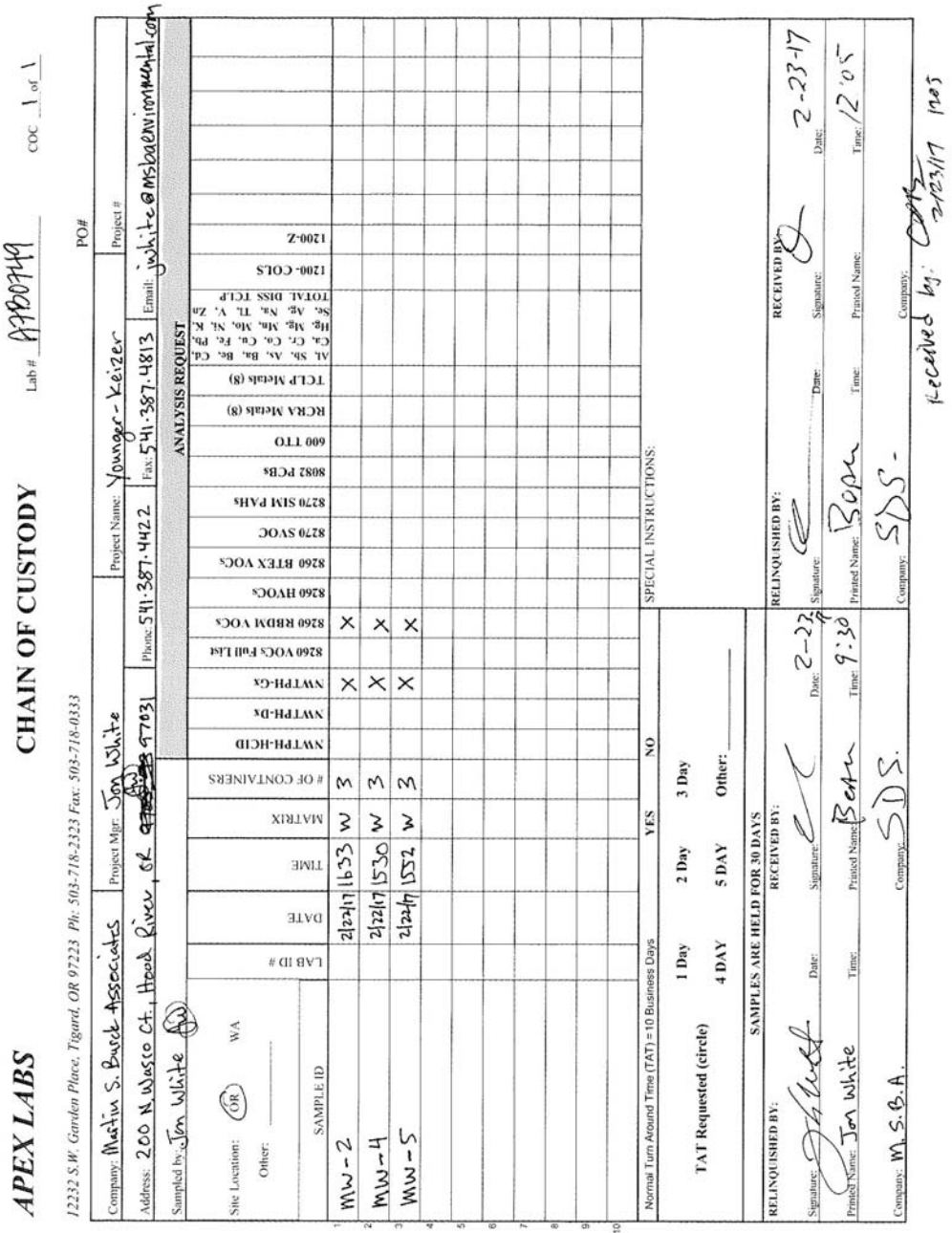
The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31



APEX LABS

CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A7B0749 COC 1 of 1

PO#

Company: Martin S. Burck Associates | Project Mgr: Jon White | Project Name: Younger - Keizer | Project #

Address: 200 N. Wasco Ct., Hood River, OR 97031 | Phone: 541-387-4822 | Fax: 541-387-4813 | Email: jwhite@msbaenvironmental.com

Sampled by: Jon White

Site Location: (OR) WA
Other: _____

ANALYSIS REQUEST

	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	NWTPH-HCID	NWTPH-Dx	NWTPH-Gx	8260 VOCs Full List	8260 RBDM VOCs	8260 HVOCs	8260 BTEX VOCs	8270 SVOC	8270 SIM PAHs	8082 PCBs	600 TTO	RCRA Metals (8)	TCLP Metals (8)	Al, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS TCLP	1200- COLS	1200-Z
1	MW-2		2/22/17	1633	W	3			X		X										
2	MW-4		2/22/17	1530	W	3			X		X										
3	MW-5		2/22/17	1552	W	3			X		X										
4																					
5																					
6																					
7																					
8																					
9																					
10																					

Normal Turn Around Time (TAT) = 10 Business Days YES NO

SPECIAL INSTRUCTIONS:

TAT Requested (circle): 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: _____

SAMPLES ARE HELD FOR 30 DAYS

RELINQUISHED BY: Signature: _____ Date: _____ Time: _____ Printed Name: _____ Company: _____

RECEIVED BY: Signature: _____ Date: 2-22 Time: 9:30 Printed Name: Bean Company: SDS.

RELINQUISHED BY: Signature: _____ Date: 2-23-17 Time: 12'05 Printed Name: Bean Company: SDS.

RECEIVED BY: Signature: _____ Date: 2/23/17 Time: 1205 Printed Name: _____ Company: _____

Received by:

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/02/17 17:31

APEX LABS COOLER RECEIPT FORM

Client: MSBA Element WO#: A7 B07149

Project/Project #: Younger-Keizer

Delivery info:

Date/Time Received: 2/23/17 @ 1205 By: CMB

Delivered by: Apex___ Client___ ESS___ FedEx___ UPS___ Swift___ Senvoy___ SDS X Other___

Cooler Inspection Inspected by: CMB : 2/23/17 @ 1210

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.3	1.8	1.7				
Received on Ice? (Y/N)	→						
Temp. Blanks? (Y/N)	→						
Ice Type: (Gel/Real/Other)	→						
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: HLC : 2/23/17 @ 1228

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No X NA___

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___No___NA X

Comments:

Additional Information:

Labeled by: HLC Witness: MW Cooler Inspected by: HLC See Project Contact Form: Y

Apex Laboratories

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

Darrell Auvil, Project Manager

Sample Date: 2/22/17 (Apex #A7B0748)

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Wednesday, March 8, 2017

Jonathan White
Martin S. Burck Associates, Inc
200 N. Wasco Court
Hood River, OR 97031

RE: Younger-Keizer / [none]

Enclosed are the results of analyses for work order A7B0748, which was received by the laboratory on 2/23/2017 at 12:05:00PM.

Thank you for using Apex Labs. We appreciate your business and strive to provide the highest quality services to the environmental industry.

If you have any questions concerning this report or the services we offer, please feel free to contact me by email at: DAuvil@apex-labs.com, or by phone at 503-718-2323.

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/08/17 12:34

ANALYTICAL REPORT FOR SAMPLES

SAMPLE INFORMATION

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-2	A7B0748-01	Water	02/22/17 16:33	02/23/17 12:05
MW-4	A7B0748-02	Water	02/22/17 15:30	02/23/17 12:05
MW-5	A7B0748-03	Water	02/22/17 15:52	02/23/17 12:05

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/08/17 12:34

ANALYTICAL CASE NARRATIVE

Work Order: A7B0748

Subcontract

This report is not complete without the attached subcontract laboratory report for Hydrocarbon Degrading Bacteria provided by Biologic Resources.

Darrell Auvil
Project Manager
3/8/2017

Apex Laboratories

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

Darrell Auvil, Project Manager

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/08/17 12:34

APEX LABS — CHAIN OF CUSTODY

12232 S.W. Garden Place, Tigard, OR 97223 Ph: 503-718-2323 Fax: 503-718-0333

Lab # A7B0748 COC 1 of 1

Company: Martin S. Burck Associates Project Mgr: Jon White Project Name: Younger-Keizer Project #

Address: 200 N Wasco Ct, Hood River, OR 97031 Phone: 541-387-4422 Fax: 541-387-4813 Email: jwhite@msbaenvironmental.com PO#

Sampled by: Jon White

Site Location: OR (circled) WA Other:

ANALYSIS REQUEST: NWTPH-HCID, NWTPH-Dx, NWTPH-Gx, 8260 VOCs Full List, 8260 RBDM VOCs, 8260 HVOCs, 8260 BTEX VOCs, 8270 SVOC, 8270 SIM PAHs, 8082 PCBs, 600 TTO, RCRA Metals (8), TCLP Metals (8), AL, Sb, As, Ba, Be, Cd, Ca, Cr, Co, Cu, Fe, Pb, Hg, Mg, Mn, Mo, Ni, K, Se, Ag, Na, Tl, V, Zn TOTAL DISS TCLP, 1200-COLS, 1200-Z, Petroleum Degrading Bacteria

	SAMPLE ID	LAB ID #	DATE	TIME	MATRIX	# OF CONTAINERS	Petroleum Degrading Bacteria
1	MW-2		2/22/17	1633	W	2	X
2	MW-4		2/22/17	1530	W	2	X
3	MW-5		2/22/17	1552	W	2	X
4							
5							
6							
7							
8							
9							
10							

Normal Turn Around Time (TAT) = 10 Business Days

TAT Requested (circle): 1 Day 2 Day 3 Day 4 DAY 5 DAY Other: ______ YES NO

SAMPLES ARE HELD FOR 30 DAYS

SPECIAL INSTRUCTIONS: Please analyze samples for Petroleum Degrading Bacteria.

RELINQUISHED BY:	RECEIVED BY:	RELINQUISHED BY:	RECEIVED BY:
Signature: [signature] Date: Time:	Signature: [signature] Date: 2-23-17 Time: 9:30	Signature: [signature] Date: 2-23-17 Time: 1205	Signature: [signature] Date: 2/23/17 Time: 1205
Printed Name: Jon White	Printed Name: Bean	Printed Name: Bean	Printed Name: Cam Ottaway
Company: MSBA	Company: SDS	Company: SDS	Company: Apex

Apex Labs

12232 S.W. Garden Place
Tigard, OR 97223
503-718-2323 Phone
503-718-0333 Fax

Martin S. Burck Associates, Inc	Project: **Younger-Keizer**	
200 N. Wasco Court	Project Number: [none]	**Reported:**
Hood River, OR 97031	Project Manager: Jonathan White	03/08/17 12:34

APEX LABS COOLER RECEIPT FORM

Client: MSBA Element WO#: A7 B07148

Project/Project #: Younger - Keizer

Delivery info:

Date/Time Received: 2/23/17 @ 1205 By:

Delivered by: Apex___Client___ESS___FedEx___UPS___Swift___Senvoy___SDS X Other___

Cooler Inspection Inspected by: : 2/23/17 @ 1210

Chain of Custody Included? Yes X No___ Custody Seals? Yes___ No X

Signed/Dated by Client? Yes X No___

Signed/Dated by Apex? Yes X No___

	Cooler #1	Cooler #2	Cooler #3	Cooler #4	Cooler #5	Cooler #6	Cooler #7
Temperature (deg. C)	2.3	1.8	1.7				
Received on Ice? (Y/N)							
Temp. Blanks? (Y/N)							
Ice Type: (Gel/Real/Other)							
Condition:							

Cooler out of temp? (Y/N) Possible reason why:

If some coolers are in temp and some out, were green dot applied to out of temperature samples? Yes/No/NA

Samples Inspection: Inspected by: : 2/23/17 @ 1318

All Samples Intact? Yes X No___ Comments:

Bottle Labels/COCs agree? Yes X No___ Comments:

Containers/Volumes Received Appropriate for Analysis? Yes X No___ Comments:

Do VOA Vials have Visible Headspace? Yes___ No___ NA X

Comments

Water Samples: pH Checked and Appropriate (except VOAs): Yes___No___NA X

Comments:

Additional Information:

Labeled by: Witness: Cooler Inspected by: See Project Contact Form: Y

Apex Laboratories

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

Darrell Auvil, Project Manager

TEST REPORT

BioLogic Resources, LLC
10260 SW Nimbus Ave., Suite M11
Portland, OR 97223
Phone 503.670.1312
Fax 503.670.7262

For: Apex Laboratories
12232 SW Garden Place
Tigard, OR 97223
Attn: Darrell Auvil

Received: 02.23.17
Tested: 02.23.17
Completed: 03.06.17

Lab #	Sample	Hydrocarbon (Gasoline) Degrading Bacteria CFU/ml
	Project: A7B0748	
AP1052	A7B0748-01 MW-2 02/22/17 16:30	1.0×10^2
AP1053	A7B0748-02 MW-4 02/22/17 15:30	3.0×10^2
AP1054	A7B0748-03 MW-5 02/22/17 15:52	1.0×10^2

Method Reference:
Manual of Environmental Microbiology, 2nd edition, 2002:
Chapter 84: Hydrocarbon Degrading Bacteria

Kim W. Hutchinson, Microbiologist/Principal

Sample Date: 6/27/19 (Pace #L1115647)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

July 12, 2019

Martin S. Burck Assoc.-Hood River, OR

Sample Delivery Group:	L1115647
Samples Received:	07/03/2019
Project Number:	
Description:	Younger - Keizer

Report To: Jonathan White
200 N. Wasco Ct.
Hood River, OR 97031

Entire Report Reviewed By: Brian Ford

Brian Ford
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace National is performed per guidance provided in laboratory standard operating procedures: 060302, 060303, and 060304.

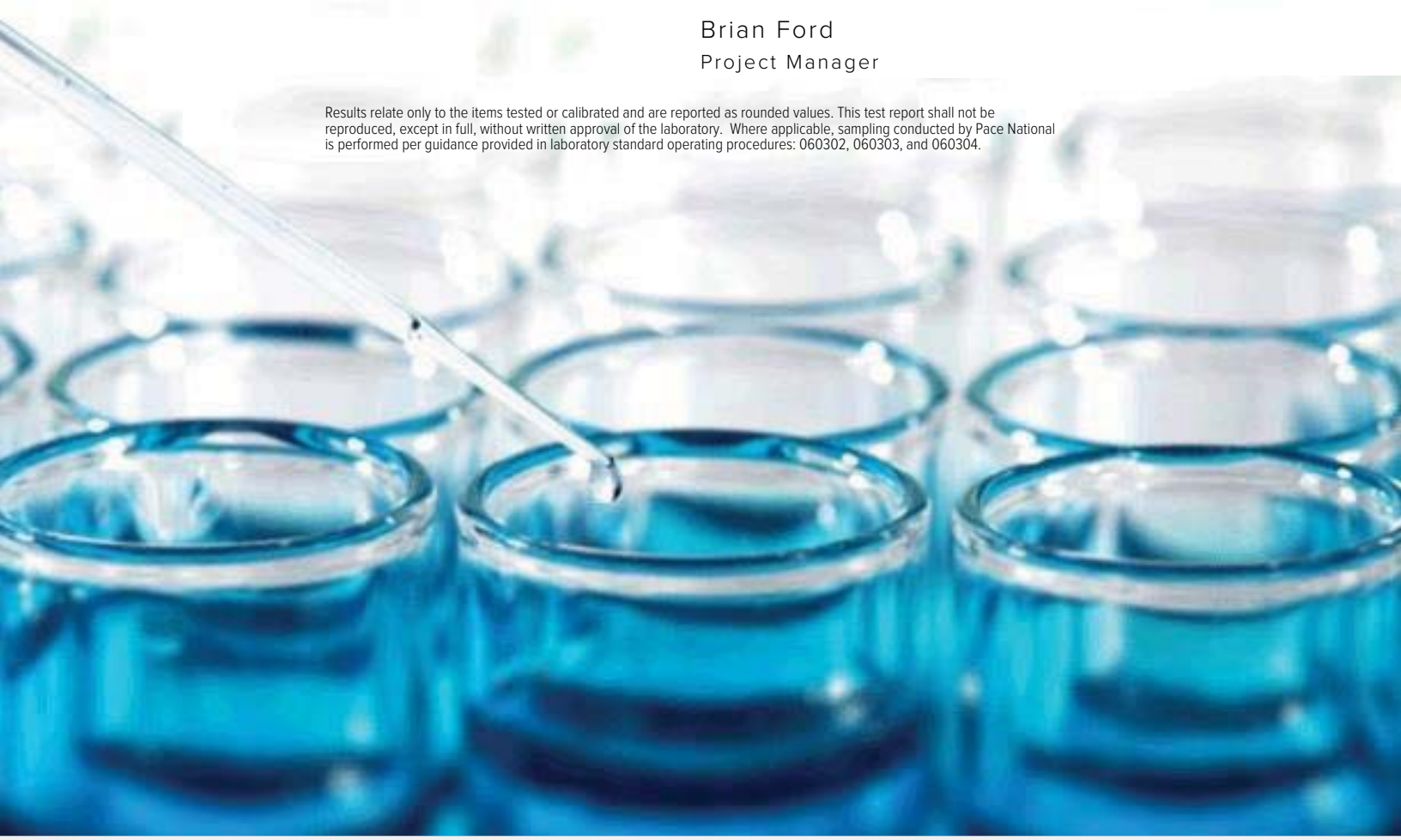


TABLE OF CONTENTS

MW-1 L1115647-01 GW

Collected by: Jon White | Collected date/time: 06/27/19 10:56 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 19:13	07/11/19 19:13	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 13:54	07/09/19 13:54	BMB	Mt. Juliet, TN

MW-2 L1115647-02 GW

Collected by: Jon White | Collected date/time: 06/27/19 12:28 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 19:37	07/11/19 19:37	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 14:15	07/09/19 14:15	BMB	Mt. Juliet, TN

MW-3 L1115647-03 GW

Collected by: Jon White | Collected date/time: 06/27/19 09:20 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 20:00	07/11/19 20:00	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 14:35	07/09/19 14:35	BMB	Mt. Juliet, TN

