**2017 Monitoring Well Report**
**Six Mile Richardson Highway**
**Fairbanks, Alaska**

July 2017

SHANNON & WILSON, INC.

GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

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# 2017 MONITORING WELL REPORT
# SIX MILE RICHARDSON HIGHWAY
# FAIRBANKS, ALASKA

July 2017

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## EXECUTIVE SUMMARY

Shannon & Wilson performed monitoring well (MW) services for the long-term groundwater monitoring of volatile organic compounds (VOCs), with an emphasis on trichloroethene (TCE), in the Six Mile Richardson Highway (Six Mile) area southeast of Fairbanks, Alaska (Figure 1). The efforts for these sampling events involved:

- collecting samples from nine MWs in 2017 to assess TCE concentration trends at wells with limited data, where no trend is apparent, as part of a set sampling frequency, and/or that have exceeded the ADEC (Alaska Department of Environmental Conservation) Groundwater Cleanup Levels (CULs) in Title 18, Chapter 75 of the Alaska Administrative Code (18 AAC 75);

- assessing TCE contamination and statistical trends; and

- repairing MWs in 2016 identified during our 2014 MW inventory.

We evaluated MW sample results with respect to the ADEC CULs. The ADEC released new groundwater CULs in November 2016 based on updated information used to evaluate exposure risk to humans for TCE and other contaminants. The updated ADEC groundwater CULs for TCE was lowered from 5 micrograms per liter (µg/L) to 2.8 µg/L. The new, lowered TCE CUL is now considered the threshold for continued MW sampling in the Six Mile plume area.

In 2016, we performed MW repairs based on our 2014 MW inventory in conjunction with our 2014 private well search. Over the course of the project, 51 MWs have been sampled. Currently, 31 MWs remain at the Six Mile area, and nine required repairs in 2016 (Figure 2 and Table 2).

TCE concentrations exceeded the ADEC CUL of 2.8 µg/L in wells MW-19 and MW-34 at concentrations of 3.43 µg/L and 3.55 µg/L, respectively (Tables 1 and 3). TCE did not exceed its CUL in the other seven locations sampled in 2017 . No other detected VOCs exceeded their respective CUL for this sampling event (Figure 3).

Each of the MWs sampled in 2017 had a data set large enough to statistically evaluate whether TCE concentrations are changing over time. The TCE concentrations display statistical evidence of decreasing trends at these nine MWs (Table 4 and Figure 4).

Groundwater-contaminant monitoring efforts should continue to track temporal and spatial trends in TCE, focusing on the downgradient half of the plume where TCE concentration trends are stable or may be increasing. This is where potential exposures to TCE may occur through

groundwater use. Future efforts should concentrate on tracking and modeling TCE concentrations to allow for better predictions of potential exposure, and assessing exposures attributable to VOC vapor intrusion (VI) into residences and businesses.

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## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| µg/L | microgram(s) per liter |
| AAC | Alaska Administrative Code |
| ADEC | Alaska Department of Environmental Conservation |
| bgs | below ground surface |
| °C | degrees Celsius |
| $C_0$ | initial concentration |
| $C_t$ | concentration at time "t" |
| COC | chain of custody |
| COV | coefficient of variance |
| CSM | conceptual site model |
| CUL | groundwater Cleanup Level |
| DL | detection limit |
| *E* | 2.7183, base of natural logarithm |
| EB | Equipment blank |
| EPA | Environmental Protection Agency |
| GAC | Granular activated carbon |
| K | first-order rate constant |
| LCS | laboratory control sample |
| LCSD | laboratory control sample duplicate |
| LOD | limit of detection |
| LOQ | limit of quantitation |
| MAROS | Monitoring and Remediation Optimization System |
| MB | Method blank |
| MS | matrix spike |
| MSD | matrix spike duplicate |
| MW | monitoring well |
| NTP | notice to proceed |
| PCE | tetrachloroethene |
| QA | quality assurance |
| QC | quality control |
| RL | reporting limit |
| RPD | Relative percent difference |
| SGS | SGS North America, Inc. |
| Six Mile | Six Mile Richardson Highway |
| t | time |
| TCE | trichloroethene |
| VI | vapor intrusion |
| VOC | volatile organic compound |
| WO | work order |

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## 1.0 INTRODUCTION

In 1995/1996, a TCE groundwater plume was discovered in the Six Mile area, southeast of Fairbanks, Alaska. The ADEC determined that the plume affected several private drinking-water wells. The affected locations were provided financial assistance to install water-treatment systems containing activated carbon filters to remove the TCE contamination from drinking water. Groundwater data obtained from the private wells in the area over the last several years indicate TCE concentrations are declining exponentially at predictable rates.

Shannon & Wilson prepared a human-health conceptual site model (CSM) for contamination in the Six Mile area in 2006. The CSM indicated there are a number of potentially complete contaminant-exposure pathways in the area, many of which are associated with the contaminated groundwater. Soil and air exposure pathways may also be complete for some receptors, though these exposure risks appear to be minor. The main group of potentially affected receptors consists of area residents whose homes are above contaminated groundwater. Groundwater TCE exposures (i.e., ingestion, dermal absorption, and inhalation of volatile compounds from tap water) for these residents appear to be mitigated by water-treatment systems, though there are residences in the area without these systems. Water-treatment systems do not provide protection from indoor-air exposures related to air infiltration from contaminated groundwater beneath residences, so this remains a potential unresolved risk in the area.

In 2009, we identified permanent structures within 100 feet of the 5 µg/L TCE plume. Our scope of services conducted from 2011 through 2015 included private well sampling and VI sampling to include outside soil-gas, sub-slab, and indoor-air sampling at several permanent structures.

This report presents results of our 2016 and 2017 MW services for long-term groundwater monitoring of VOCs, primarily TCE, in the Six Mile area, southeast of Fairbanks, Alaska. These services were conducted in accordance with our scope of services described under the authorized Notice to Proceed (NTP) 18-8036-03-009 and successive amendments to this NTP. The report presents groundwater analytical results from nine MWs sampled, including an assessment of temporal trends in TCE concentration for wells sampled with four or more data points, and recommendations for future MW sampling in the Six Mile area.

Our 2016 MW efforts focused on repairing key MWs within the TCE plume, as identified during our latest MW inventory conducted in 2014, and assessing contaminant trends at MWs within the TCE plume.

The ADEC request for proposal to perform the 2017 round of MW sampling included the following tasks:

- collecting groundwater samples from wells MW-5, MW-19, MW-26, MW-34, MW-103, MW-104, MW-105, MW-107, and MW-108 in the Six Mile area to determine their VOC groundwater concentrations; and
- preparing a summary report that includes the results of MW sampling.

The results, recommendations, and conclusions contained in this report are based on:

- The limitations of our approved scope, schedule, and budget presented in our proposal dated November 28, 2016.
- Our understanding of the project as described herein.
- Our observations of site conditions during groundwater sampling, as they existed at the time these activities were conducted.
- Information provided by SGS North America, Inc. (SGS) in work orders (WOs) found in Appendix D.

We understand that this report will be used for evaluating the contaminant trends of the groundwater in the Six Mile area. This report should not be used for other purposes without Shannon & Wilson's review. Our scope of services did not include evaluating the presence of contaminants or naturally occurring materials other than those for which laboratory analyses were performed. If a service is not specifically indicated in this report, do not assume that it was performed.

## 2.0 FIELD ACTIVITIES

Shannon & Wilson personnel from the Fairbanks office conducted MW repairs on June 8 and 9, 2016 with the assistance of Homestead Drilling, our drilling subcontractor. We collected groundwater samples on February 22 and 23, 2017 from select MWs in the TCE plume near Six Mile to be analyzed for VOCs. The locations of MWs recently sampled are shown in Figure 3 including a sample date and TCE result. We sampled MWs in general accordance with our *Well*

*Sampling and Treatment-System Maintenance Work Plan*, dated September 2013. This report includes data collected during earlier sampling events, but not details regarding collection, analysis, and quality assurance/quality control (QA/QC) of groundwater samples prior to 2017. However, samples collected or submitted for laboratory analysis by Shannon & Wilson under our Six Mile Richardson Highway site-assessment contract with the ADEC were treated in a manner consistent with our Quality Assurance Project Plan, described in the work plan referenced above. Field notes and sampling logs are presented in Appendix A and Appendix B, respectively.