MW-4 L1115647-04 GW

Collected by: Jon White | Collected date/time: 06/27/19 11:20 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 20:24	07/11/19 20:24	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 14:55	07/09/19 14:55	BMB	Mt. Juliet, TN

MW-5 L1115647-05 GW

Collected by: Jon White | Collected date/time: 06/27/19 11:40 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 20:47	07/11/19 20:47	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 15:15	07/09/19 15:15	BMB	Mt. Juliet, TN

MW-6 L1115647-06 GW

Collected by: Jon White | Collected date/time: 06/27/19 10:40 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 21:11	07/11/19 21:11	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 15:35	07/09/19 15:35	BMB	Mt. Juliet, TN

MW-7 L1115647-07 GW

Collected by: Jon White | Collected date/time: 06/27/19 10:10 | Received date/time: 07/03/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1309364	1	07/11/19 21:34	07/11/19 21:34	BMB	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1308160	1	07/09/19 15:56	07/09/19 15:56	BMB	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	07/11/2019 19:13	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*97.9*		*78.0-120*		*07/11/2019 19:13*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/09/2019 13:54	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 13:54	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 13:54	WG1308160
Benzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 13:54	WG1308160
Bromoform	ND		1.00	1	07/09/2019 13:54	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 13:54	WG1308160
n-Butylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
sec-Butylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 13:54	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 13:54	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 13:54	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 13:54	WG1308160
Chloroform	ND		5.00	1	07/09/2019 13:54	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 13:54	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 13:54	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 13:54	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 13:54	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 13:54	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 13:54	WG1308160
cis-1,2-Dichloroethene	ND		1.00	1	07/09/2019 13:54	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 13:54	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 13:54	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 13:54	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 13:54	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 13:54	WG1308160
Ethylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 13:54	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 13:54	WG1308160
Isopropylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 13:54	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 13:54	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 13:54	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 13:54	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 13:54	WG1308160
Naphthalene	ND		5.00	1	07/09/2019 13:54	WG1308160

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Styrene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 13:54	WG1308160
Toluene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 13:54	WG1308160
Trichloroethene	3.78		1.00	1	07/09/2019 13:54	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 13:54	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 13:54	WG1308160
1,2,4-Trimethylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,2,3-Trimethylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
1,3,5-Trimethylbenzene	ND		1.00	1	07/09/2019 13:54	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 13:54	WG1308160
Xylenes, Total	ND		3.00	1	07/09/2019 13:54	WG1308160
(S) Toluene-d8	*101*		*80.0-120*		*07/09/2019 13:54*	WG1308160
(S) 4-Bromofluorobenzene	*105*		*77.0-126*		*07/09/2019 13:54*	WG1308160
(S) 1,2-Dichloroethane-d4	*115*		*70.0-130*		*07/09/2019 13:54*	WG1308160

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	1500		100	1	07/11/2019 19:37	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*98.8*		*78.0-120*		*07/11/2019 19:37*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/09/2019 14:15	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 14:15	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 14:15	WG1308160
Benzene	45.8		1.00	1	07/09/2019 14:15	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 14:15	WG1308160
Bromoform	ND		1.00	1	07/09/2019 14:15	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 14:15	WG1308160
n-Butylbenzene	3.61		1.00	1	07/09/2019 14:15	WG1308160
sec-Butylbenzene	7.05		1.00	1	07/09/2019 14:15	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 14:15	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 14:15	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 14:15	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 14:15	WG1308160
Chloroform	ND		5.00	1	07/09/2019 14:15	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 14:15	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 14:15	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 14:15	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 14:15	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 14:15	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 14:15	WG1308160
cis-1,2-Dichloroethene	ND		1.00	1	07/09/2019 14:15	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 14:15	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 14:15	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 14:15	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 14:15	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 14:15	WG1308160
Ethylbenzene	42.0		1.00	1	07/09/2019 14:15	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 14:15	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 14:15	WG1308160
Isopropylbenzene	20.6		1.00	1	07/09/2019 14:15	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 14:15	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 14:15	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 14:15	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 14:15	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 14:15	WG1308160
Naphthalene	57.7		5.00	1	07/09/2019 14:15	WG1308160

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	26.3		1.00	1	07/09/2019 14:15	WG1308160
Styrene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 14:15	WG1308160
Toluene	5.45		1.00	1	07/09/2019 14:15	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 14:15	WG1308160
Trichloroethene	ND		1.00	1	07/09/2019 14:15	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 14:15	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 14:15	WG1308160
1,2,4-Trimethylbenzene	149		1.00	1	07/09/2019 14:15	WG1308160
1,2,3-Trimethylbenzene	50.0		1.00	1	07/09/2019 14:15	WG1308160
1,3,5-Trimethylbenzene	13.4		1.00	1	07/09/2019 14:15	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 14:15	WG1308160
Xylenes, Total	87.5		3.00	1	07/09/2019 14:15	WG1308160
(S) Toluene-d8	*98.1*		*80.0-120*		*07/09/2019 14:15*	WG1308160
(S) 4-Bromofluorobenzene	*106*		*77.0-126*		*07/09/2019 14:15*	WG1308160
(S) 1,2-Dichloroethane-d4	*109*		*70.0-130*		*07/09/2019 14:15*	WG1308160

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	07/11/2019 20:00	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*97.9*		*78.0-120*		*07/11/2019 20:00*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/09/2019 14:35	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 14:35	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 14:35	WG1308160
Benzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 14:35	WG1308160
Bromoform	ND		1.00	1	07/09/2019 14:35	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 14:35	WG1308160
n-Butylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
sec-Butylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 14:35	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 14:35	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 14:35	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 14:35	WG1308160
Chloroform	ND		5.00	1	07/09/2019 14:35	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 14:35	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 14:35	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 14:35	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 14:35	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 14:35	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 14:35	WG1308160
cis-1,2-Dichloroethene	ND		1.00	1	07/09/2019 14:35	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 14:35	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 14:35	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 14:35	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 14:35	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 14:35	WG1308160
Ethylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 14:35	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 14:35	WG1308160
Isopropylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 14:35	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 14:35	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 14:35	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 14:35	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 14:35	WG1308160
Naphthalene	ND		5.00	1	07/09/2019 14:35	WG1308160

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Styrene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 14:35	WG1308160
Toluene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 14:35	WG1308160
Trichloroethene	ND		1.00	1	07/09/2019 14:35	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 14:35	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 14:35	WG1308160
1,2,4-Trimethylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,2,3-Trimethylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
1,3,5-Trimethylbenzene	ND		1.00	1	07/09/2019 14:35	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 14:35	WG1308160
Xylenes, Total	ND		3.00	1	07/09/2019 14:35	WG1308160
(S) Toluene-d8	*102*		*80.0-120*		*07/09/2019 14:35*	WG1308160
(S) 4-Bromofluorobenzene	*107*		*77.0-126*		*07/09/2019 14:35*	WG1308160
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*07/09/2019 14:35*	WG1308160

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	154		100	1	07/11/2019 20:24	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*97.5*		*78.0-120*		*07/11/2019 20:24*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/09/2019 14:55	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 14:55	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 14:55	WG1308160
Benzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 14:55	WG1308160
Bromoform	ND		1.00	1	07/09/2019 14:55	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 14:55	WG1308160
n-Butylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
sec-Butylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 14:55	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 14:55	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 14:55	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 14:55	WG1308160
Chloroform	ND		5.00	1	07/09/2019 14:55	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 14:55	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 14:55	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 14:55	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 14:55	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 14:55	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 14:55	WG1308160
cis-1,2-Dichloroethene	ND		1.00	1	07/09/2019 14:55	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 14:55	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 14:55	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 14:55	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 14:55	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 14:55	WG1308160
Ethylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 14:55	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 14:55	WG1308160
Isopropylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 14:55	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 14:55	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 14:55	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 14:55	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 14:55	WG1308160
Naphthalene	ND		5.00	1	07/09/2019 14:55	WG1308160

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Styrene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 14:55	WG1308160
Toluene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 14:55	WG1308160
Trichloroethene	ND		1.00	1	07/09/2019 14:55	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 14:55	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 14:55	WG1308160
1,2,4-Trimethylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,2,3-Trimethylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
1,3,5-Trimethylbenzene	ND		1.00	1	07/09/2019 14:55	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 14:55	WG1308160
Xylenes, Total	ND		3.00	1	07/09/2019 14:55	WG1308160
(S) Toluene-d8	*102*		*80.0-120*		*07/09/2019 14:55*	WG1308160
(S) 4-Bromofluorobenzene	*104*		*77.0-126*		*07/09/2019 14:55*	WG1308160
(S) 1,2-Dichloroethane-d4	*107*		*70.0-130*		*07/09/2019 14:55*	WG1308160

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	07/11/2019 20:47	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*97.8*		*78.0-120*		*07/11/2019 20:47*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/09/2019 15:15	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 15:15	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 15:15	WG1308160
Benzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 15:15	WG1308160
Bromoform	ND		1.00	1	07/09/2019 15:15	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 15:15	WG1308160
n-Butylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
sec-Butylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 15:15	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 15:15	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 15:15	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 15:15	WG1308160
Chloroform	ND		5.00	1	07/09/2019 15:15	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 15:15	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 15:15	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 15:15	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 15:15	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 15:15	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 15:15	WG1308160
cis-1,2-Dichloroethene	ND		1.00	1	07/09/2019 15:15	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 15:15	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 15:15	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 15:15	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 15:15	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 15:15	WG1308160
Ethylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 15:15	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 15:15	WG1308160
Isopropylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 15:15	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 15:15	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 15:15	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 15:15	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 15:15	WG1308160
Naphthalene	ND		5.00	1	07/09/2019 15:15	WG1308160

1 Cp
2 Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 Sc

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Styrene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 15:15	WG1308160
Toluene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 15:15	WG1308160
Trichloroethene	10.1		1.00	1	07/09/2019 15:15	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 15:15	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 15:15	WG1308160
1,2,4-Trimethylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,2,3-Trimethylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
1,3,5-Trimethylbenzene	ND		1.00	1	07/09/2019 15:15	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 15:15	WG1308160
Xylenes, Total	ND		3.00	1	07/09/2019 15:15	WG1308160
(S) Toluene-d8	*106*		*80.0-120*		*07/09/2019 15:15*	WG1308160
(S) 4-Bromofluorobenzene	*110*		*77.0-126*		*07/09/2019 15:15*	WG1308160
(S) 1,2-Dichloroethane-d4	*113*		*70.0-130*		*07/09/2019 15:15*	WG1308160

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Gasoline Range Organics-NWTPH	ND		100	1	07/11/2019 21:11	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*97.6*		*78.0-120*		*07/11/2019 21:11*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result	Qualifier	RDL	Dilution	Analysis	Batch
	ug/l		ug/l		date / time	
Acetone	ND		50.0	1	07/09/2019 15:35	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 15:35	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 15:35	WG1308160
Benzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 15:35	WG1308160
Bromoform	ND		1.00	1	07/09/2019 15:35	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 15:35	WG1308160
n-Butylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
sec-Butylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 15:35	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 15:35	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 15:35	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 15:35	WG1308160
Chloroform	ND		5.00	1	07/09/2019 15:35	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 15:35	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 15:35	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 15:35	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 15:35	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 15:35	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 15:35	WG1308160
cis-1,2-Dichloroethene	3.62		1.00	1	07/09/2019 15:35	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 15:35	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 15:35	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 15:35	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 15:35	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 15:35	WG1308160
Ethylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 15:35	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 15:35	WG1308160
Isopropylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 15:35	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 15:35	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 15:35	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 15:35	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 15:35	WG1308160
Naphthalene	ND		5.00	1	07/09/2019 15:35	WG1308160

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Styrene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 15:35	WG1308160
Toluene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 15:35	WG1308160
Trichloroethene	24.6		1.00	1	07/09/2019 15:35	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 15:35	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 15:35	WG1308160
1,2,4-Trimethylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,2,3-Trimethylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
1,3,5-Trimethylbenzene	ND		1.00	1	07/09/2019 15:35	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 15:35	WG1308160
Xylenes, Total	ND		3.00	1	07/09/2019 15:35	WG1308160
(S) Toluene-d8	*104*		*80.0-120*		*07/09/2019 15:35*	WG1308160
(S) 4-Bromofluorobenzene	*106*		*77.0-126*		*07/09/2019 15:35*	WG1308160
(S) 1,2-Dichloroethane-d4	*111*		*70.0-130*		*07/09/2019 15:35*	WG1308160

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	07/11/2019 21:34	WG1309364
(S) a,a,a-Trifluorotoluene(FID)	*98.0*		*78.0-120*		*07/11/2019 21:34*	WG1309364

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	07/09/2019 15:56	WG1308160
Acrolein	ND	J4	50.0	1	07/09/2019 15:56	WG1308160
Acrylonitrile	ND		10.0	1	07/09/2019 15:56	WG1308160
Benzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Bromobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Bromodichloromethane	ND		1.00	1	07/09/2019 15:56	WG1308160
Bromoform	ND		1.00	1	07/09/2019 15:56	WG1308160
Bromomethane	ND		5.00	1	07/09/2019 15:56	WG1308160
n-Butylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
sec-Butylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
tert-Butylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Carbon disulfide	ND		1.00	1	07/09/2019 15:56	WG1308160
Carbon tetrachloride	ND		1.00	1	07/09/2019 15:56	WG1308160
Chlorobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Chlorodibromomethane	ND		1.00	1	07/09/2019 15:56	WG1308160
Chloroethane	ND		5.00	1	07/09/2019 15:56	WG1308160
Chloroform	ND		5.00	1	07/09/2019 15:56	WG1308160
Chloromethane	ND		2.50	1	07/09/2019 15:56	WG1308160
2-Chlorotoluene	ND		1.00	1	07/09/2019 15:56	WG1308160
4-Chlorotoluene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2-Dibromo-3-Chloropropane	ND		5.00	1	07/09/2019 15:56	WG1308160
1,2-Dibromoethane	ND		1.00	1	07/09/2019 15:56	WG1308160
Dibromomethane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2-Dichlorobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,3-Dichlorobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,4-Dichlorobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Dichlorodifluoromethane	ND	J4	5.00	1	07/09/2019 15:56	WG1308160
1,1-Dichloroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2-Dichloroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1-Dichloroethene	ND		1.00	1	07/09/2019 15:56	WG1308160
cis-1,2-Dichloroethene	2.99		1.00	1	07/09/2019 15:56	WG1308160
trans-1,2-Dichloroethene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2-Dichloropropane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1-Dichloropropene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,3-Dichloropropane	ND		1.00	1	07/09/2019 15:56	WG1308160
cis-1,3-Dichloropropene	ND		1.00	1	07/09/2019 15:56	WG1308160
trans-1,3-Dichloropropene	ND		1.00	1	07/09/2019 15:56	WG1308160
2,2-Dichloropropane	ND		1.00	1	07/09/2019 15:56	WG1308160
Di-isopropyl ether	ND		1.00	1	07/09/2019 15:56	WG1308160
Ethylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Hexachloro-1,3-butadiene	ND		1.00	1	07/09/2019 15:56	WG1308160
2-Hexanone	ND		10.0	1	07/09/2019 15:56	WG1308160
Isopropylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
p-Isopropyltoluene	ND		1.00	1	07/09/2019 15:56	WG1308160
2-Butanone (MEK)	ND		10.0	1	07/09/2019 15:56	WG1308160
Methylene Chloride	ND		5.00	1	07/09/2019 15:56	WG1308160
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	07/09/2019 15:56	WG1308160
Methyl tert-butyl ether	ND		1.00	1	07/09/2019 15:56	WG1308160
Naphthalene	ND		5.00	1	07/09/2019 15:56	WG1308160

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Styrene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1,1,2-Tetrachloroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1,2,2-Tetrachloroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
Tetrachloroethene	ND		1.00	1	07/09/2019 15:56	WG1308160
Toluene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2,3-Trichlorobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2,4-Trichlorobenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1,1-Trichloroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
1,1,2-Trichloroethane	ND		1.00	1	07/09/2019 15:56	WG1308160
Trichloroethene	22.6		1.00	1	07/09/2019 15:56	WG1308160
Trichlorofluoromethane	ND		5.00	1	07/09/2019 15:56	WG1308160
1,2,3-Trichloropropane	ND		2.50	1	07/09/2019 15:56	WG1308160
1,2,4-Trimethylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,2,3-Trimethylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
1,3,5-Trimethylbenzene	ND		1.00	1	07/09/2019 15:56	WG1308160
Vinyl chloride	ND		1.00	1	07/09/2019 15:56	WG1308160
Xylenes, Total	ND		3.00	1	07/09/2019 15:56	WG1308160
(S) Toluene-d8	*102*		*80.0-120*		*07/09/2019 15:56*	WG1308160
(S) 4-Bromofluorobenzene	*109*		*77.0-126*		*07/09/2019 15:56*	WG1308160
(S) 1,2-Dichloroethane-d4	*113*		*70.0-130*		*07/09/2019 15:56*	WG1308160

Method Blank (MB)

(MB) R3429866-3 07/11/19 11:28

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*97.6*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3429866-2 07/11/19 10:09

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	5730	104	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*103*	*78.0-120*	

Method Blank (MB)

(MB) R3429454-2 07/09/19 09:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon disulfide	U		0.221	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00

Method Blank (MB)

(MB) R3429454-2 07/09/19 09:38

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	0.390	J	0.256	1.00
2-Hexanone	U		3.82	10.0
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	*102*			*80.0-120*
(S) 4-Bromofluorobenzene	*105*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*114*			*70.0-130*

Laboratory Control Sample (LCS)

(LCS) R3429454-1 07/09/19 08:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acetone	125	152	122	19.0-160	
Acrolein	125	273	218	10.0-160	J4

Laboratory Control Sample (LCS)