Our observations and results are specific to locations, depths, and times noted in our field forms (Appendix A). No amount of sampling can precisely predict the characteristics, quality, or distribution of subsurface and site conditions. Potential sources of variation include, but are not limited to:

- The conditions between or at different depths than the MWs sampled may be different. Our test results may not be representative of the highest concentrations at the site.
- The passage of time or intervening causes (natural or manmade) may result in changes to site and subsurface conditions.
- Groundwater levels and flow may fluctuate due to seasonal and recharge variations.
- Groundwater flow between different aquifers can occur. No soil layer should be assumed to be water-tight.
- The concentrations of contaminants may change at any sampled or unsampled location in response to natural conditions, chemical reactions, and/or other events.

## 2.1 Monitoring Well Repairs

In 2014, Shannon & Wilson updated the well inventory for MWs located in the Six Mile Richardson Highway area. We found eight MWs requiring repair due to frost-jacking or other environmental causes.

Monitoring well repairs included repairing PVC casing, installing new locks as needed, and replacing new monuments as needed. Repairs were made to one additional MW (MW-32) that was found to be missing its monument and with the top section of PVC lying on the ground beside the well. A list of monitoring-well repairs is presented in Table 2. Photographs from the MW repair field effort are presented in Appendix C.

## 2.2 Monitoring Well Sampling

Seth Robinson and Adam Wyborny of the Shannon & Wilson Fairbanks office sampled wells MW-5, MW-19, MW-26, MW-34, MW-103, MW-104, MW-105, MW-107, and MW-108 on February 22 and 23, 2017. Field staff measured depths to groundwater to a precision of 0.01 foot from the top of the well casings in each of the nine MWs prior to sampling. Over the past several years of sampling in the area, we have determined the magnitude and direction of the area's groundwater gradient shows little seasonal variability. We have previously determined the groundwater gradient is generally to the northwest with a magnitude of about 1 foot per 1,000 feet; the February 2017 groundwater-elevation measurements were consistent with our previous observations.

Field staff purged water from the wells using a battery-powered, variable-speed submersible pump with new, non-reusable sampling equipment which was decontaminated before collecting each sample. Each well was purged until a minimum of three well volumes were removed, or until water-quality parameters (temperature, conductivity, pH, dissolved oxygen, and oxidation/reduction potential) stabilized over three consecutive readings on a YSI Professional Plus multi-parameter meter. We then reduced the pump-flow rate to allow collection of water samples for VOC analysis into appropriate laboratory-prepared containers; we collected duplicate VOC samples for QA purposes immediately after filling the sample container for the primary sample.

Based on VOC data from the previous groundwater-sampling event (TCE concentrations less than 2.8 µg/L), well-purge water was filtered through a granular activated carbon (GAC) treatment system prior to being discharged to the ground surface at the sampling location. Purge water was filtered through a GAC system at all sampled locations with the exception of MW-103, MW-104, and MW-105.

The contract laboratory, SGS, provided sample containers for each analysis. Field staff collected, handled, and stored the samples in a manner consistent with our *Well Sampling and Treatment-System Maintenance Work Plan*, dated September 2013. We collected a duplicate sample (MW-6) for VOC analysis from well MW-5 to satisfy the QC-sampling requirement of 10 percent duplicates. A VOC trip blank accompanied the samples during sampling and transport to the laboratory for analysis.

On February 24, 2017, field staff delivered the samples to the SGS facility in Fairbanks for analysis of VOCs by Environmental Protection Agency Method SW8260B, with a standard data-turnaround time. SGS is certified by the National Environmental Laboratory Accreditation

Program to perform the requested analyses. The SGS laboratory report for the Six Mile area (WO 1177600) is provided in Appendix D.

## 3.0 RESULTS

The SGS laboratory report and corresponding ADEC laboratory data review checklist are provided in Appendix D and Appendix E, respectively. A QA/QC assessment of the analytical results is presented in Appendix F. Historical groundwater analytical VOC results for MWs are summarized in Table 1, and the 2017 Monitoring Well Event Summary is presented in Table 3. The 2016 MW repair summary and corresponding photo log are presented in Table 2 and Appendix C, respectively. TCE concentrations and temporal trends for wells sampled in 2017 above are tabulated in Table 4.

### 3.1 Groundwater Gradient

As noted above, we have previously determined the groundwater gradient is generally to the northwest, roughly parallel to the Richardson Highway, with a magnitude of about 1 vertical foot per 1,000 horizontal feet. The 2017 groundwater-elevation measurements were consistent with our previous observations. The direction of the regional gradient determined from groundwater-elevation measurements is generally consistent with the direction of the regional TCE plume, previously estimated from TCE-concentration data (Figure 1).

We have also previously measured groundwater elevations in well clusters to check for the possible presence of vertical gradients in the area, and have found no evidence of substantial vertical groundwater flow. In previous reports, we noted TCE contamination observed deeper in the regional aquifer is not likely to be due to advective TCE transport via vertical (downward) groundwater flow; however, it is possible advection via scattered vertical channels of relatively higher permeability may allow TCE transport to greater depths, as the subsurface of the Tanana River floodplain consists of a heterogeneous distribution of sands, gravels, organic-matter deposits, and occasional ice-rich soils. Migration of contamination deeper into the aquifer likely also occurs by vertical dispersion as the compound travels downgradient along the TCE plume.

In addition, historically, we have detected no substantial differences in groundwater flow direction at 30 feet and 70 feet below ground surface (bgs).

### 3.2 QA/QC Assessment

The QA/QC assessment in Appendix F assists in producing data of acceptable quality and reliability, and identifies analytical results that were qualified due to QC failures reported in the

field and by the laboratory. We reviewed the analytical results for laboratory QC samples and conducted our own QA assessment for this project. We reviewed the chain-of-custody record and laboratory-receipt form to check that custody was not breached, sample holding-times were met, and the samples were properly handled from the point of collection through analysis by the laboratory.

Our QA review procedures allowed us to document the accuracy and precision of the analytical data, as well as check the analyses were sufficiently sensitive to detect analytes at levels below regulatory standards. The laboratory limits of detection (LODs) for the requested analytes were sufficiently sensitive for reporting purposes for all analytes, with the exception of 1,2-dibromoethane, 1,2,3-trichloropropane, and vinyl chloride.

We reviewed analytical monitoring-well sample results from SGS WO 1177600 for this project. The SGS laboratory report, including the case narrative describing the laboratory QA results in detail, are included with the completed ADEC data-review checklists in Appendix D and Appendix E, respectively.

Based on the QA review, no data were rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. We consider the samples we collected for this project to be representative of site conditions at the locations and times they were obtained. In our opinion, the data produced by the SGS laboratory for this project are suitable for characterizing groundwater quality at the locations sampled.

## 3.3 Volatile Organic Compounds

As noted above, the 2017 contaminant data are presented in two tables. Historical data for MWs in the Six Mile Richardson Highway groundwater-monitoring network, including locations sampled in 2017, are provided in Table 1; Table 3 presents current VOC results for MWs sampled in 2017. Results for the 31 remaining monitoring wells in the Six Mile area with TCE concentrations exceeding their ADEC CULs are tabulated in Table 5.

### 3.3.1 Nonhalogenated VOCs

Two nonhalogenated VOCs (benzene and toluene) were detected at estimated concentrations in MWs sampled in 2017 (Table 1 and Table 3).

### 3.3.2 Halogenated VOCs Other Than TCE

Aside from TCE detected in the 2017 samples (discussed in Section 3.3.3), four other halogenated VOCs were found in MW samples (Tables 1 and 3). These were tetrachloroethene (PCE; ten samples); *cis*-1,2-dichloroethene (ten samples); *trans*-1,2-dichloroethene (nine samples); and 1,1-dichloroethane (four samples). These halogenated VOCs were not reported above their ADEC CULs for the 2017 sampling event.

The *cis*- and *trans*-1,2-dichloroethene, and 1,1-dichloroethene found in most samples may be daughter products of TCE dechlorination reactions, as they have been only detected in conjunction with current or former detections of TCE. The *cis*-isomer of 1,2-dichloroethene is commonly understood to be the primary TCE biodegradation product, though the *trans*-isomer may also be produced biologically from TCE. 1,1-Dichloroethane is a daughter product of 1,1,1-trichloroethane, which has been found in wells in the area. These compounds may also be present as co-contaminants released with the TCE.