(LCS) R3429454-1 07/09/19 08:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Acrylonitrile	125	125	100	55.0-149	
Benzene	25.0	25.8	103	70.0-123	
Bromobenzene	25.0	22.1	88.4	73.0-121	
Bromodichloromethane	25.0	29.1	117	75.0-120	
Bromoform	25.0	24.9	99.7	68.0-132	
Bromomethane	25.0	26.0	104	10.0-160	
n-Butylbenzene	25.0	27.7	111	73.0-125	
sec-Butylbenzene	25.0	26.0	104	75.0-125	
tert-Butylbenzene	25.0	24.2	97.0	76.0-124	
Carbon disulfide	25.0	31.2	125	61.0-128	
Carbon tetrachloride	25.0	30.1	120	68.0-126	
Chlorobenzene	25.0	23.3	93.3	80.0-121	
Chlorodibromomethane	25.0	24.4	97.6	77.0-125	
Chloroethane	25.0	27.7	111	47.0-150	
Chloroform	25.0	27.2	109	73.0-120	
Chloromethane	25.0	30.2	121	41.0-142	
2-Chlorotoluene	25.0	22.2	88.7	76.0-123	
4-Chlorotoluene	25.0	23.0	91.9	75.0-122	
1,2-Dibromo-3-Chloropropane	25.0	21.8	87.3	58.0-134	
1,2-Dibromoethane	25.0	23.4	93.7	80.0-122	
Dibromomethane	25.0	26.6	106	80.0-120	
1,2-Dichlorobenzene	25.0	24.2	96.9	79.0-121	
1,3-Dichlorobenzene	25.0	23.4	93.6	79.0-120	
1,4-Dichlorobenzene	25.0	24.1	96.3	79.0-120	
Dichlorodifluoromethane	25.0	48.6	194	51.0-149	J4
1,1-Dichloroethane	25.0	27.5	110	70.0-126	
1,2-Dichloroethane	25.0	27.3	109	70.0-128	
1,1-Dichloroethene	25.0	29.8	119	71.0-124	
cis-1,2-Dichloroethene	25.0	25.0	99.9	73.0-120	
trans-1,2-Dichloroethene	25.0	29.1	117	73.0-120	
1,2-Dichloropropane	25.0	25.8	103	77.0-125	
1,1-Dichloropropene	25.0	29.4	117	74.0-126	
1,3-Dichloropropane	25.0	22.4	89.7	80.0-120	
cis-1,3-Dichloropropene	25.0	28.4	114	80.0-123	
trans-1,3-Dichloropropene	25.0	23.3	93.3	78.0-124	
2,2-Dichloropropane	25.0	29.6	118	58.0-130	
Di-isopropyl ether	25.0	25.9	103	58.0-138	
Ethylbenzene	25.0	24.1	96.4	79.0-123	
Hexachloro-1,3-butadiene	25.0	29.9	120	54.0-138	
2-Hexanone	125	108	86.2	67.0-149	

Laboratory Control Sample (LCS)

(LCS) R3429454-1 07/09/19 08:58

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Isopropylbenzene	25.0	25.8	103	76.0-127	
p-Isopropyltoluene	25.0	26.7	107	76.0-125	
2-Butanone (MEK)	125	143	115	44.0-160	
Methylene Chloride	25.0	24.4	97.5	67.0-120	
4-Methyl-2-pentanone (MIBK)	125	110	88.2	68.0-142	
Methyl tert-butyl ether	25.0	27.3	109	68.0-125	
Naphthalene	25.0	25.6	102	54.0-135	
n-Propylbenzene	25.0	24.1	96.4	77.0-124	
Styrene	25.0	24.4	97.6	73.0-130	
1,1,1,2-Tetrachloroethane	25.0	23.5	94.2	75.0-125	
1,1,2,2-Tetrachloroethane	25.0	21.0	83.9	65.0-130	
Tetrachloroethene	25.0	24.1	96.2	72.0-132	
Toluene	25.0	23.2	92.6	79.0-120	
1,1,2-Trichlorotrifluoroethane	25.0	27.7	111	69.0-132	
1,2,3-Trichlorobenzene	25.0	28.2	113	50.0-138	
1,2,4-Trichlorobenzene	25.0	28.1	113	57.0-137	
1,1,1-Trichloroethane	25.0	29.7	119	73.0-124	
1,1,2-Trichloroethane	25.0	22.5	89.9	80.0-120	
Trichloroethene	25.0	26.9	108	78.0-124	
Trichlorofluoromethane	25.0	30.7	123	59.0-147	
1,2,3-Trichloropropane	25.0	23.1	92.5	73.0-130	
1,2,3-Trimethylbenzene	25.0	28.7	115	77.0-120	
1,2,4-Trimethylbenzene	25.0	25.0	100	76.0-121	
1,3,5-Trimethylbenzene	25.0	24.8	99.2	76.0-122	
Vinyl chloride	25.0	29.6	118	67.0-131	
Xylenes, Total	75.0	73.4	97.9	79.0-123	
(S) Toluene-d8			*94.2*	*80.0-120*	
(S) 4-Bromofluorobenzene			*102*	*77.0-126*	
(S) 1,2-Dichloroethane-d4			*117*	*70.0-130*	

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J4	The associated batch QC was outside the established quality control range for accuracy.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

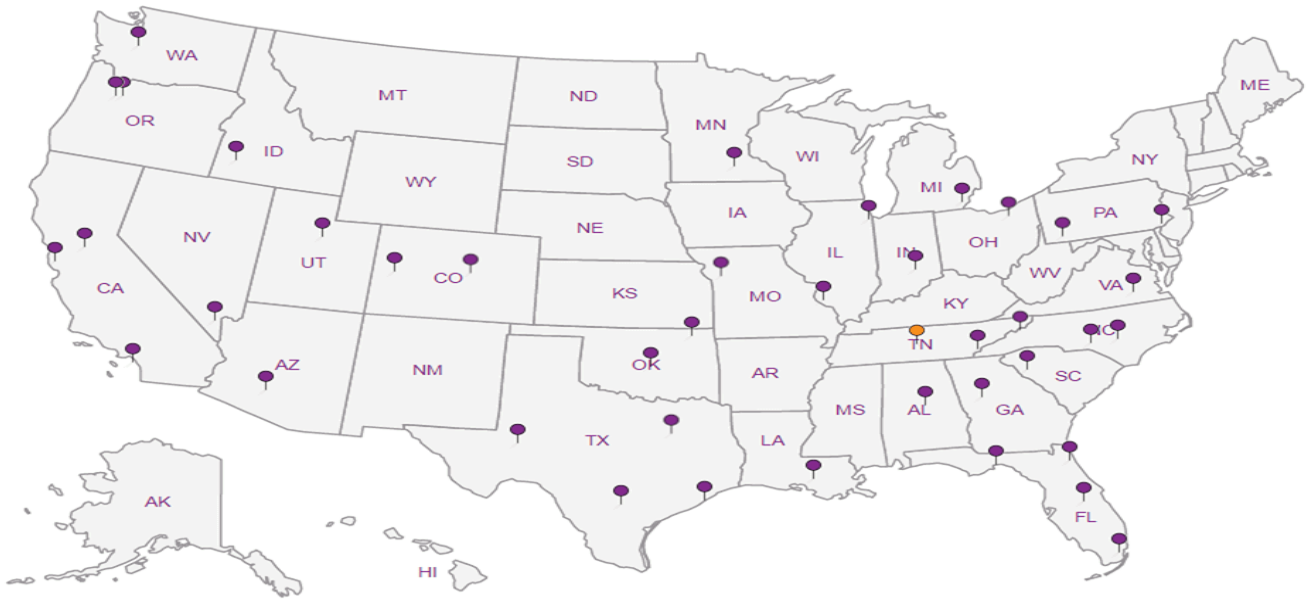
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Martin S. Burck Assoc.-Hood River, OR

200 N. Wasco Ct.

Billing Information:
Accounts Payable
200 N. Wasco Ct.
Hood River, OR 97031

Pres Chk

Report to: Jonathan White

Email To: msba@msbaenvironmental.com; jwhite@msbaenvironmental.com

Project Description: Younger - Keizer

City/State Collected:

Phone: 541-387-4422
Fax:

Client Project #

Lab Project # MSBAHROR-YOUNGERKEIZ

Collected by (print): Jon White

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Quote #

Date Results Needed

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPHGX 40mlAmb HCl	VOCs 8260C 40mlAmb-HCl	Remarks	Sample # (lab only)
MW-1		GW		6/27/19	1056	6	X	X		-01
MW-2		GW		6/27/19	1228	6	X	X		02
MW-3		GW		6/27/19	0920	6	X	X		03
MW-4		GW		6/27/19	1120	6	X	X		04
MW-5		GW		6/27/19	1140	6	X	X		05
MW-6		GW		6/27/19	1040	6	X	X		06
MW-7		GW		6/27/19	1010	6	X	X		07
		GW								
		GW								
		GW								

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical®
National Center for Testing & Innovation

12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# L1115647
C168

Acctnum: MSBAHROR
Template: T152073
Prelogin: P715912
TSR: 110 - Brian Ford
PB:
Shipped Via:

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other ___

Remarks:

pH ___ Temp ___
Flow ___ Other ___

Samples returned via:
__ UPS __ FedEx __ Courier ___

Tracking # FedEx 4794 8840 0005

Sample Receipt Checklist
COC Seal Present/Intact: __NP Y __N
COC Signed/Accurate: Y __N
Bottles arrive intact: Y __N
Correct bottles used: Y __N
Sufficient volume sent: Y __N
If Applicable
VOA Zero Headspace: __Y __N
Preservation Correct/Checked: __Y __N

RAD SCREEN: <0.5 mR/hr

Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
	7/2/19	09:30	
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)

Trip Blank Received: Yes (No) HCL / MeoH TBR
0

Temp: 3.7+.2=3.9 °C Bottles Received: 42

Date: 7/3/19 Time: 8:45

If preservation required by Login: Date/Time

Hold:

Condition: NCF / (OK)

Sample Date: 9/16/19 (Pace #L1141775)

Pace Analytical®
National Center for Testing & Innovation

ANALYTICAL REPORT

September 27, 2019

Martin S. Burck Assoc.-Hood River, OR

Sample Delivery Group:	L1141775
Samples Received:	09/20/2019
Project Number:	YOUNGER-KEIZER
Description:	Younger - Keizer

Report To: Jonathan White
200 N. Wasco Ct.
Hood River, OR 97031

Entire Report Reviewed By: Brian Ford

Brian Ford
Project Manager

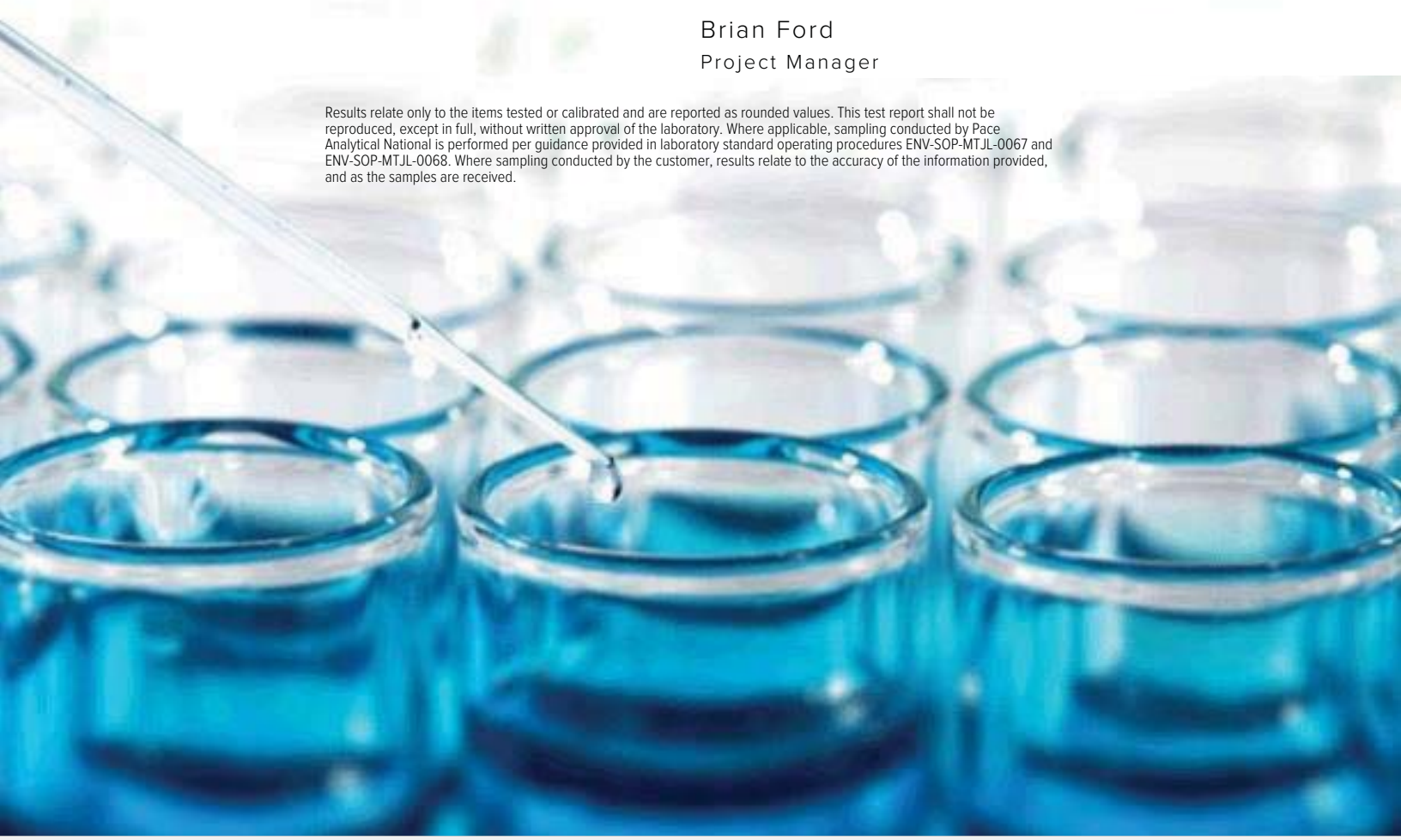


TABLE OF CONTENTS

MW-1 L1141775-01 GW

Collected by: Jon White | Collected date/time: 09/16/19 10:50 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1351768	1	09/26/19 01:44	09/26/19 01:44	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 14:37	09/27/19 14:37	JAH	Mt. Juliet, TN

MW-2 L1141775-02 GW

Collected by: Jon White | Collected date/time: 09/16/19 12:05 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1351768	1	09/26/19 02:04	09/26/19 02:04	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 14:57	09/27/19 14:57	JAH	Mt. Juliet, TN

MW-3 L1141775-03 GW

Collected by: Jon White | Collected date/time: 09/16/19 10:20 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1352840	1	09/27/19 03:45	09/27/19 03:45	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 15:17	09/27/19 15:17	JAH	Mt. Juliet, TN

MW-4 L1141775-04 GW

Collected by: Jon White | Collected date/time: 09/16/19 11:10 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1352840	1	09/27/19 04:09	09/27/19 04:09	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 15:36	09/27/19 15:36	JAH	Mt. Juliet, TN

MW-5 L1141775-05 GW

Collected by: Jon White | Collected date/time: 09/16/19 11:30 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1352840	1	09/27/19 04:33	09/27/19 04:33	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 15:56	09/27/19 15:56	JAH	Mt. Juliet, TN

MW-6 L1141775-06 GW

Collected by: Jon White | Collected date/time: 09/16/19 10:40 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1353267	1	09/27/19 16:50	09/27/19 16:50	JAH	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 16:16	09/27/19 16:16	JAH	Mt. Juliet, TN

MW-7 L1141775-07 GW

Collected by: Jon White | Collected date/time: 09/16/19 10:00 | Received date/time: 09/20/19 08:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Volatile Organic Compounds (GC) by Method NWTPHGX	WG1352840	1	09/27/19 05:21	09/27/19 05:21	ACG	Mt. Juliet, TN
Volatile Organic Compounds (GC/MS) by Method 8260C	WG1353353	1	09/27/19 16:36	09/27/19 16:36	JAH	Mt. Juliet, TN

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.

Brian Ford
Project Manager

Sample Delivery Group (SDG) Narrative

VOC pH outside of method requirement.

Lab Sample ID	Project Sample ID	Method
L1141775-01	MW-1	8260C

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND	J3	100	1	09/26/2019 01:44	WG1351768
(S) a,a,a-Trifluorotoluene(FID)	*101*		*78.0-120*		*09/26/2019 01:44*	WG1351768

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 14:37	WG1353353
Acrolein	ND		50.0	1	09/27/2019 14:37	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 14:37	WG1353353
Benzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 14:37	WG1353353
Bromoform	ND		1.00	1	09/27/2019 14:37	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 14:37	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
sec-Butylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 14:37	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 14:37	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 14:37	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 14:37	WG1353353
Chloroform	ND		5.00	1	09/27/2019 14:37	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 14:37	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 14:37	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 14:37	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 14:37	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 14:37	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 14:37	WG1353353
cis-1,2-Dichloroethene	ND		1.00	1	09/27/2019 14:37	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 14:37	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 14:37	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 14:37	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 14:37	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 14:37	WG1353353
Ethylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 14:37	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 14:37	WG1353353
Isopropylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 14:37	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 14:37	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 14:37	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 14:37	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 14:37	WG1353353
Naphthalene	ND		5.00	1	09/27/2019 14:37	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Styrene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 14:37	WG1353353
Toluene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 14:37	WG1353353
Trichloroethene	3.14		1.00	1	09/27/2019 14:37	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 14:37	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 14:37	WG1353353
1,2,4-Trimethylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,2,3-Trimethylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 14:37	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 14:37	WG1353353
Xylenes, Total	ND		3.00	1	09/27/2019 14:37	WG1353353
(S) Toluene-d8	*101*		*80.0-120*		*09/27/2019 14:37*	WG1353353
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*09/27/2019 14:37*	WG1353353
(S) 1,2-Dichloroethane-d4	*94.1*		*70.0-130*		*09/27/2019 14:37*	WG1353353

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	208		100	1	09/26/2019 02:04	WG1351768
(S) a,a,a-Trifluorotoluene(FID)	*103*		*78.0-120*		*09/26/2019 02:04*	WG1351768

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 14:57	WG1353353
Acrolein	ND		50.0	1	09/27/2019 14:57	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 14:57	WG1353353
Benzene	2.40		1.00	1	09/27/2019 14:57	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 14:57	WG1353353
Bromoform	ND		1.00	1	09/27/2019 14:57	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 14:57	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
sec-Butylbenzene	1.18		1.00	1	09/27/2019 14:57	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 14:57	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 14:57	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 14:57	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 14:57	WG1353353
Chloroform	ND		5.00	1	09/27/2019 14:57	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 14:57	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 14:57	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 14:57	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 14:57	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 14:57	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 14:57	WG1353353
cis-1,2-Dichloroethene	ND		1.00	1	09/27/2019 14:57	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 14:57	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 14:57	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 14:57	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 14:57	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 14:57	WG1353353
Ethylbenzene	3.07		1.00	1	09/27/2019 14:57	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 14:57	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 14:57	WG1353353
Isopropylbenzene	2.47		1.00	1	09/27/2019 14:57	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 14:57	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 14:57	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 14:57	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 14:57	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 14:57	WG1353353
Naphthalene	7.58		5.00	1	09/27/2019 14:57	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	2.60		1.00	1	09/27/2019 14:57	WG1353353
Styrene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 14:57	WG1353353
Toluene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 14:57	WG1353353
Trichloroethene	1.12		1.00	1	09/27/2019 14:57	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 14:57	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 14:57	WG1353353
1,2,4-Trimethylbenzene	20.6		1.00	1	09/27/2019 14:57	WG1353353
1,2,3-Trimethylbenzene	10.2		1.00	1	09/27/2019 14:57	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 14:57	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 14:57	WG1353353
Xylenes, Total	8.72		3.00	1	09/27/2019 14:57	WG1353353
(S) Toluene-d8	*102*		*80.0-120*		*09/27/2019 14:57*	WG1353353
(S) 4-Bromofluorobenzene	*99.2*		*77.0-126*		*09/27/2019 14:57*	WG1353353
(S) 1,2-Dichloroethane-d4	*94.0*		*70.0-130*		*09/27/2019 14:57*	WG1353353

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/27/2019 03:45	WG1352840
(S) a,a,a-Trifluorotoluene(FID)	*110*		*78.0-120*		*09/27/2019 03:45*	WG1352840

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 15:17	WG1353353
Acrolein	ND		50.0	1	09/27/2019 15:17	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 15:17	WG1353353
Benzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 15:17	WG1353353
Bromoform	ND		1.00	1	09/27/2019 15:17	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 15:17	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
sec-Butylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 15:17	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 15:17	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 15:17	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 15:17	WG1353353
Chloroform	ND		5.00	1	09/27/2019 15:17	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 15:17	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 15:17	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 15:17	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 15:17	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 15:17	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 15:17	WG1353353
cis-1,2-Dichloroethene	ND		1.00	1	09/27/2019 15:17	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 15:17	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 15:17	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 15:17	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 15:17	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 15:17	WG1353353
Ethylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 15:17	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 15:17	WG1353353
Isopropylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 15:17	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 15:17	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 15:17	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 15:17	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 15:17	WG1353353
Naphthalene	ND		5.00	1	09/27/2019 15:17	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Styrene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 15:17	WG1353353
Toluene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 15:17	WG1353353
Trichloroethene	3.69		1.00	1	09/27/2019 15:17	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 15:17	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 15:17	WG1353353
1,2,4-Trimethylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,2,3-Trimethylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 15:17	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 15:17	WG1353353
Xylenes, Total	ND		3.00	1	09/27/2019 15:17	WG1353353
(S) Toluene-d8	*102*		*80.0-120*		*09/27/2019 15:17*	WG1353353
(S) 4-Bromofluorobenzene	*102*		*77.0-126*		*09/27/2019 15:17*	WG1353353
(S) 1,2-Dichloroethane-d4	*90.9*		*70.0-130*		*09/27/2019 15:17*	WG1353353

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/27/2019 04:09	WG1352840
(S) a,a,a-Trifluorotoluene(FID)	*110*		*78.0-120*		*09/27/2019 04:09*	WG1352840

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 15:36	WG1353353
Acrolein	ND		50.0	1	09/27/2019 15:36	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 15:36	WG1353353
Benzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 15:36	WG1353353
Bromoform	ND		1.00	1	09/27/2019 15:36	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 15:36	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
sec-Butylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 15:36	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 15:36	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 15:36	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 15:36	WG1353353
Chloroform	ND		5.00	1	09/27/2019 15:36	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 15:36	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 15:36	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 15:36	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 15:36	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 15:36	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 15:36	WG1353353
cis-1,2-Dichloroethene	ND		1.00	1	09/27/2019 15:36	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 15:36	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 15:36	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 15:36	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 15:36	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 15:36	WG1353353
Ethylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 15:36	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 15:36	WG1353353
Isopropylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 15:36	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 15:36	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 15:36	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 15:36	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 15:36	WG1353353
Naphthalene	ND		5.00	1	09/27/2019 15:36	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Styrene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 15:36	WG1353353
Toluene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 15:36	WG1353353
Trichloroethene	ND		1.00	1	09/27/2019 15:36	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 15:36	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 15:36	WG1353353
1,2,4-Trimethylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,2,3-Trimethylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 15:36	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 15:36	WG1353353
Xylenes, Total	ND		3.00	1	09/27/2019 15:36	WG1353353
(S) Toluene-d8	*104*		*80.0-120*		*09/27/2019 15:36*	WG1353353
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*09/27/2019 15:36*	WG1353353
(S) 1,2-Dichloroethane-d4	*94.9*		*70.0-130*		*09/27/2019 15:36*	WG1353353

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/27/2019 04:33	WG1352840
(S) a,a,a-Trifluorotoluene(FID)	*110*		*78.0-120*		*09/27/2019 04:33*	WG1352840

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 15:56	WG1353353
Acrolein	ND		50.0	1	09/27/2019 15:56	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 15:56	WG1353353
Benzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 15:56	WG1353353
Bromoform	ND		1.00	1	09/27/2019 15:56	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 15:56	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
sec-Butylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 15:56	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 15:56	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 15:56	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 15:56	WG1353353
Chloroform	ND		5.00	1	09/27/2019 15:56	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 15:56	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 15:56	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 15:56	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 15:56	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 15:56	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 15:56	WG1353353
cis-1,2-Dichloroethene	1.78		1.00	1	09/27/2019 15:56	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 15:56	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 15:56	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 15:56	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 15:56	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 15:56	WG1353353
Ethylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 15:56	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 15:56	WG1353353
Isopropylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 15:56	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 15:56	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 15:56	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 15:56	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 15:56	WG1353353
Naphthalene	ND		5.00	1	09/27/2019 15:56	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Styrene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 15:56	WG1353353
Toluene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 15:56	WG1353353
Trichloroethene	17.1		1.00	1	09/27/2019 15:56	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 15:56	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 15:56	WG1353353
1,2,4-Trimethylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,2,3-Trimethylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 15:56	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 15:56	WG1353353
Xylenes, Total	ND		3.00	1	09/27/2019 15:56	WG1353353
(S) Toluene-d8	*105*		*80.0-120*		*09/27/2019 15:56*	WG1353353
(S) 4-Bromofluorobenzene	*103*		*77.0-126*		*09/27/2019 15:56*	WG1353353
(S) 1,2-Dichloroethane-d4	*94.4*		*70.0-130*		*09/27/2019 15:56*	WG1353353

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/27/2019 16:50	WG1353267
(S) a,a,a-Trifluorotoluene(FID)	*110*		*78.0-120*		*09/27/2019 16:50*	WG1353267

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 16:16	WG1353353
Acrolein	ND		50.0	1	09/27/2019 16:16	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 16:16	WG1353353
Benzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 16:16	WG1353353
Bromoform	ND		1.00	1	09/27/2019 16:16	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 16:16	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
sec-Butylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 16:16	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 16:16	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 16:16	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 16:16	WG1353353
Chloroform	ND		5.00	1	09/27/2019 16:16	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 16:16	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 16:16	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 16:16	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 16:16	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 16:16	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 16:16	WG1353353
cis-1,2-Dichloroethene	2.77		1.00	1	09/27/2019 16:16	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 16:16	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 16:16	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 16:16	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 16:16	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 16:16	WG1353353
Ethylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 16:16	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 16:16	WG1353353
Isopropylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 16:16	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 16:16	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 16:16	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 16:16	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 16:16	WG1353353
Naphthalene	ND		5.00	1	09/27/2019 16:16	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Styrene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 16:16	WG1353353
Toluene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 16:16	WG1353353
Trichloroethene	22.2		1.00	1	09/27/2019 16:16	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 16:16	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 16:16	WG1353353
1,2,4-Trimethylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,2,3-Trimethylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 16:16	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 16:16	WG1353353
Xylenes, Total	ND		3.00	1	09/27/2019 16:16	WG1353353
(S) Toluene-d8	*105*		*80.0-120*		*09/27/2019 16:16*	WG1353353
(S) 4-Bromofluorobenzene	*101*		*77.0-126*		*09/27/2019 16:16*	WG1353353
(S) 1,2-Dichloroethane-d4	*96.4*		*70.0-130*		*09/27/2019 16:16*	WG1353353

Volatile Organic Compounds (GC) by Method NWTPHGX

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Gasoline Range Organics-NWTPH	ND		100	1	09/27/2019 05:21	WG1352840
(S) a,a,a-Trifluorotoluene(FID)	*109*		*78.0-120*		*09/27/2019 05:21*	WG1352840

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
Acetone	ND		50.0	1	09/27/2019 16:36	WG1353353
Acrolein	ND		50.0	1	09/27/2019 16:36	WG1353353
Acrylonitrile	ND		10.0	1	09/27/2019 16:36	WG1353353
Benzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Bromobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Bromodichloromethane	ND		1.00	1	09/27/2019 16:36	WG1353353
Bromoform	ND		1.00	1	09/27/2019 16:36	WG1353353
Bromomethane	ND	J0	5.00	1	09/27/2019 16:36	WG1353353
n-Butylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
sec-Butylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
tert-Butylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Carbon disulfide	ND		1.00	1	09/27/2019 16:36	WG1353353
Carbon tetrachloride	ND		1.00	1	09/27/2019 16:36	WG1353353
Chlorobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Chlorodibromomethane	ND		1.00	1	09/27/2019 16:36	WG1353353
Chloroethane	ND		5.00	1	09/27/2019 16:36	WG1353353
Chloroform	ND		5.00	1	09/27/2019 16:36	WG1353353
Chloromethane	ND		2.50	1	09/27/2019 16:36	WG1353353
2-Chlorotoluene	ND		1.00	1	09/27/2019 16:36	WG1353353
4-Chlorotoluene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2-Dibromo-3-Chloropropane	ND		5.00	1	09/27/2019 16:36	WG1353353
1,2-Dibromoethane	ND		1.00	1	09/27/2019 16:36	WG1353353
Dibromomethane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2-Dichlorobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,3-Dichlorobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,4-Dichlorobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Dichlorodifluoromethane	ND		5.00	1	09/27/2019 16:36	WG1353353
1,1-Dichloroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2-Dichloroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1-Dichloroethene	ND		1.00	1	09/27/2019 16:36	WG1353353
cis-1,2-Dichloroethene	2.15		1.00	1	09/27/2019 16:36	WG1353353
trans-1,2-Dichloroethene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2-Dichloropropane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1-Dichloropropene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,3-Dichloropropane	ND		1.00	1	09/27/2019 16:36	WG1353353
cis-1,3-Dichloropropene	ND		1.00	1	09/27/2019 16:36	WG1353353
trans-1,3-Dichloropropene	ND		1.00	1	09/27/2019 16:36	WG1353353
2,2-Dichloropropane	ND		1.00	1	09/27/2019 16:36	WG1353353
Di-isopropyl ether	ND		1.00	1	09/27/2019 16:36	WG1353353
Ethylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Hexachloro-1,3-butadiene	ND		1.00	1	09/27/2019 16:36	WG1353353
2-Hexanone	ND		10.0	1	09/27/2019 16:36	WG1353353
Isopropylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
p-Isopropyltoluene	ND		1.00	1	09/27/2019 16:36	WG1353353
2-Butanone (MEK)	ND		10.0	1	09/27/2019 16:36	WG1353353
Methylene Chloride	ND		5.00	1	09/27/2019 16:36	WG1353353
4-Methyl-2-pentanone (MIBK)	ND		10.0	1	09/27/2019 16:36	WG1353353
Methyl tert-butyl ether	ND		1.00	1	09/27/2019 16:36	WG1353353
Naphthalene	ND		5.00	1	09/27/2019 16:36	WG1353353

Volatile Organic Compounds (GC/MS) by Method 8260C

Analyte	Result ug/l	Qualifier	RDL ug/l	Dilution	Analysis date / time	Batch
n-Propylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Styrene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1,1,2-Tetrachloroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1,2,2-Tetrachloroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1,2-Trichlorotrifluoroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
Tetrachloroethene	ND		1.00	1	09/27/2019 16:36	WG1353353
Toluene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2,3-Trichlorobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2,4-Trichlorobenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1,1-Trichloroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
1,1,2-Trichloroethane	ND		1.00	1	09/27/2019 16:36	WG1353353
Trichloroethene	14.8		1.00	1	09/27/2019 16:36	WG1353353
Trichlorofluoromethane	ND		5.00	1	09/27/2019 16:36	WG1353353
1,2,3-Trichloropropane	ND		2.50	1	09/27/2019 16:36	WG1353353
1,2,4-Trimethylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,2,3-Trimethylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
1,3,5-Trimethylbenzene	ND		1.00	1	09/27/2019 16:36	WG1353353
Vinyl chloride	ND		1.00	1	09/27/2019 16:36	WG1353353
Xylenes, Total	ND		3.00	1	09/27/2019 16:36	WG1353353
(S) Toluene-d8	*105*		*80.0-120*		*09/27/2019 16:36*	WG1353353
(S) 4-Bromofluorobenzene	*99.5*		*77.0-126*		*09/27/2019 16:36*	WG1353353
(S) 1,2-Dichloroethane-d4	*94.0*		*70.0-130*		*09/27/2019 16:36*	WG1353353

Method Blank (MB)

(MB) R3454839-2 09/25/19 11:32

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*101*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3454839-1 09/25/19 10:25 • (LCSD) R3454839-3 09/25/19 15:10

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	5020	6420	91.3	117	70.0-124		J3	24.4	20
(S) a,a,a-Trifluorotoluene(FID)				*107*	*110*	*78.0-120*				

L1141775-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1141775-02 09/26/19 02:04 • (MS) R3454839-4 09/26/19 02:45 • (MSD) R3454839-5 09/26/19 03:06

Analyte	Spike Amount ug/l	Original Result ug/l	MS Result ug/l	MSD Result ug/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	208	4970	5100	86.6	89.0	1	10.0-155			2.55	21
(S) a,a,a-Trifluorotoluene(FID)					*105*	*107*		*78.0-120*				

Method Blank (MB)

(MB) R3455149-2 09/27/19 00:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*109*			*78.0-120*

Laboratory Control Sample (LCS)

(LCS) R3455149-1 09/26/19 23:23

Analyte	Spike Amount ug/l	LCS Result ug/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Gasoline Range Organics-NWTPH	5500	4850	88.1	70.0-124	
(S) a,a,a-Trifluorotoluene(FID)			*84.8*	*78.0-120*	

Method Blank (MB)

(MB) R3455397-3 09/27/19 13:11

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Gasoline Range Organics-NWTPH	U		31.6	100
(S) a,a,a-Trifluorotoluene(FID)	*109*			*78.0-120*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3455397-2 09/27/19 12:23 • (LCSD) R3455397-4 09/27/19 14:19

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Gasoline Range Organics-NWTPH	5500	5380	5330	97.8	96.8	70.0-124			0.971	20
(S) a,a,a-Trifluorotoluene(FID)				*94.9*	*95.4*	*78.0-120*				

Method Blank (MB)

(MB) R3455332-3 09/27/19 11:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Acetone	U		10.0	50.0
Acrolein	U		8.87	50.0
Acrylonitrile	U		1.87	10.0
Benzene	U		0.331	1.00
Bromobenzene	U		0.352	1.00
Bromodichloromethane	U		0.380	1.00
Bromoform	U		0.469	1.00
Bromomethane	U		0.866	5.00
n-Butylbenzene	U		0.361	1.00
sec-Butylbenzene	U		0.365	1.00
tert-Butylbenzene	U		0.399	1.00
Carbon disulfide	U		0.221	1.00
Carbon tetrachloride	U		0.379	1.00
Chlorobenzene	U		0.348	1.00
Chlorodibromomethane	U		0.327	1.00
Chloroethane	U		0.453	5.00
Chloroform	U		0.324	5.00
Chloromethane	U		0.276	2.50
2-Chlorotoluene	U		0.375	1.00
4-Chlorotoluene	U		0.351	1.00
1,2-Dibromo-3-Chloropropane	U		1.33	5.00
1,2-Dibromoethane	U		0.381	1.00
Dibromomethane	U		0.346	1.00
1,2-Dichlorobenzene	U		0.349	1.00
1,3-Dichlorobenzene	U		0.220	1.00
1,4-Dichlorobenzene	U		0.274	1.00
Dichlorodifluoromethane	U		0.551	5.00
1,1-Dichloroethane	U		0.259	1.00
1,2-Dichloroethane	U		0.361	1.00
1,1-Dichloroethene	U		0.398	1.00
cis-1,2-Dichloroethene	U		0.260	1.00
trans-1,2-Dichloroethene	U		0.396	1.00
1,2-Dichloropropane	U		0.306	1.00
1,1-Dichloropropene	U		0.352	1.00
1,3-Dichloropropane	U		0.366	1.00
cis-1,3-Dichloropropene	U		0.418	1.00
trans-1,3-Dichloropropene	U		0.419	1.00
2,2-Dichloropropane	U		0.321	1.00
Di-isopropyl ether	U		0.320	1.00
Ethylbenzene	U		0.384	1.00