PCE was detected in each of the nine MWs sampled in 2017, at concentrations ranging from 0.66J µg/L to 4.9 µg/L. This is the first time PCE has been detected in these wells. PCE has been detected infrequently in other MWs over the course of this project, including MW-2 in 1996, MW-32 in 2001, and MW-38 in 2007 (Table 1).

*Cis*-1,2-dichloroethene has historically been detected in MW-32 at concentrations ranging from 59.5 µg/L to 99.9 µg/L; in November 2016, ADEC lowered the *cis*-1,2-dichloroethene CUL to 36 µg/L from 70 µg/L.

With the exception of the PCE detections, analytical results for the 2017 event are consistent with historical data for these wells.

### 3.3.3 TCE Contamination

TCE MW contaminant data for ten samples (nine wells and one duplicate sample) collected in 2017 are presented in two tables: a historical summary (Table 1) and the 2017 sampling event (Table 3). TCE was detected in each of the monitoring-well samples at concentrations less than its ADEC CUL with the exception of MW-19 and MW-34 at concentrations of 3.43 µg/L and 3.55 µg/L, respectively (Table 3).

## 3.4 TCE Distribution and Concentration Trends

We assessed the historical data sets at each sample location to evaluate significant trends in TCE concentration with time. We performed the assessment using the Mann-Kendall nonparametric trend analysis (as described in R.O. Gilbert, 1987, *Statistical Methods for Environmental Pollution Monitoring*, John Wiley & Sons, Inc., New York). This test requires data from a minimum of four sampling events to assess temporal concentration trends; we were able to perform it on data from each of the MWs sampled in 2017. A concentration trend was considered to be significantly increasing or decreasing if the probability of a false positive test was lower than 5 percent (i.e., p-value less than 0.05).

We evaluated concentration trends for TCE in groundwater samples using the Mann-Kendall statistical analysis in conjunction with a strategy employed by the Monitoring and Remediation Optimization System (MAROS) software developed by the Air Force Center for Engineering and the Environment. The MAROS evaluation of concentration trends depends on the result of a Mann-Kendall trend analysis, coupled with information about the data set's coefficient of variation (COV). The COV is defined as the ratio of a data set's standard deviation to its mean. COV values less than or near one indicate that data form a relatively close group around the mean value; values larger than one indicate data exhibit a greater degree of scatter around the mean.

A statistically significant increasing or decreasing trend is identified by the Mann-Kendall analysis if the probability of a false-negative assessment is less than 5 percent (i.e., $p < 0.05$); MAROS refers to this condition as a "confidence in trend" above 95 percent. MAROS discriminates between "no trend" and a "stable" contaminant concentration by evaluating the COV of a given well's data set. The MAROS decision matrix is presented in the following table:

| Mann-Kendall Statistic | Confidence in Trend | Concentration Trend |
|---|---|---|
| $S > 0$ | > 95 percent | Increasing |
| $S > 0$ | 90 to 95 percent | Probably increasing |
| $S > 0$ | < 90 percent | No trend |
| $S \leq 0$ | < 90 percent and COV ≥ 1 | No trend |
| $S \leq 0$ | < 90 percent and COV < 1 | Stable |
| $S < 0$ | 90 to 95 percent | Probably decreasing |
| $S < 0$ | > 95 percent | Decreasing |

Only wells with a minimum of four sampling events (the minimum for the statistical test) are analyzed. The standard practice for this statistical analysis is to assign one value to all results below the reporting limit, as long as it is below the lowest reporting limit. For these statistical analyses, results below the reporting limit were represented numerically by a value equal to the lowest analytical detection limit for each well's data set. This approach is used to be consistent with standard practice, and to avoid erroneous identification of trends related to variations in the historical LODs.