Method Blank (MB)

(MB) R3455332-3 09/27/19 11:07

Analyte	MB Result ug/l	MB Qualifier	MB MDL ug/l	MB RDL ug/l
Hexachloro-1,3-butadiene	0.490	J	0.256	1.00
2-Hexanone	U		3.82	10.0
Isopropylbenzene	U		0.326	1.00
p-Isopropyltoluene	U		0.350	1.00
2-Butanone (MEK)	U		3.93	10.0
Methylene Chloride	U		1.00	5.00
4-Methyl-2-pentanone (MIBK)	U		2.14	10.0
Methyl tert-butyl ether	U		0.367	1.00
Naphthalene	U		1.00	5.00
n-Propylbenzene	U		0.349	1.00
Styrene	U		0.307	1.00
1,1,1,2-Tetrachloroethane	U		0.385	1.00
1,1,2,2-Tetrachloroethane	U		0.130	1.00
Tetrachloroethene	U		0.372	1.00
Toluene	U		0.412	1.00
1,1,2-Trichlorotrifluoroethane	U		0.303	1.00
1,2,3-Trichlorobenzene	U		0.230	1.00
1,2,4-Trichlorobenzene	U		0.355	1.00
1,1,1-Trichloroethane	U		0.319	1.00
1,1,2-Trichloroethane	U		0.383	1.00
Trichloroethene	U		0.398	1.00
Trichlorofluoromethane	U		1.20	5.00
1,2,3-Trichloropropane	U		0.807	2.50
1,2,3-Trimethylbenzene	U		0.321	1.00
1,2,4-Trimethylbenzene	U		0.373	1.00
1,3,5-Trimethylbenzene	U		0.387	1.00
Vinyl chloride	U		0.259	1.00
Xylenes, Total	U		1.06	3.00
(S) Toluene-d8	*100*			*80.0-120*
(S) 4-Bromofluorobenzene	*97.2*			*77.0-126*
(S) 1,2-Dichloroethane-d4	*95.5*			*70.0-130*

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3455332-1 09/27/19 10:08 • (LCSD) R3455332-2 09/27/19 10:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acetone	125	110	114	87.9	91.4	19.0-160			3.85	27
Acrolein	125	117	119	93.2	95.3	10.0-160			2.19	26

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3455332-1 09/27/19 10:08 • (LCSD) R3455332-2 09/27/19 10:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Acrylonitrile	125	120	117	96.0	93.9	55.0-149			2.25	20
Benzene	25.0	26.1	26.2	104	105	70.0-123			0.249	20
Bromobenzene	25.0	23.8	24.3	95.2	97.2	73.0-121			2.03	20
Bromodichloromethane	25.0	25.0	25.5	99.9	102	75.0-120			2.13	20
Bromoform	25.0	23.7	23.0	94.8	92.1	68.0-132			2.82	20
Bromomethane	25.0	17.8	17.8	71.4	71.4	10.0-160			0.00246	25
n-Butylbenzene	25.0	25.0	25.8	100	103	73.0-125			2.93	20
sec-Butylbenzene	25.0	25.7	25.8	103	103	75.0-125			0.587	20
tert-Butylbenzene	25.0	25.9	25.8	104	103	76.0-124			0.192	20
Carbon disulfide	25.0	23.1	23.8	92.3	95.2	61.0-128			3.07	20
Carbon tetrachloride	25.0	25.1	25.4	100	101	68.0-126			1.19	20
Chlorobenzene	25.0	26.5	26.3	106	105	80.0-121			1.04	20
Chlorodibromomethane	25.0	26.8	26.8	107	107	77.0-125			0.0595	20
Chloroethane	25.0	27.1	26.3	109	105	47.0-150			3.17	20
Chloroform	25.0	24.1	24.1	96.4	96.5	73.0-120			0.185	20
Chloromethane	25.0	20.3	21.8	81.1	87.2	41.0-142			7.33	20
2-Chlorotoluene	25.0	24.7	24.4	99.0	97.7	76.0-123			1.30	20
4-Chlorotoluene	25.0	24.6	24.6	98.5	98.4	75.0-122			0.137	20
1,2-Dibromo-3-Chloropropane	25.0	26.3	27.1	105	109	58.0-134			2.96	20
1,2-Dibromoethane	25.0	27.1	26.7	108	107	80.0-122			1.45	20
Dibromomethane	25.0	25.0	25.6	99.8	102	80.0-120			2.61	20
1,2-Dichlorobenzene	25.0	26.4	26.7	105	107	79.0-121			1.25	20
1,3-Dichlorobenzene	25.0	26.0	26.2	104	105	79.0-120			0.616	20
1,4-Dichlorobenzene	25.0	25.4	25.0	102	100	79.0-120			1.57	20
Dichlorodifluoromethane	25.0	23.2	23.5	92.7	94.0	51.0-149			1.41	20
1,1-Dichloroethane	25.0	24.5	24.7	98.1	98.8	70.0-126			0.717	20
1,2-Dichloroethane	25.0	23.0	23.4	92.0	93.6	70.0-128			1.78	20
1,1-Dichloroethene	25.0	25.1	26.2	100	105	71.0-124			4.27	20
cis-1,2-Dichloroethene	25.0	25.3	25.1	101	101	73.0-120			0.813	20
trans-1,2-Dichloroethene	25.0	24.2	24.9	96.7	99.7	73.0-120			3.05	20
1,2-Dichloropropane	25.0	26.2	26.8	105	107	77.0-125			2.20	20
1,1-Dichloropropene	25.0	26.2	26.4	105	106	74.0-126			0.704	20
1,3-Dichloropropane	25.0	26.6	26.1	106	104	80.0-120			2.02	20
cis-1,3-Dichloropropene	25.0	24.6	25.0	98.6	99.9	80.0-123			1.33	20
trans-1,3-Dichloropropene	25.0	25.9	25.6	104	103	78.0-124			1.03	20
2,2-Dichloropropane	25.0	22.5	22.6	89.9	90.2	58.0-130			0.390	20
Di-isopropyl ether	25.0	23.3	23.1	93.0	92.3	58.0-138			0.819	20
Ethylbenzene	25.0	26.6	26.4	106	105	79.0-123			0.949	20
Hexachloro-1,3-butadiene	25.0	26.4	28.5	105	114	54.0-138			7.77	20
2-Hexanone	125	139	134	111	107	67.0-149			3.53	20

Laboratory Control Sample (LCS) • Laboratory Control Sample Duplicate (LCSD)

(LCS) R3455332-1 09/27/19 10:08 • (LCSD) R3455332-2 09/27/19 10:27

Analyte	Spike Amount ug/l	LCS Result ug/l	LCSD Result ug/l	LCS Rec. %	LCSD Rec. %	Rec. Limits %	LCS Qualifier	LCSD Qualifier	RPD %	RPD Limits %
Isopropylbenzene	25.0	27.3	27.1	109	108	76.0-127			0.812	20
p-Isopropyltoluene	25.0	26.1	26.2	104	105	76.0-125			0.536	20
2-Butanone (MEK)	125	120	121	96.3	96.7	44.0-160			0.357	20
Methylene Chloride	25.0	22.3	23.4	89.2	93.6	67.0-120			4.78	20
4-Methyl-2-pentanone (MIBK)	125	126	124	101	99.1	68.0-142			1.69	20
Methyl tert-butyl ether	25.0	24.0	24.5	95.9	97.8	68.0-125			1.97	20
Naphthalene	25.0	26.5	27.5	106	110	54.0-135			3.74	20
n-Propylbenzene	25.0	25.4	25.3	102	101	77.0-124			0.286	20
Styrene	25.0	27.8	27.0	111	108	73.0-130			2.89	20
1,1,1,2-Tetrachloroethane	25.0	26.3	26.2	105	105	75.0-125			0.368	20
1,1,2,2-Tetrachloroethane	25.0	23.0	22.9	92.1	91.6	65.0-130			0.519	20
Tetrachloroethene	25.0	29.0	28.1	116	113	72.0-132			3.00	20
Toluene	25.0	26.7	26.6	107	107	79.0-120			0.223	20
1,1,2-Trichlorotrifluoroethane	25.0	23.9	24.6	95.8	98.5	69.0-132			2.82	20
1,2,3-Trichlorobenzene	25.0	27.8	28.7	111	115	50.0-138			3.17	20
1,2,4-Trichlorobenzene	25.0	27.2	27.8	109	111	57.0-137			2.19	20
1,1,1-Trichloroethane	25.0	25.9	25.8	104	103	73.0-124			0.413	20
1,1,2-Trichloroethane	25.0	26.6	26.6	106	106	80.0-120			0.0596	20
Trichloroethene	25.0	28.8	28.7	115	115	78.0-124			0.154	20
Trichlorofluoromethane	25.0	27.6	28.2	110	113	59.0-147			2.19	20
1,2,3-Trichloropropane	25.0	24.9	25.7	99.5	103	73.0-130			3.13	20
1,2,3-Trimethylbenzene	25.0	25.7	25.8	103	103	77.0-120			0.336	20
1,2,4-Trimethylbenzene	25.0	25.7	25.4	103	102	76.0-121			1.10	20
1,3,5-Trimethylbenzene	25.0	26.0	25.8	104	103	76.0-122			0.638	20
Vinyl chloride	25.0	27.6	27.7	110	111	67.0-131			0.384	20
Xylenes, Total	75.0	80.8	80.2	108	107	79.0-123			0.745	20
(S) Toluene-d8				*107*	*105*	*80.0-120*				
(S) 4-Bromofluorobenzene				*103*	*99.9*	*77.0-126*				
(S) 1,2-Dichloroethane-d4				*95.7*	*95.7*	*70.0-130*				

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state “ND” (Not Detected) or “BDL” (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
J	The identification of the analyte is acceptable; the reported value is an estimate.
J0	J0: The identification of the analyte is acceptable, but the reported concentration is an estimate. The calibration met method criteria.
J3	The associated batch QC was outside the established quality control range for precision.

Pace National is the only environmental laboratory accredited/certified to support your work nationwide from one location. One phone call, one point of contact, one laboratory. No other lab is as accessible or prepared to handle your needs throughout the country. Our capacity and capability from our single location laboratory is comparable to the collective totals of the network laboratories in our industry. The most significant benefit to our one location design is the design of our laboratory campus. The model is conducive to accelerated productivity, decreasing turn-around time, and preventing cross contamination, thus protecting sample integrity. Our focus on premium quality and prompt service allows us to be YOUR LAB OF CHOICE.
* Not all certifications held by the laboratory are applicable to the results reported in the attached report.
* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace National.

State Accreditations

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN-03-2002-34
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey–NELAP	TN002
California	2932	New Mexico [1]	n/a
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina [1]	DW21704
Georgia	NELAP	North Carolina [3]	41
Georgia [1]	923	North Dakota	R-140
Idaho	TN00003	Ohio–VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LAO00356
Kentucky [1 6]	90010	South Carolina	84004
Kentucky [2]	16	South Dakota	n/a
Louisiana	AI30792	Tennessee [1 4]	2006
Louisiana [1]	LA180010	Texas	T104704245-18-15
Maine	TN0002	Texas [5]	LAB0152
Maryland	324	Utah	TN00003
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	460132
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	9980939910
Montana	CERT0086	Wyoming	A2LA

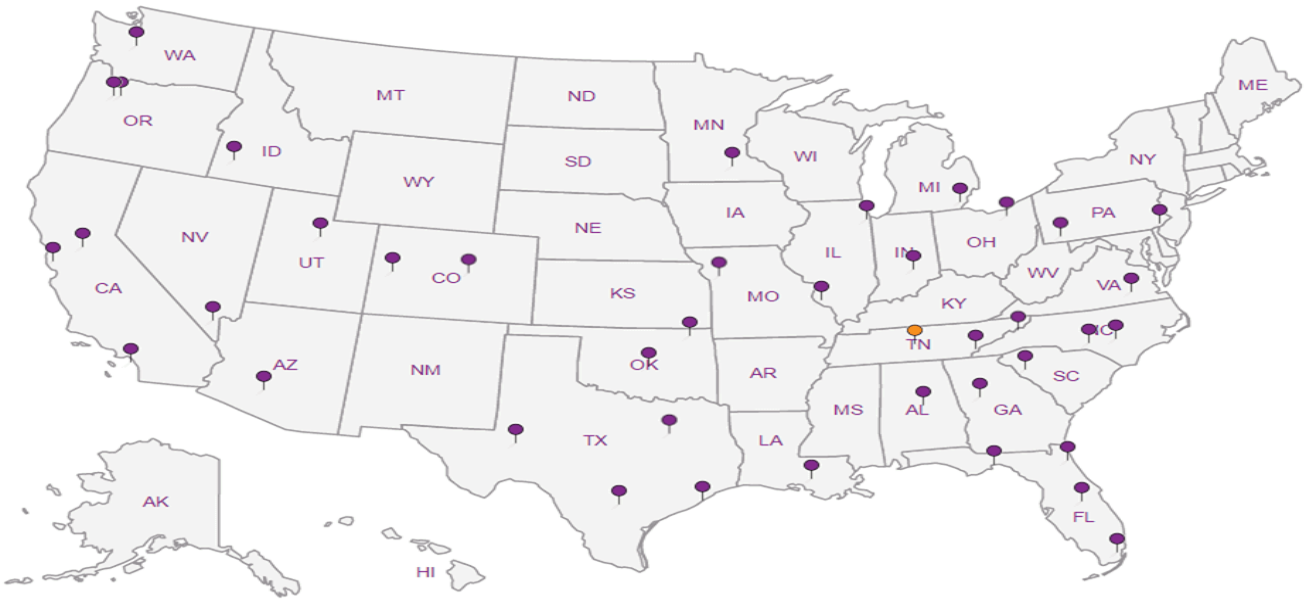
Third Party Federal Accreditations

A2LA – ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA – ISO 17025 [5]	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA–Crypto	TN00003		

[1] Drinking Water [2] Underground Storage Tanks [3] Aquatic Toxicity [4] Chemical/Microbiological [5] Mold [6] Wastewater n/a Accreditation not applicable

Our Locations

Pace National has sixty-four client support centers that provide sample pickup and/or the delivery of sampling supplies. If you would like assistance from one of our support offices, please contact our main office. Pace National performs all testing at our central laboratory.



Martin S. Burck Assoc.-Hood River, OR

200 N. Wasco Ct.

Billing Information:
Accounts Payable
200 N. Wasco Ct.
Hood River, OR 97031

Pres Chk

Report to: **Jonathan White**

Email To: **msba@msbaenvironmental.com; jwhite@msbaenvironmental.com**

Project Description: **Younger - Keizer**

City/State Collected:

Phone: **541-387-4422**
Fax:

Client Project # Younger-keizer

Lab Project # **MSBAHROR-YOUNGERKEIZ**

Collected by (print): Jon White

Site/Facility ID #

P.O. #

Collected by (signature):

Immediately Packed on Ice N ___ Y ✓

Rush? (Lab MUST Be Notified)
___ Same Day ___ Five Day
___ Next Day ___ 5 Day (Rad Only)
___ Two Day ___ 10 Day (Rad Only)
___ Three Day

Date Results Needed

Quote #

Analysis / Container / Preservative

Chain of Custody Page 1 of 1

Pace Analytical
National Center for Testing & Innovation
12065 Lebanon Rd
Mount Juliet, TN 37122
Phone: 615-758-5858
Phone: 800-767-5859
Fax: 615-758-5859

L# 1141775
C085

Acctnum: **MSBAHROR**
Template: **T152073**
Prelogin: **P715912**
TSR: **110 - Brian Ford**
PB:
Shipped Via:

Sample ID	Comp/Grab	Matrix *	Depth	Date	Time	No. of Cntrs	NWTPHGX 40ml/Amb HCl	VOCs 8260C 40ml/Amb-HCl	Remarks	Sample # (lab only)
MW-1	–	GW	–	9/16/19	1050	6	X	X		-01
MW-2	–	GW	–	9/16/19	1205	6	X	X		-02
MW-3	–	GW	–	9/16/19	1020	6	X	X		-03
MW-4	–	GW	–	9/16/19	1110	6	X	X		-04
MW-5	–	GW	–	9/16/19	1130	6	X	X		-05
MW-6	–	GW	–	9/16/19	1040	6	X	X		-06
MW-7	–	GW	–	9/16/19	1000	6	X	X		-07

* Matrix:
SS - Soil AIR - Air F - Filter
GW - Groundwater B - Bioassay
WW - WasteWater
DW - Drinking Water
OT - Other

Remarks:

pH _____ Temp _____

Flow _____ Other _____

Samples returned via:
__ UPS __ FedEx __ Courier _____

Tracking # Fedex 1145 2227 3123

Sample Receipt Checklist
COC Seal Present/Intact: NP ___ Y ___ N
COC Signed/Accurate: ___ Y ___ N
Bottles arrive intact: ___ Y ___ N
Correct bottles used: ___ Y ___ N
Sufficient volume sent: ___ Y ___ N
If Applicable
VOA Zero Headspace: ___ Y ___ N
Pres[illegible]: ___ Y ___ N
RAD SCREEN: <0.5 mR/hr

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Trip Blank Received: Yes / No HCL / MeoH TBR
	9/19/19	14:51		0
Relinquished by : (Signature)	Date:	Time:	Received by: (Signature)	Temp: °C Bottles Received: 3.9-2-3.7 42
				If preservation required by Login: Date/Time
Relinquished by : (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/20/19 Time: 8:45
				Hold:

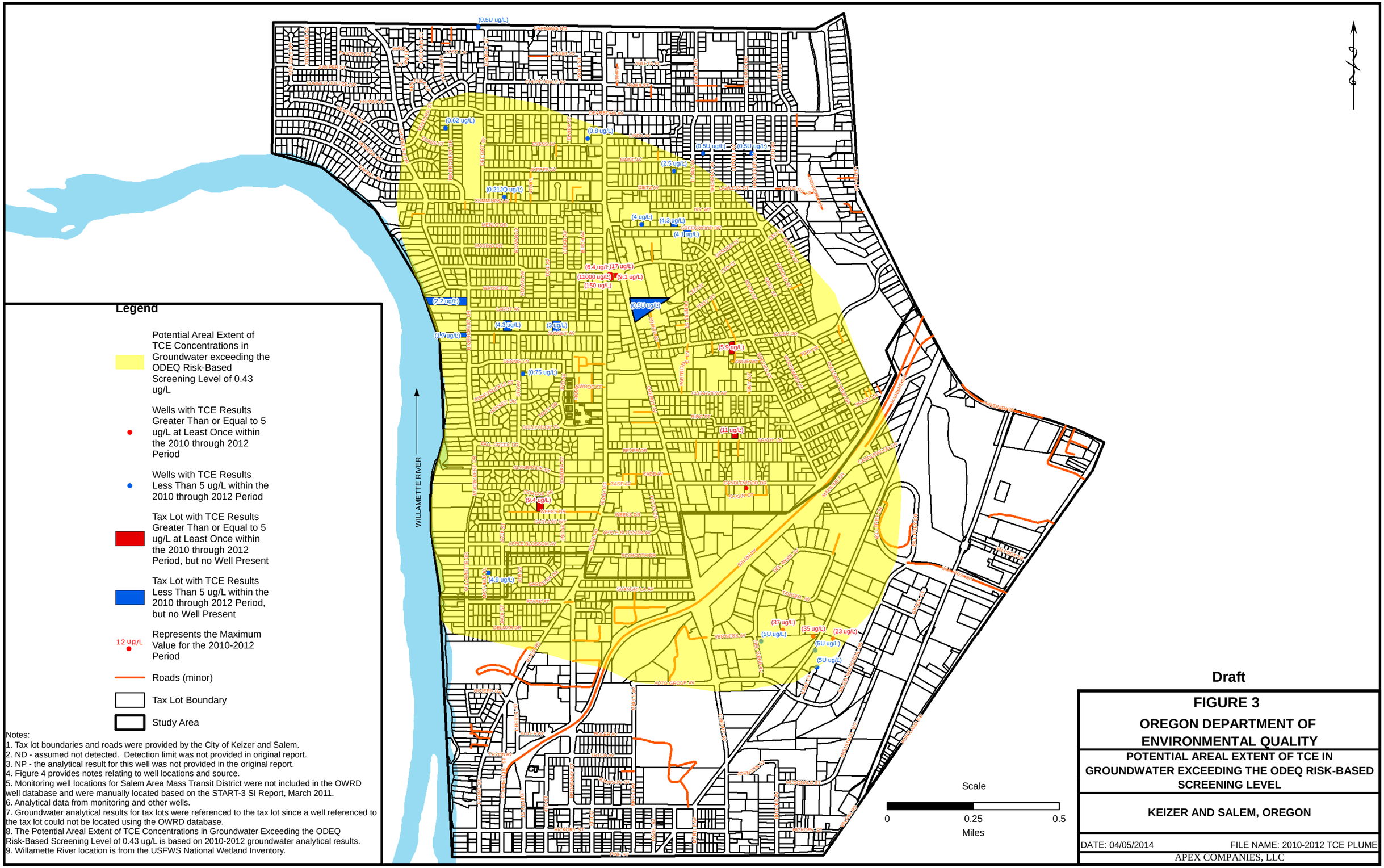
Condition: NCF / OK

Appendix E

CSM Documentation

- DEQ Figure 3: Potential Aerial Extent of TCE in Groundwater Exceeding the ODEQ Risk-Based Screening Level
- Well Report Query Results
- Water Well Reports
- Water Well Survey Forms and Phone Memos

DEQ Figure 3: Potential Aerial Extent of TCE in Groundwater Exceeding the ODEQ Risk-Based Screening Level



Legend

- Potential Areal Extent of TCE Concentrations in Groundwater exceeding the ODEQ Risk-Based Screening Level of 0.43 ug/L
- Wells with TCE Results Greater Than or Equal to 5 ug/L at Least Once within the 2010 through 2012 Period
- Wells with TCE Results Less Than 5 ug/L within the 2010 through 2012 Period
- Tax Lot with TCE Results Greater Than or Equal to 5 ug/L at Least Once within the 2010 through 2012 Period, but no Well Present
- Tax Lot with TCE Results Less Than 5 ug/L within the 2010 through 2012 Period, but no Well Present
- 12 ug/L — Represents the Maximum Value for the 2010-2012 Period
- Roads (minor)
- Tax Lot Boundary
- Study Area

Notes:
1. Tax lot boundaries and roads were provided by the City of Keizer and Salem.
2. ND - assumed not detected. Detection limit was not provided in original report.
3. NP - the analytical result for this well was not provided in the original report.
4. Figure 4 provides notes relating to well locations and source.
5. Monitoring well locations for Salem Area Mass Transit District were not included in the OWRD well database and were manually located based on the START-3 SI Report, March 2011.
6. Analytical data from monitoring and other wells.
7. Groundwater analytical results for tax lots were referenced to the tax lot since a well referenced to the tax lot could not be located using the OWRD database.
8. The Potential Areal Extent of TCE Concentrations in Groundwater Exceeding the ODEQ Risk-Based Screening Level of 0.43 ug/L is based on 2010-2012 groundwater analytical results.
9. Willamette River location is from the USFWS National Wetland Inventory.

Draft

FIGURE 3

OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY

POTENTIAL AREAL EXTENT OF TCE IN GROUNDWATER EXCEEDING THE ODEQ RISK-BASED SCREENING LEVEL

KEIZER AND SALEM, OREGON

DATE: 04/05/2014 FILE NAME: 2010-2012 TCE PLUME

APEX COMPANIES, LLC

Well Report Query Results

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MARI 9243	Details	7.00S-3.00W-11 NW-NW		3901 RIVER RD, KEIZER		A C AVERY CO. INC. 1462 C COMMERCIAL ST SE SALEM OR 97302		W	0.00	0.00	0.0			09/05/1990	SIPPEL, FLOYD G	17618			✓													
MARI 16891	Details	7.00S-3.00W-10 NE-NE		3845 RIVERCREST DR N	MARTIN, GERALD E 3845 RIVERCREST DR N SALEM OR 97303		✓	W	31.00	60.00	22.0	75.0	10/15/1982	02/25/1983	BEIER, DALLAS L WILLAMETTE DRILLING CO.			✓					✓									
MARI 16892 Groundwater Info	Details	7.00S-3.00W-10 -		E SIDE 5TH AVE N BETWEEN DENNIS LN & HONEYSUCKLE ST		CITY OF KEIZER; WATER DISTRICT 641 CHEMAWA RD NE KEIZER OR 97303		W	130.00	166.00	27.0	400.0	03/06/1981	04/17/1981	WALDROOP, MICHAEL MIKE WALDROOP WELL DRILLING					✓				✓							44.9825, -123.0316
MARI 16893	Details	7.00S-3.00W-10 -			LAHOSKI, JULIAN E 3296 JACK ST N SALEM OR 97303			W		38.00	17.0	10.0	05/20/1966	06/06/1966	BEIER, EMIL O WILLAMETTE DRILLING CO.			✓					✓									
MARI 16894	Details	7.00S-3.00W-10 NE-NE		3965 RIVERCREST DR N	SABIN, GLENN 3965 RIVERCREST DR N KEIZER OR 97303			W	64.00	99.00	39.0	24.0	10/21/1988	11/02/1988	WALDROOP, MICHAEL	160		✓					✓									
MARI 16895	Details	7.00S-3.00W-10 -			BLIXSETH, EMMA M 3274 JACK ST N SALEM OR 97303			W		40.00	21.0	25.0	05/24/1966	06/06/1966	BEIER, EMIL O WILLAMETTE DRILLING CO.			✓					✓									
MARI 16896	Details	7.00S-3.00W-10 -			TUVE, GORDON R 3254 JACK ST N SALEM OR 97303			W		44.00	20.0	30.0	05/27/1966	06/06/1966	BEIER, EMIL O WILLAMETTE DRILLING CO.			✓					✓									
MARI 16897	Details	7.00S-3.00W-10 -			GORTON, PERRY G	GORTON, MARIE B 3298 JACK ST SALEM OR 97303		W		39.00	20.0	8.0	07/06/1965	07/09/1965	BEIER, EMIL O WILLAMETTE DRILLING CO.			✓					✓									
MARI 16898	Details	7.00S-3.00W-10 -			DAVIDSON, S B 4570 JONES RD SALEM OR 97302			W	46.00	67.00	42.0	20.0	09/08/1956	11/27/1956	ROBINSON, HARRY A			✓					✓									
MARI 16900	Details	7.00S-3.00W-10 SE-SE			RICHARDS, HARVEY E 3296 MAYFIELD PLS N SALEM OR 97303			W		45.00	26.5	30.0	06/20/1969	08/04/1969	ROBINSON, HARRY A			✓					✓									
MARI 16901 Groundwater Info	Details	7.00S-3.00W-10 -		652 SUNSET AVE	KIMERLING, R 4135 BATTING SALEM OR 97303			W	45.00	47.00	28.0	25.0	08/10/1955	06/18/1956	ROBINSON, HARRY A			✓					✓									44.8656, -122.8705
MARI 16902 Groundwater Info	Details	7.00S-3.00W-10 NE-NE			DUNCAN, O H 750 LARRY AVE SALEM OR 97303			W	48.00	130.00	18.0	420.0	05/31/1956	06/11/1956	PERKINS, ROY WILLAMETTE DRILLING CO.			✓					✓	✓								44.9825, -123.0316
MARI 16903	Details	7.00S-3.00W-10 SE-NE			WEEKS, WAYNE L	WEEKS BERRY NURSERY 3495 N RIVER RD SALEM OR 97303		W		51.00	20.0	180.0	12/31/1946	12/31/1945	WYMORE BROTHERS			✓						✓								
MARI 16904	Details	7.00S-3.00W-10 NE-SE		1205 CROWLEY AVE SE	KARR, GLENN 5362 10TH AVE SE SALEM OR 97306			W		85.00	29.0	10.0	05/18/1963	06/17/1963	DUFFIELD, H H DUFFIELD BROTHERS			✓					✓									
MARI 16906	Details	7.00S-3.00W-11 NE-SW			ISAAK, ALVIN E 322 N CHURCH ST SALEM OR 97301			W		36.00	20.0	10.0	06/13/1957	06/25/1957	MILLER, HARLAN R			✓					✓									

1 2 3 4 5 6 7

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MARI 16907 Groundwater Info	Details	7.00S-3.00W-11 SW-NE			LEWIS, GLEN OR			W		44.00	17.9		10/08/1947	12/31/1945				✓						✓									
MARI 16909	Details	7.00S-3.00W-11 SW-NE			WELCH, LOUIS OR			W		42.00	13.0		11/07/1956	12/31/1955				✓						✓	✓									
MARI 16910	Details	7.00S-3.00W-11 SW-NE			PARKHURST, FRANK OR			W		44.00	20.3		09/07/1955	12/31/1955				✓						✓									
MARI 16911	Details	7.00S-3.00W-11 SW-NE			WELCH, LEWIS	WELCH, LULA 1208 CANDLEWOOD DR SALEM OR 97303		W	0.00		0.0		12/31/1955	12/31/1955	MILLER, HARLAN			✓							✓									
MARI 16912	Details	7.00S-3.00W-11 SW-NE			PEDEN, J HENRY	PEDEN, CORA 1190 SHADY LN SALEM OR 97303		W		20.00	11.0	20.0	12/31/1950	12/31/1950				✓							✓									
MARI 16913	Details	7.00S-3.00W-11 SE-NW		3580 CHERRY AVE	LEE, JACK E 3580 CHERRY AVE SALEM OR 97303			W	36.00	42.00	15.0	12.0	10/09/1956	11/21/1956	WYMORE, MAX			✓						✓									
MARI 16914	Details	7.00S-3.00W-11 SE-NW			FOOTE, VAUGHN L 3810 CHERRY AVE SALEM OR 97303			W		60.00			12/31/1946	12/31/1946				✓							✓									
MARI 16915	Details	7.00S-3.00W-11 SW-NW			WAGONER, BILL OR			W		45.00	11.8		02/11/1960	12/31/1960				✓															
MARI 16917 Groundwater Info	Details	7.00S-3.00W-11 NW-NW			LEVEE, C W OR			W		67.00	16.3		11/10/1947	12/31/1947				✓						✓	✓									
MARI 16918	Details	7.00S-3.00W-11 NW-NW			LEE, C V OR			W		67.00	8.9		03/16/1954	12/31/1954				✓								✓							
MARI 16919	Details	7.00S-3.00W-11 NW-NW			BOLTMAN, G ROYAL 3905 RIVER RD SALEM OR 97303			W		60.00	35.0		12/31/1939	12/31/1939				✓							✓									
MARI 16920	Details	7.00S-3.00W-11 NW-NE			BROWN ALLEN, SYLVIA SALEM OR			W		45.00	19.0		10/31/1954	12/31/1954	CLINTON, ART			✓							✓									
MARI 16921	Details	7.00S-3.00W-11 NW-NE		HICKS-JONES SUBDIVISION	JENISON, EARL D 3980 BROOKS AVE SALEM OR 97303			W		37.00	16.0	20.0	11/02/1957	11/27/1957	BEIER, EMIL O			✓						✓									
MARI 16922	Details	7.00S-3.00W-11 NW-NE			PIERCE, PAUL 931 CHEMAWA RD N SALEM OR 97303			W		40.00	15.5	30.0	06/19/1962	06/27/1962	ROBINSON, GEORGE H GEORGE H ROBINSON DRILLING			✓						✓									
MARI 16923	Details	7.00S-3.00W-11 NE-NW		HICKS SUBDIVISION, BLOCK 5	BRIDGES, ANSON SALEM OR			W		45.00	18.0	35.0	02/13/1968	06/23/1969	STUDEBAKER, E J			✓						✓									

1 2 3 4 5 6 7

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MARI 16924	Details	7.00S-3.00W-11 SE-NW		HICKS-JONES SUBDIVISION, BLOCK 3	PORTER, DONALD A 3640 CHERRY AVE NE SALEM OR 97303			W		41.00	12.0	18.0	06/24/1961	07/07/1961	LUKE, VERNON D WILLAMETTE DRILLING CO.			✓					✓									
MARI 16925 Groundwater Info	Details	7.00S-3.00W-11 SW-SE			RECONSTRUCTION FINANCE CORP.; COLUMBIA METALS CO. OR			W		200.00								✓									✓					44.9705, -123.0170
MARI 16926 Groundwater Info	Details	7.00S-3.00W-11 SE-SW			SALEM SAND AND GRAVEL CO. OR			W		220.00	4.0		12/31/1935	12/31/1935				✓									✓					44.9710, -123.0209
MARI 16927	Details	7.00S-3.00W-11 SW-SW			MILLEN, MR OR			W		300.00	19.2		12/31/1935	12/31/1935	UNKNOWN			✓					✓			✓						
MARI 16928 Groundwater Info	Details	7.00S-3.00W-11 NE-SW		TOWN & COUNTRY SUBDIVISION, BLOCK 3		THE KEIZER WATER DISTRICT 3425 RIVER RD NE SALEM OR 97303		W					12/31/1948	12/31/1948				✓							✓							44.9773, -123.0243
MARI 16929	Details	7.00S-3.00W-11 -			BOLTMAN, ROYAL 3901 RIVER RD N SALEM OR 97303			W		46.00	5.2	72.0	01/11/1966	01/13/1966	SNEED, R F J A SNEED & SONS			✓							✓								
MARI 16930	Details	7.00S-3.00W-11 -			REYNOLDS, C W 3765 PLEASANTVIEW NE SALEM OR 97303			W		39.00	12.0	10.0	05/06/1966	06/06/1966	BEIER, EMIL O WILLAMETTE DRILLING CO.			✓					✓										
MARI 16931	Details	7.00S-3.00W-11 -				BASIC BUILDERS INC. 3612 SILVERTON RD NE SALEM OR 97305		W		28.00	11.0	0.0	06/15/1972	06/28/1972	MILLER, HARLAN R MILLER & WEST			✓					✓										
MARI 16932	Details	7.00S-3.00W-11 -			BRITTAN, LUKE 1315 ALDER DR SALEM OR 97303			W	18.00	29.00	15.0	20.0	06/24/1976	07/15/1976	BEIER, DALLAS L WILLAMETTE DRILLING CO.			✓					✓										
MARI 16933	Details	7.00S-3.00W-11 -				BASIC BUILDERS INC. 3612 SILVERTON RD NE SALEM OR 97303		W	0.00	0.00	0.0			10/03/1972	MILLER, HARLAN R MILLER & WEST				✓				✓										
MARI 16934	Details	7.00S-3.00W-11 -		1098 CLEARVIEW AVE NE	LINDQUIST, ELWOOD 1098 CLEARVIEW AVE NE KEIZER OR 97303			W	58.00	79.00	22.0	22.0	11/07/1986	11/14/1986	WALDROOP, MICHAEL			✓					✓										
MARI 16935	Details	7.00S-3.00W-11 -		3665 PLEASANT VIEW DR, SALEM	CHEZEM, GARY 2475 COMMERCIAL NE SALEM OR 97303			W	12.00	46.00	11.0	56.0	07/26/1988	08/01/1988	SIPPEL, FLOYD G	5275		✓					✓										
MARI 16936	Details	7.00S-3.00W-11 SE-NE			KRAMER, CHARLES H 1255 CANDLEWOOD DR SALEM OR 97303			W	0.00	0.00	0.0			12/31/1952			✓						✓									
MARI 16937	Details	7.00S-3.00W-11 SE-NE			JONES, SAM 1415 CANDLEWOOD DR SALEM OR 97303			W		27.00							✓														
MARI 16938	Details	7.00S-3.00W-11 SE-NE			HAYS, L N OR			W		43.00	22.0		07/06/1957	12/31/1957			✓					✓										