We further analyzed TCE-concentration trends by nonlinear regression for two wells sampled in 2017 that either currently or previously contained TCE above the ADEC CUL of 2.8 µg/L, and exhibited decreasing trends in TCE concentration. The regression estimated the concentration decay rate constant (k) using a first-order exponential decay model ($C_t = C_0\ e^{-kt}$; where $C_0$ is the initial TCE concentration, $C_t$ is the TCE concentration at time $t$, $e$ is the base of natural logarithms, and $k$ is the exponential-decay-rate constant) using TCE concentration and elapsed-time data for each well. Estimates of the exponential-decay-rate constant for each well's data set allowed us to estimate their TCE concentration half-lives. The regressions provided estimates of rate constants and half-lives, as well as upper and lower 95-percent confidence limits on these estimates; wider confidence intervals indicate a larger error in the estimated half-lives and rate constants.

### 3.4.1 TCE Plume

Groundwater-monitoring data collected over the course of the Six Mile project indicate the TCE plume has reached a stable size, except for data taken in 2009. In our May 2009, Long-Term Groundwater Monitoring report, we concluded the area's TCE plume was shrinking. The portion of the plume exceeding the former ADEC cleanup level (5-µg/L) had diminished by about 750 feet, from about 3,900 feet to about 3,150 feet from the presumed main source area near MW-32. Since 2009, however, TCE results indicated no apparent change in plume extent.

TCE regulatory limits for continued groundwater sampling in the Six Mile area have changed over the course of the project, which affects the depiction of the plume extent. We have redrawn the plume with the new 2.8-µg/L limits based on MW sample data to date. (Figure 1).

We note that Figure 1 shows only an estimate of the plume size. Not enough current MW data are available to accurately depict the extent of TCE in the groundwater because some of the detections comprising the plume boundary are out of date (i.e., the most recent data defining the front edge of the plume comes from 2006 at MW-14 with a result of 3.53 µg/L).

As we noted in our previous groundwater monitoring reports, low, steady-state TCE concentrations were observed at MW-11 (screened from 70 feet to 80 feet bgs), the well farthest downgradient in the plume (Figure 1 and Figure 3), until it was decommissioned in 2006. MW-11 was installed in 1995, along with a shallower-screened well (MW-12), to delineate the extent of the TCE plume. MW-11 was last sampled in April 2006 and decommissioned in 2006. MW-12 was last sampled in September 2002 and decommissioned after the 2002 sampling event.

Two wells (MW-38 and MW-39) were installed in 2004 near the downgradient end of the 1-µg/L TCE plume, intended to serve the role filled by MW-11 and MW-12 since 1995. Since 2004, these wells have been sampled five times. The deeper of the two wells (MW-38, screened 31 feet to 41 feet bgs) was completed at the depth permafrost was encountered; 2007 was the first time a sample from this well contained detectable TCE (1.2 µg/L; Table 4).

Samples from the shallower of the wells (MW-39, screened 20 feet to 30 feet bgs) did not contain detectable concentrations of TCE in October 2004, but TCE was found above its limit of quantitation (LOQ) from the sample collected in April 2006 (1.16 µg/L).

Continued sampling of MW-38 and MW-39 will be necessary to assess whether the steady-state TCE concentrations observed in samples from MW-11 and MW-12 also exist at MW-38 and MW-39.

### 3.4.2 TCE Temporal Trends

Nine MWs were sampled in 2017 to obtain data for assessing TCE-concentration trends. Each location sampled this year provided enough data to assess whether their concentrations are changing significantly with time. Trends are decreasing at each of these MWs and are consistent with the previous trend assessments at these locations in 2011 and 2012.

MW-34 (1410 Richardson Highway property) had the highest reported TCE concentration of the nine wells sampled in 2017. The concentration at this location has varied between 3.55 µg/L and 8.02 µg/L since 2003, with the 2017 TCE concentration at 3.55 µg/L. The MW-34 TCE trend assessment included the results of nine sampling events dating back to 2003. Time-course concentration data for the two wells above regulatory limits (MW-19 and MW-34), sampled in 2017, are plotted in Figure 5.

Fifteen of the nineteen locations where trends have been evaluated exhibit significantly decreasing TCE concentrations (Table 4). TCE concentrations display no significant trend at MW-15A and MW-39. The MW-13 and MW-38 trends are stable and probably increasing, respectively.

### 3.4.3 Regression Analysis

TCE-concentration half-life estimates for wells with significant long-term decreasing trends were derived from nonlinear regressions using the first-order exponential decay model ($C_t = C_0\ e^{-kt}$) described previously. Data from the wells exhibiting a decreasing TCE trend fit the decay model chosen for the regression.