1 2 3 4 5 6 7

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MARI 16939	Details	7.00S-3.00W-11 -			KVAVLE, C A 1105 ALDER DR SALEM OR 97303			W	19.00	46.00	23.0	25.0	06/29/1977	07/12/1977	BEIER, DALLAS L WILLAMETTE DRILLING CO.			✓					✓										
MARI 16940	Details	7.00S-3.00W-11 NE-NW			LOCKARD, R B 1195 CANDLEWOOD SALEM OR 97303			W	33.00	38.00	11.0	50.0	04/04/1978	04/19/1978	WALDROOP, MICHAEL MILLER & WEST DRILLING			✓					✓										
MARI 16941	Details	7.00S-3.00W-11 NE-SW				HARVEY MACHINE CO. INC. 3030 N CHERRY ST SALEM OR 97303		W		76.00	12.0	750.0	06/30/1947	12/31/1947				✓									✓						
MARI 16942 Groundwater Info	Details	7.00S-3.00W-11 NE-SW				RECONSTRUCTION FINANCE CORP.; COLUMBIA METALS CO. OR		W		76.00	19.8		01/28/1960	12/31/1960				✓									✓						44.9752, -123.0210
MARI 18942	Details	7.00S-3.00W-11 SW-NE		1250 CLEARVIEW		MANZANITA DEVELOPMENT 1187 MANZANITA WAY KEIZER OR 97303		W		0.00	15.0		03/15/1994	03/28/1994	SIPPEL, FLOYD G	61529			✓				✓										
MARI 19731	Details	7.00S-3.00W-11 -		3970 AGGAS WAY	AGGAS, FREDDIE	AGGAS, JANE 225 NORTHRIDGE COURT N KEIZER OR 9733		W	0.00	0.00	0.0			07/18/1995	SIPPEL, FLOYD G	75363			✓				✓										
MARI 20679	Details	7.00S-3.00W-11 SE-NW		4600 RIVER RD	CAMPBELL, JACK P	CAMPBELLS PAINTS 439 COURT ST NE SALEM OR 97301		W	15.00	25.00	15.0		09/14/1995	10/16/1995	BOESE, ROBERT L	80291		✓															
MARI 50828	Details	7.00S-3.00W-11 NE-NE	1900	1595 ALDER ST		CITY OF KEIZER PO BOX 21000 KEIZER OR 97307		W					08/20/1996	08/30/1996	WALDROOP, MICHAEL MIKE WALDROOP WELL DRILLING	92268			✓				✓										
MARI 51125	Details	7.00S-3.00W-11 NE-SW	1700	3660 RIVER RD, KEIZER	FAITH, RICHARD	FAITH, DONNA 2746 FRONT ST NE SALEM OR 97303		W		0.00	8.0		11/14/1996	11/18/1996	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	95441			✓				✓										
MARI 52257	Details	7.00S-3.00W-11 SE-NE	14200	4175 BROOKS AVE	HOLT, SAM	HOLT, KATHY 4175 BROOKS AVE KEIZER OR 97303	✓	W		0.00	15.7		09/12/1997	09/26/1997	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	99285			✓				✓										
POLK 126 Groundwater Info	Details	7.00S-3.00W-10 NW-SW		2895 RIVER BEND RD NW	BLAKE, DONALD W 2985 RIVER BEND RD NW SALEM OR 97304			W	38.00	54.00	24.0	40.0	05/28/1986	06/09/1986	BEIER, MARK D WILLAMETTE DRILLING CO.			✓					✓										44.9747, -123.0500
POLK 1684	Details	7.00S-3.00W-10 -			MILLER, K W			W	0.00	71.00	31.0	50.0	09/16/1966	09/20/1966	SNEED, RICHARD F			✓					✓										
POLK 1685	Details	7.00S-3.00W-10 -			FOWLER, JOHN			W	0.00	44.00	28.0	7.0	08/30/1961	09/18/1961	SNEED, RICHARD F			✓					✓										
POLK 1686	Details	7.00S-3.00W-10 -			MILLER, K W			W	0.00	40.00	6.0	100.0	07/07/1960	12/12/1960	SNEED, RICHARD F			✓						✓									
POLK 1687	Details	7.00S-3.00W-10 NE-NW			MILLER, KENNETH W 3315 RIVER BEND RD SALEM OR			W	32.00	40.00	40.0		12/31/1953	12/31/1953	UNKNOWN									✓									

1 2 3 4 5 6 7

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
POLK 1688 Groundwater Info	Details	7.00S-3.00W-10 SE-NW			BRANDT, L P 3095 RIVERBEND RD SALEM OR			W	0.00	150.00	27.0	570.0	07/14/1961	07/24/1961	DUFFIELD, HOWARD H			✓						✓									44.9781, -123.0454
POLK 1689	Details	7.00S-3.00W-10 NE-NW			MILLER, K W			W	0.00	40.00	6.0		07/07/1960	01/11/1961	SNEED, RICHARD F			✓						✓									
POLK 1690 Groundwater Info	Details	7.00S-3.00W-10 SW-NW			TSCHAUNER LOUCKS, MARGARET 3030 RIVER BEND RD SALEM OR			W		37.00	12.0	250.0	12/31/1945	12/31/1945	UNKNOWN									✓									
POLK 1691	Details	7.00S-3.00W-10 SE-NW			BRANDT, LELAND P	B AND B FARMS		W	0.00	35.00	18.0	300.0		12/31/1948									✓									
POLK 1692 Groundwater Info	Details	7.00S-3.00W-10 NW-SW			BLAKE, DON			W	0.00	42.00	23.5	500.0	12/04/1957	12/05/1957	UNKNOWN, UNKNOWN			✓						✓									44.9759, -123.0498
POLK 1693 Groundwater Info	Details	7.00S-3.00W-10 SW-SW			CARTER, SAM			W	0.00	44.00	23.0	675.0	11/27/1957	11/27/1957	UNKNOWN, UNKNOWN			✓						✓									44.9741, -123.0500
POLK 1694 Groundwater Info	Details	7.00S-3.00W-10 NE-SW			BACHELLER, WILLARD			W	0.00	20.00	1.0	350.0	12/31/1938	12/31/1938									✓									44.9756, -123.0436
POLK 1695	Details	7.00S-3.00W-10 SE-SW			BACHELLER, WILLARD			W	0.00	36.00	12.0	400.0	12/31/1938	12/31/1938									✓									
POLK 1696 Groundwater Info	Details	7.00S-3.00W-10 SE-SW			BACHELLER, WILLARD			W	0.00	26.00	3.0	600.0	12/31/1938	12/31/1938									✓									44.9735, -123.0455
MARI 54942	Details	7.00S-3.00W-11 NW-NW	300	4025 CHERRY AVE NE		ANDERSON HOMES INC. PO BOX 20935 KEIZER OR 97307		W		0.00	18.0		06/24/2000	06/27/2000	BEIER, DALLAS L WILLAMETTE DRILLING	130787			✓				✓									
MARI 55036 Groundwater Info	Details	7.00S-3.00W-10 NE-NE	6200	3868 5TH AVE N		CITY OF KEIZER 930 CHEMAWA RD NE KEIZER OR 97303		W	27.00	191.00	26.0	400.0	05/31/2000	08/03/2000	WALDROOP, MICHAEL STETTLER SUPPLY CO.	122662	38891	✓															44.9825, -123.0315
MARI 55784 Groundwater Info	Details	7.00S-3.00W-10 NE-NE	6200	3868 5TH AVE N		CITY OF KEIZER 930 CHEMAWA RD NE KEIZER OR 97303		W		0.00	26.0		05/10/2001	06/18/2001	WALDROOP, MICHAEL STETTLER SUPPLY CO.	138717			✓													44.9825, -123.0316
MARI 56562	Details	7.00S-3.00W-11 NW-NW	2300	3608 CHERRY AVE NE	BERKEY, RALPH	BROADWAY GARAGE 3608 CHERRY AVE NE KEIZER OR 97303		W		0.00	16.0		05/22/2002	05/31/2002	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	147724			✓				✓									
MARI 57042	Details	7.00S-3.00W-11 NW-NE	2600	3915 BROOKS AVE	LUKE, KEN 3915 BROOKS AVE KEIZER OR 97303			W		0.00	15.5		01/14/2003	01/22/2003	WALDROOP, MICHAEL STETTLER SUPPLY CO.	146742			✓													
MARI 57243	Details	7.00S-3.00W-11 NW-NW	700	3840 N RIVER RD, KEIZER	DICKERHOOF, MATTHEW PO BOX 1583 CORVALLIS OR 97339		✓	W		0.00	19.0		05/15/2003	05/19/2003	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	156921			✓					✓								

1 2 3 4 5 6 7

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MARI 57279	Details	7.00S-3.00W-11 -	3300	889 PLYMOUTH DR NE	KNOWLTON, GARY 3585 JACK ST N KEIZER OR 97303			W						05/27/2003	WELL ID APPLICATION WELL ID APPLICATION		64350															
MARI 57922 Groundwater Info	Details	7.00S-3.00W-11 NW-SE	4000	803 WEEKS AVE; EAST SIDE OF PROPERTY; AN APARTMENT COMPLEX		CITY OF KEIZER 930 CHEMAWA RD N KEIZER OR 97303		W		0.00	19.0		02/27/2004	03/02/2004	WALDROOP, MICHAEL STETTLER SUPPLY CO.	138702			✓					✓							44.9773, -123.0243
MARI 57243 Version 2	Details	7.00S-3.00W-11 NW-NW	800	3840 N RIVER RD, KEIZER	DICKERHOOF, MATTHEW PO BOX 1583 CORVALLIS OR 97339		✓	W		0.00	19.0		05/15/2003	05/19/2003	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	156921			✓					✓							
MARI 59030	Details	7.00S-3.00W-11 SE-SE	1800	CHERRY AVE AND SALEM PARKWAY; SW CORNER	DRAKE, DALE PO BOX 5931 SALEM OR 97304			W		0.00	20.0		06/24/2005	06/28/2005	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	173242			✓							✓						
MARI 59061	Details	7.00S-3.00W-11 SE-NE	600	1400 TANDEM		CASCADIA PENCE DEVELOPMENT PO BOX 4109 SALEM OR 97302		W	19.00	0.00	19.0		05/31/2005	07/13/2005	MACK, EUGENE MACK DRILLING CO.	173659			✓							✓						
MARI 59141	Details	7.00S-3.00W-11 NW-NW	2600	4080 RIVER RD, KEIZER		SUNSET RIVER LLC PO BOX 1583 CORVALLIS OR 97339	✓	W		0.00	20.0		08/12/2005	08/22/2005	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	173225			✓				✓								
MARI 59215	Details	7.00S-3.00W-11 SE-NE	1800	3996 PLEASANT VIEW DR	MILLER, ROB 4383 SHORELINE DR N KEIZER OR 97303			W		0.00			09/15/2005	09/20/2005	WALDROOP, MICHAEL BEIER & WALDROOP WELL SERVICES INC.	163061			✓													
MARI 59449	Details	7.00S-3.00W-11 SE-NW	5000	3583 CHERRY AVE, KEIZER	COLYER, GEORGE 8526 WACONDA RD NE SALEM OR 97305			W		0.00	22.0		12/05/2005	12/13/2005	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	182314			✓				✓								
MARI 59573	Details	7.00S-3.00W-11 NE-NW	4100	1250 ALDER ST, KEIZER	PIKE, DON 12380 MYERS RD DALLAS OR 97338			W		0.00	17.0		03/11/2006	03/14/2006	WALDROOP, MICHAEL BEIER & WALDROOP WELL SERVICES INC.	163045			✓													
MARI 59597	Details	7.00S-3.00W-11 SW-NW	7700	1302 CANDLEWOOD DR NE	DAY, RICK	ADVANTAGE PRECAST INC. PO BOX 21713 KEIZER OR 97307		W		117.50	9.8	60.0	03/08/2006	03/31/2006	MERRILL, PHILLIP MERRILL DRILLING INC	179654	80230	✓					✓									
MARI 59615	Details	7.00S-3.00W-11 NE-SE	2801	3665 PLEASANTVIEW DR	CHEZEM, GARY 3665 PLEASANTVIEW DR KEIZER OR 97303			W		0.00	10.0		04/07/2006	04/18/2006	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC.	182318			✓					✓							
MARI 60519	Details	7.00S-3.00W-11 SE-NW	7100	1170 CANDLEWOOD DR NE	LENT, LORETTA	WINDWARD KAI PROPERTIES PO BOX 21112 KEIZER OR 97307		W		0.00	17.0		06/23/2007	07/02/2007	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC	193569			✓				✓								
MARI 60848	Details	7.00S-3.00W-10 -	8100	3262 WILLAMETTE DR N	REYNOLDS, TROY	REYNOLDS, PETRA ALLSEASONS WELLDRILLING INC. KEIZER OR 97303		W	60.00	99.00	38.0	100.0	08/16/2007	09/10/2007	REYNOLDS, TROY ALL SEASONS WELL DRILLING	1001919	89719	✓					✓									44.9737, -123.0343
MARI 61614	Details	7.00S-3.00W-11 SE-NE	4800	1230 CLEARVIEW AVE	CLOSTERMAN, LOWELL 1144 KAMET COURT NE KEIZER OR 97303			W		0.00	14.0		02/14/2008	04/21/2008	WALDROOP, MICHAEL BEIER & WALDROOP WELL SERVICES INC.	196816			✓				✓								
MARI 62020	Details	7.00S-3.00W-10 NE-NE	3300	410 SUNSET AVE. N KEIZER, OR 97303	HOSKINS, MARIE 1220 20TH ST. SE SALEM OR 97302			W	30.00				09/15/2008	09/23/2008	MACK, EUGENE MACK DRILLING CO.	199677			✓				✓								

1 2 3 4 5 6 7

Download Data

Oregon Water Resources Department
Well Report Query

Well Report Query Results *GPS points, where available are at the far right of the table. Click link to view on map*

Township: 7 S, Range: 3 W, Sections: 10,11, Type of Log: W

Well Log	Details	T-R-S/ QQ-Q	Taxlot	Street of Well	Owner	Company	Special Standards	Well Type	First Water	Completed Depth	Static Water Level	Yield	Completed Date	Received Date	Bonded Constructor	Startcard	Well Id #	New	Abandon	Deepen	Alteration	Conversion	Domestic	Irrigation	Community	Livestock	Industrial	Injection	Thermal	Dewatering	Piezometer	Latitude/ Longitude
MARI 62534	Details	7.00S-3.00W-10 SE-NE	7400	3625 RIVERCREST DR N		CITY OF KEIZER 930 CHEMAWA RD NE KEIZER OR 97303		W		0.00			07/01/2009	07/14/2009	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC	198559			✓				✓										44.9782, -123.0350
MARI 63201	Details	7.00S-3.00W-11 NW-NW	1900	3906 RIVER RD N, KEIZER		BI MART CORP. PO BOX 2310 EUGENE OR 97402		W		0.00			08/27/2010	09/01/2010	SIPPEL, FLOYD G SIPPEL WELL DRILLING INC	205287			✓				✓										
MARI 64238	Details	7.00S-3.00W-11 SW-NE	1300	1295 1/2 SHADY LANE NE, KEIZER	RODRIGUEZ, JOSE 835 ROYALTY DR NE SALEM OR 97301			W	35.00	60.00	16.0	60.0	05/29/2012	06/07/2012	MACK, EUGENE MACK DRILLING CO INC	207475	109155	✓					✓										
MARI 64573	Details	7.00S-3.00W-11 SW-NE	1300	1295 1/2 SHADY LANE NE, KEIZER	RODRIGUES, JOSE 835 ROYALTY DE NE SALEM OR 97301			W		0.00			02/06/2013	02/09/2013	MACK, EUGENE MACK DRILLING CO INC	208430			✓				✓										
MARI 65666	Details	7.00S-3.00W-10 -	8100	3262 WILLAMETTE DR N	REYNOLDS, TROY	ALL SEASONS WELL DRILLING INC. PO BOX 21656 KEIZER OR 97307		W	99.00	120.00	87.8	150.0	10/06/2014	04/16/2015	REYNOLDS, TROY ALL SEASONS WELL DRILLING	1024572	89719			✓	✓		✓										44.9737, -123.0343
MARI 67871	Details	7.00S-3.00W-11 SE-NW	2100	3680 CHERRY AVENUE N.E. KEIZER, OREGON 97303		MILLER FAMILY TRUST 4379 SHORELINE DRIVE KEIZER OR 97303		W					05/04/2018	05/10/2018	SIPPEL, FLOYD SIPPEL WELL DRILLING INC	1038618			✓				✓										
MARI 67872	Details	7.00S-3.00W-11 SE-NW	1600	1060 SHADY LANE N.E. KEIZER, OREGON 97303		MILLER FAMILY TRUST 4379 SHORELINE DRIVE N. KEIZER OR 97303	✓	W					05/04/2018	05/10/2018	SIPPEL, FLOYD SIPPEL WELL DRILLING INC	1038619			✓				✓										
MARI 68002	Details	7.00S-3.00W-11 SW-NE	3600	1310 SHADY LANE NE	ANDERSON, CHRIS	ANDERSON PROPERTY SOLUTIONS INC. PO BOX 21144 KEIZER OR 97303		W		0.00			07/10/2018	07/12/2018	MACK, EUGENE MACK DRILLING CO INC	215160			✓				✓										
MARI 69421	Details	7.00S-3.00W-11 SW-NE	5700	1195 CANDLEWOOD DR NE	SERMIENTO, SANTIAGO	SOMA INVESTIMENTS LLC PO BOX 20562 KEIZER OR 97307		W		0.00			09/03/2020	09/10/2020	MACK, EUGENE MACK DRILLING CO INC	217671			✓				✓										
MARI 69497 Exempt Use Map	Details	7.00S-3.00W-11 SE-NW	5100	892 CADE AVE NE	HOFFMAN, MICKEY 920 CADE AVE NE KEIZER OR 97303			W	80.00	120.00	30.0	200.0	10/08/2020	10/28/2020	REYNOLDS, TROY ALL SEASONS WELL DRILLING	1049277	131574	✓					✓										44.9780, -123.0235
MARI 69498	Details	7.00S-3.00W-11 SE-NW	5100	920 CADE AVE NE	HOFFMAN, MICKEY 920 CADE AVE NE KEIZER OR 97303		✓	W		0.00			10/08/2020	10/28/2020	REYNOLDS, TROY ALL SEASONS WELL DRILLING	1049278			✓				✓										44.9780, -123.0235

1 2 3 4 5 6 7

Download Data

Water Well Reports

L64350

MARI 57279

For Official Use Only:

Received Date:	County Well Log ID #	Well Identification Tag #
5/27/03 In Person	"Mari 57279"	L64350

WELL IDENTIFICATION APPLICATION FORM

(please see attached instructions)

BUYER/CURRENT LANDOWNER (FOR PROPERTY WELL IS LOCATED ON):

Name: Gary D Knowlton P.R.

Mailing Address: 3585 Jack St. N.

City: Keizer State: Or Zip: 97303 Phone: (503) 393 1428

NOTE: Well Identification Tag will be sent to the above address unless otherwise specified above.

DO NOT COMPLETE THIS FORM IF YOU ARE SHARING THE WELL ON ANOTHER'S PROPERTY.

WELL LOCATION:

County: Marion Well # (*designation owner has given to well if multiple wells exist on same property*): _____

Township: 7 North *or* (South) (circle one) Range: 3 East *or* (West) (circle one) Section: 11, _____ 1/4 _____ 1/4

Tax Lot #: [illegible] 3300 (not the "tax acct.#") Type of Well: water supply _____ monitoring _____

Address of Well: 889 (*Number*) Plymouth Dr. N.E. (*Street*) Keizer (*City*)

Does this well have a formal water right associated with it? Yes: _____ No: X

(If unknown you may contact the Water Rights Information Group at 503-378-3739 extension 201 for research)

If Yes: Application #: _____ Permit #: _____ Certificate #: _____

(***Optional***): Latitude _____ Longitude _____ (*May sometimes be obtained from Well Log Report*)

WELL INFORMATION: *(If available, attach copy of driller's well report. If report is not available please complete the following, at a minimum the **prior landowner names** going back until around the time the well would have been drilled. Prior landowners can be obtained from the County Assessor.)*

Start Card #: _____ Approx. Well Construction Date: 1947

Well Constructor: _____

Name of Land Owner at Time of Construction (***or list of prior landowners***) _____

Fred R. Knowlton

Well Depth (in feet): 33' Static Water Level (*in feet*): _____

Diameter of Exposed Well Casing (*in inches*): 2"

Please Return Completed Form to: Well ID Program @ Oregon Water Resources Department
158 12th Street NE - Salem, OR 97301-4172, ***or fax to 503-378-8130***

PREVIOUS WELL ID APPLICATION VERSIONS SHOULD NOT BE USED REVISED: 8-5-02

Amended 12/21/2020

STATE OF OREGON
WATER SUPPLY WELL REPORT
(as required by ORS 537.765 & OAR 690-205-0210)

Amended

WELL I.D. LABEL# L 131574
START CARD # 1049277
ORIGINAL LOG #

(1) LAND OWNER
Owner Well I.D. 1
First Name Mickey Last Name Hoffman
Company
Address 920 Cade AVE NE
City Keizer State OR Zip 97303

(2) TYPE OF WORK
☒ New Well ☐ Deepening ☐ Conversion ☐ Alteration (complete 2a & 10) ☐ Abandonment(complete 5a)

(2a) PRE-ALTERATION

	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
Casing:									

	Material	From	To	Amt	sacks/lbs
Seal:					

(3) DRILL METHOD
☒ Rotary Air ☐ Rotary Mud ☐ Cable ☐ Auger ☐ Cable Mud
☐ Reverse Rotary ☐ Other Water truck

(4) PROPOSED USE
☒ Domestic ☐ Irrigation ☐ Community
☐ Industrial/ Commericial ☐ Livestock ☐ Dewatering
☐ Thermal ☐ Injection ☐ Other

(5) BORE HOLE CONSTRUCTION
Special Standard ☒ (Attach copy)
Depth of Completed Well 120 ft.

BORE HOLE

Dia	From	To
10	0	21
6	21	120

SEAL

Material	From	To	Amt	sacks/lbs
Bentonite Chips	0	21	11	S
		Calculated	10	
		Calculated		

How was seal placed: Method ☐ A ☐ B ☐ C ☐ D ☐ E
☒ Other Poured and Probed
Backfill placed from ft. to ft. Material
Filter pack from ft. to ft. Material Size
Explosives used: ☐ Yes Type Amount

(5a) ABANDONMENT USING UNHYDRATED BENTONITE
Proposed Amount Pounds Actual Amount Pounds

(6) CASING/LINER

Casing	Liner	Dia	+	From	To	Gauge	Stl	Plstc	Wld	Thrd
◉	○	6	☒	1	120	250	◉	○	☒	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐
○	○		☐				○	○	☐	☐

Shoe ☒ Inside ☐ Outside ☐ Other Location of shoe(s) 120
Temp casing ☐ Yes Dia From To

(7) PERFORATIONS/SCREENS
Perforations Method OPEN BOTTOM
Screens Type Material

Perf/Screen	Casing/Liner	Screen Dia	From	To	Scrn/slot width	Slot length	# of slots	Tele/pipe size

(8) WELL TESTS: Minimum testing time is 1 hour
○ Pump ○ Bailer ◉ Air ○ Flowing Artesian

Yield gal/min	Drawdown	Drill stem/Pump depth	Duration (hr)
200		115	1

Temperature 56 °F Lab analysis ☐ Yes By
Water quality concerns? ☐ Yes (describe below) TDS amount 185

From	To	Description	Amount	Units

MAR1 69497

(9) LOCATION OF WELL (legal description)
County MARION Twp 7 S N/S Range 3 W E/W WM
Sec 11 SE 1/4 of the NW 1/4 Tax Lot 5100
Tax Map Number Lot
Lat ° ' " or 44.97803 DMS or DD
Long ° ' " or -123.02348 DMS or DD
◉ Street address of well ○ Nearest address
892 Cade Ave NE Keizer OR, 97303

(10) STATIC WATER LEVEL

	Date	SWL(psi)	+	SWL(ft)
Existing Well / Pre-Alteration				
Completed Well	10-08-2020			30

Flowing Artesian? ☐ Dry Hole? ☐

WATER BEARING ZONES Depth water was first found 80

SWL Date	From	To	Est Flow	SWL(psi)	+	SWL(ft)
10-07-2020	80	100	40			30
10-07-2020	100	120	200			30

(11) WELL LOG
Ground Elevation

Material	From	To
Top soil	0	1
Clay silty brown	1	17
Clay brown firm W/rocks	17	21
Gravel med to large W/ocasonal boulders and sand	21	60
brown large grained		
Gravels med to small W/cobbles and boulders W?	60	120
sand black fine grained		

RECEIVED OCT 28 2020 OWRD

RECEIVED DEC 21 2020 OWRD

Date Started 10-06-2020 Completed 10-08-2020

(unbonded) Water Well Constructor Certification
I certify that the work I performed on the construction, deepening, alteration, or abandonment of this well is in compliance with Oregon water supply well construction standards. Materials used and information reported above are true to the best of my knowledge and belief.
License Number 1725 Date 10-10-2020
Signed Troy L Reynolds

(bonded) Water Well Constructor Certification
I accept responsibility for the construction, deepening, alteration, or abandonment work performed on this well during the construction dates reported above. All work performed during this time is in compliance with Oregon water supply well construction standards. This report is true to the best of my knowledge and belief.
License Number 1725 Date 10-10-2020
Signed Troy L Reynolds
Contact Info (optional)

ORIGINAL - WATER RESOURCES DEPARTMENT
THIS REPORT MUST BE SUBMITTED TO THE WATER RESOURCES DEPARTMENT WITHIN 30 DAYS OF COMPLETION OF WORK Form Version: 0.95

Water Well Survey Forms and Phone Memos

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Donald L Lebold (Property Owner)
3500 River Rd N (Property Address)
Keizer, OR 97303 (City, State, Zip)
_____ (Tax Lot Number)

____ **Yes** X **No**

2a) If Yes:

a) How many wells are present ? _____ (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** ____ **No**

c) Is the groundwater well used for (Circle all that apply):
   (a) residential (household water supply, drinking water, etc.),
   (b) agricultural (irrigation, livestock, etc.), or
   (c) other? (please specify) _____

d) What is the total well depth? _____ ___ **Not Known**

e) What is the well screen depth? _____ ___ **Not Known**

f) When was the well installed? _____ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?
   ___ **Yes** _____ **Log Number**
   ___ **No**
   ___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: City of Keizer

_____ No source of water at this property

This form was completed by:

Name (print): Donald L Lebold Date: 9/16/19

Signature: _____

Phone: 503-390-2421

Mailing Address: 3500 River Rd N Keizer, OR 97303

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Michelle Giuliani, et al. (Property Owner)
3391 River Road N (Property Address)
Keizer, OR 97303 (City, State, Zip)
073W11CB04000 (Tax Lot Number)

____ **Yes** __X__ **No**

2a) If Yes:

a) How many wells are present ? __0__ (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** __0__ **No**

c) Is the groundwater well used for (Circle all that apply):
   (a) residential (household water supply, drinking water, etc.),
   (b) agricultural (irrigation, livestock, etc.), or
   (c) other? (please specify) _____

d) What is the total well depth? ___✓___ ___ **Not Known**
e) What is the well screen depth? ___✓___ ___ **Not Known**
f) When was the well installed? ___✓___ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?
___ **Yes** _____ **Log Number**
__✓__ **No**
___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: Keizer Water City of
____ No source of water at this property

This form was completed by:

Name (print): Michelle I. Giuliani Date: 9/30/2019
Signature: Michelle J Giuliani
Phone: H. 503 581-3438 C 503 339-5908
Mailing Address: 1731 37th Ave NW Salem Oreg 97304

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Ned & Judy Kanoff, et al. (Property Owner)

108-198 Apple Blossom Ave N (Property Address)

Keizer, OR 97303 (City, State, Zip)

073W11CB03900 (Tax Lot Number)

_____ **Yes** _____ **No**

2a) If Yes:

a) How many wells are present ? 0 (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** X **No**

c) Is the groundwater well used for (Circle all that apply):

(a) residential (household water supply, drinking water, etc.),

(b) agricultural (irrigation, livestock, etc.), or

(c) other? (please specify) _____

d) What is the total well depth? _____ ___ **Not Known**

e) What is the well screen depth? _____ ___ **Not Known**

f) When was the well installed? _____ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?

___ **Yes** _____ **Log Number**

___ **No**

___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: City of Keizer

_____ No source of water at this property

This form was completed by:

Name (print): Ned L KANOFF Date: 10-4-19

Signature: Ned L Kanoff

Phone: 503 930 6755

Mailing Address: 2558 E PINE St Stayton OR 97383

10/7/19

S:\Project Files\Younger Oil\Keizer Texaco\Water Well Survey\~~Survey Packet\108-198 Apple Blossom Ave N.wpd~~ (2019 10 04) was Ned KANOFF

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Kin Linh Corporation (Property Owner)

3393-3395 River Road N (Property Address)

Keizer, OR 97303 (City, State, Zip)

073W11CB04100 (Tax Lot Number)

____ **Yes** _X_ **No**

2a) If Yes:

a) How many wells are present ? _____ (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** ____ **No**

c) Is the groundwater well used for (Circle all that apply):

(a) residential (household water supply, drinking water, etc.),

(b) agricultural (irrigation, livestock, etc.), or

(c) other? (please specify) _____

d) What is the total well depth? _____ ___ **Not Known**

e) What is the well screen depth? _____ ___ **Not Known**

f) When was the well installed? _____ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?

___ **Yes** _____ **Log Number**

___ **No**

___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: City of Keizer

_____ No source of water at this property

This form was completed by:

Name (print): Chong Kin Choi Date: 10/2/19

Signature: _____

Phone: 971-237-0921

Mailing Address: 1697 SW Goucher St Mcminnville OR 97128

10/7/19

S:\Project Files\Younger Oil\Keizer Texaco\Water Well Survey\Survey Packet\3393-3395 River Rd. N.wpd

2019 10 02) WWS KIN LINH COMP

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Salem Self-Help Housing, LLC (Property Owner)
151 Apple Blossom Ave N (Property Address)
Keizer, OR 97303 (City, State, Zip)
073W11CB04500 (Tax Lot Number)

____ **Yes** ✓ **No**

2a) If Yes:

a) How many wells are present ? _____ (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** ____ **No**

c) Is the groundwater well used for (Circle all that apply):
   (a) residential (household water supply, drinking water, etc.),
   (b) agricultural (irrigation, livestock, etc.), or
   (c) other? (please specify) _____

d) What is the total well depth? _____ ___ **Not Known**
e) What is the well screen depth? _____ ___ **Not Known**
f) When was the well installed? _____ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?
   ___ **Yes** _____ **Log Number**
   ___ **No**
   ___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?
Water supplied by: City of Keizer
_____ No source of water at this property

This form was completed by:

Name (print): Chris Jones Date: 10/1/19
Signature: _____
Phone: 503-856-7065
Mailing Address: PO Box 20400, Keizer OR 97307

S:\Project Files\Younger Oil\Keizer Texaco\Water Well Survey\Survey Packet\151 Apple Blosson Ave N.wpd

10/7/19

(2019 10 01) WWS Salem Self Help

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Rong Guo Chen & Hong Y Wu (Property Owner)
3400 River Road North (Property Address)
Keizer, OR 97303 (City, State, Zip)
073W11CB01100 (Tax Lot Number)

____ **Yes** ___X___ **No**

2a) If Yes:

a) How many wells are present ? _____ (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** ____ **No**

c) Is the groundwater well used for (Circle all that apply):
   (a) residential (household water supply, drinking water, etc.),
   (b) agricultural (irrigation, livestock, etc.), or
   (c) other? (please specify) _____

d) What is the total well depth? _____ ___ **Not Known**

e) What is the well screen depth? _____ ___ **Not Known**

f) When was the well installed? _____ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?
   ___ **Yes** _____ **Log Number**
   ___ **No**
   ___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: City of Keizer

_____ No source of water at this property

This form was completed by:

Name (print): RON CHEN Date: 5-13-20

Signature: _____

Phone: 503-390-3548

Mailing Address: 1049 Chardonnay Lp NE Keizer, OR 97303

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Kerley Properties LLC (Property Owner)

~~160-198 Garland Way North~~ (Property Address) 180 Garland Way

Keizer, OR 97303 (City, State, Zip)

073W11CB04700 (Tax Lot Number)

You have our site location wrong!

~~ ~~ **Yes** X **No**

2a) If Yes:

a) How many wells are present ? unknown (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ___ **Yes** ___ **No** I do not think so

c) Is the groundwater well used for (Circle all that apply):

(a) residential (household water supply, drinking water, etc.),

(b) agricultural (irrigation, livestock, etc.), or

(c) other? (please specify) _____

d) What is the total well depth? _____ **Not Known**

e) What is the well screen depth? _____ **Not Known**

f) When was the well installed? _____ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?

___ **Yes** _____ **Log Number**

___ **No**

___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: _____

___ No source of water at this property

I do not think there is a well under our land!

This form was completed by:

Name (print): Judy Gruyer Date: 5/18/2020

Signature: Judy Gruyer

Phone: 971-273-9110

Mailing Address: PO Box ~~ ~~ 5517 Salem, OR 97304

MARTIN S. BURCK ASSOCIATES, INC.

Geologic and Environmental Consulting Services

MSBA

PHONE MEMO

Project: Younger-Keizer Date: 5/20/20 Time: 17:32

Contacted: Judy Gryer Co. Kerlyn Properties Ph. 971.273.9110

Contacted By: Jan White JW Co. MSBA Ph.

Purpose: water well survey followup

Comments: According to Ms. Gryer, the apartment complex located at 180 Garland Way is supplied by City of Keizer water system. Ms. Gryer is not aware of any wells on the property.

Followup:

c:\workfile\forms\phone.frm

WATER WELL SURVEY

1) Are you aware of any groundwater supply wells located on your property at:

Keizer Real Estate, LLC (Property Owner)
3450 River Road North (Property Address)
Keizer, OR 97303 (City, State, Zip)
073W11CB01000 (Tax Lot Number)

____ **Yes** _X_ **No**

2a) If Yes:

a) How many wells are present ? _____ (If more than 1 well is present, please provide the following information (b-g) for each well)

b) Is the groundwater well currently being used? ____ **Yes** ____ **No**

c) Is the groundwater well used for (Circle all that apply):

(a) residential (household water supply, drinking water, etc.),
(b) agricultural (irrigation, livestock, etc.), or
(c) other? (please specify) _____

d) What is the total well depth? _____ ___ **Not Known**
e) What is the well screen depth? _____ ___ **Not Known**
f) When was the well installed? _____ ___ **Not Known**

g) Does the groundwater well have an Oregon Water Resources Department log number?

___ **Yes** _____ **Log Number**
___ **No**
___ **Not Known**

2b) If No: Who or what entity or entities supply water to this property?

Water supplied by: City of Keizer
_____ No source of water at this property

This form was completed by:

Name (print): Sean Davis Date: 5/19/20

Signature: _____

Phone: 720.884.6668

Mailing Address: 3450 River Road North, Keizer, OR 97303

MARTIN S. BURCK ASSOCIATES, INC.

Geologic and Environmental Consulting Services

MSBA

PHONE MEMO

Project: Younger - Keizer Date: 1/8/21 Time: 11:05

Contacted: Kyle Trainor - manager Co. Abby's Pizza Ph. 503.393.2229
3451 River Rd N, Keizer, OR

Contacted By: Jon White Co. MSBA Ph.

Purpose: Determine source of water supply for adjacent property to north

Comments: According to Kyle Trainor, the property is supplied water via City of Keizer municipal supply and there are no water wells on the property (3451 River Rd N, Keizer, OR).

Followup:

c:\workfile\forms\phone.frm