The regressions generated estimates of the concentration decay rate (*k*, year $^{-1}$), with 95-percent confidence limits on the estimates. Well MW-19's decay rate (k) is -0.055 per year, and MW-34's rate is -0.072 per year; the TCE concentration half-life for MW-19 is 12.6 years, and the half-life for MW-34 is 9.6 years. TCE concentrations and results of the "best-fit" nonlinear regressions are presented graphically in Figure 5.

For each of the data sets previously subjected to the regression analysis, the 2017 datum fell within the confidence intervals predicted from the model. This indicates the model continues to reasonably represent TCE concentration behavior over time at each location modeled.

As we have observed in our previous reports, spatial and temporal trends in TCE concentration in the Six Mile area suggest TCE concentrations are decreasing in a manner consistent with natural attenuation by dilution. Earlier geochemical assessments indicated microbially mediated natural attenuation likely plays an insignificant role in the TCE-concentration decreases observed in the area's groundwater.

In addition, data from our earlier assessments have shown TCE concentrations do not consistently decrease with respect to distance from presumed source areas, and temporal concentration trends throughout the plume are not consistently decreasing. It is our opinion this may be explained by permeability differences in the aquifer matrix that create variably restrictive contaminant flowpaths from the apparent source area near MW-32, leading to the observed concentration anomalies.

## 4.0 DISCUSSION

The 2017 sampling event provided additional long-term groundwater-monitoring data for nine MWs in the Six Mile area. Of the nine wells sampled, we measured the highest TCE concentration in MW-34 (3.55 µg/L; Tables 1 and 3). Two of the nine MWs sampled yielded TCE results greater than its CUL of 2.8-µg/L. All other detected VOCs for this sampling event were below regulatory limits.

Analytical results for this sampling event are consistent with historical data for the Six Mile area with the exception of PCE detected below CULs in each well for the first time.

The overall data quality and usability are sufficient for reporting purposes. However, there was a sensitivity issue that requires further discussion, i.e., laboratory LODs above the regulatory limit.

As part of our standard laboratory-data QC review, we compare LODs for the requested analytes to their applicable ADEC CULs. Following ADEC's November 2016 CUL revisions, the analytes 1,2-dibromoethane, 1,2,3-trichloropropane, and vinyl chloride now have LODs above regulatory limits. Shannon & Wilson is working with the contract laboratory to address these issues prior to subsequent sampling events. The laboratory has developed an alternative method for the VOC analytes that would provide lower LODs for these three analytes to meet the new CULs.

Based on the most recent samples collected, eleven MWs within the project area have TCE detections above the updated CUL, depicted in red in Figure 3. Additionally, as noted in Section 3.3.2, MW-32 contains concentration of *cis*-1,2,-dichloroethene above the updated CUL.

Table 5 presents TCE concentration data for the 11 wells with detectable TCE results above the CUL, and lists the latest sampling date. The sampling frequency recommendations listed in the notes section was last updated in our 2014 Long-Term Groundwater Monitoring Report, dated August, 2015.

**TABLE 5**
**MONITORING WELL TCE RESULTS ABOVE CURRENT REGULATORY LIMIT**

| Monitoring Well | Latest TCE Result (µg/L) | Latest Sample Date | Notes |
|---|---|---|---|
| MW-14 | 3.53 | 4/13/2006 | Front edge of estimated 2017 TCE plume (2.8 µg/L). Sampling frequency schedule not set. |
| MW-15A | 2.87 | 9/22/2014 | Sampling frequency schedule set to annual. |
| MW-16A | 3.81 | 9/22/2014 | Sampling frequency schedule set to every five years. |
| MW-17 | 14.8 | 10/15/2013 | Sampling frequency schedule set to every two years. |
| MW-18 | 6.30 | 10/18/2013 | Sampling frequency schedule set to every two years. |
| MW-19 | 3.43 | 2/23/2017 | Sampling frequency schedule set to every five years. |
| MW-30 | 5.68 | 10/15/2013 | Sampling frequency schedule set to every two years. |
| MW-31 | 4.55 | 4/27/2006 | Sampling frequency schedule not set. Near presumed source area. |
| MW-32 | 11.4 | 10/18/2013 | Near presumed source area. *Cis*-1,2-Dichloroethene was above regulatory limits for this event. Sampling frequency schedule set to every two years. |
| MW-34 | 3.55 | 2/23/2017 | Sampling frequency schedule set to every five years. |
| MW-35 | 5.90 | 10/14/2013 | Sampling frequency schedule set to every two years. |

According to the sampling frequency recommendations found in the 2014 Long-Term Groundwater Monitoring Report, nine wells remaining in the Six Mile area are overdue for sampling (Figure 6); six of which are above the CUL and noted in Table 5 above.

Nineteen monitoring wells have been statistically evaluated to determine whether TCE concentrations are changing over time. Long-term trends for 15 of these monitoring wells are decreasing (Table 4). TCE concentrations are stable at MW-13 and "probably increasing" at MW-38. No temporal concentration trends are evident at MW-15A and MW-39, though they may eventually demonstrate trends with the accumulation of additional data.

The 2011 results of downgradient wells near the edge of the 5-µg/L TCE-concentration isopleth (MW-103, MW-104, and MW-105, MW-107 and MW-108) ranged from 1.32 µg/L to 4.59 µg/L,

indicating the plume extent had receded slightly. Our most recent results for these MWs ranged from 0.840 J µg/L to 2.36 µg/L, suggesting the location of the end of the plume has continued to recede, even though the CUL has decreased from 5 µg/L to 2.8 µg/L.

### 4.1 Recommendations

Contaminant-monitoring and data-collection efforts should continue to track TCE temporal and spatial trends, with a particular focus on the downgradient portion of the TCE plume, since this is where potential exposures to TCE may occur via consumption of groundwater.

Additional VOC data collected over the next few years may allow estimates of TCE concentration half-lives to be determined at the sixteen locations where decreasing trends are not currently apparent (Table 4). As we have noted in previous reports, the potential contaminant-exposure receptors (via direct contact and consumption pathways) are downgradient from the likely TCE source areas. It is therefore our opinion that future efforts should primarily concentrate on tracking and modeling TCE spatial and temporal behavior to allow for better predictions regarding potential exposures.

From the 31 remaining wells in the Six Mile area, we recommend:

- Sampling be discontinued at wells MW-5, MW-26, MW-103, MW-104, MW-105, MW-107, and MW-108, where TCE concentrations are below the ADEC CUL of 2.8 µg/L and exhibit long-term decreasing trends.

- Sampling 11 wells tabulated in Table 5, where the latest TCE sample results are above the ADEC CUL.

- At least two more sampling events at wells from Table 4, where trends are either, not apparent, stable, or probably increasing (MW-13, MW-15A, MW-38, and MW-39).

- Sampling the two farthest downgradient wells within the approximate 2.8 µg/L boundary (MW-13 and MW-14) to update and redefine the front edge of the plume.

## 5.0 CLOSURE

This report was prepared for the exclusive use of the ADEC, in accordance with our scope of services. Third parties may not rely upon our reports. The contents of this report should not be considered a warranty of site-wide groundwater conditions. We do not guarantee that regulatory agencies will reach the same conclusions as Shannon & Wilson. We have prepared the attached

document *"Important Information about Your Geotechnical/Environmental Report"* in Appendix G to assist you and others in understanding the use and limitations of this report.

This report should not be used without our approval if any of the following occurs:

- There is a lapse of time more than 3 months since submission to the ADEC.
- Conditions change due to natural forces or human activity at or adjacent to the sites.
- Assumptions stated in this report have changed.
- New information, changes in project details, regulations, or laws that may affect our analyses, recommendations, and/or conclusions.

If any of these occur, we should be retained to review the applicability of our analyses, recommendations, or conclusions.

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| ESI MW-3 § | 5-10 | 10/1/01 | 928-100101-MW3 | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.56 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| MW-1 § | 17-27 | 9/7/89 | 220-907-B101 | <0.2 | – | <1.0 | <0.2 | <1.0 | <0.4 | <0.2 | <0.2 | <2.0 | <2.0 | <0.2 | <2.0 | <2.0 | <0.2 | <0.2 | <0.2 | <0.6 | – | – | <0.2 |
| | | 12/19/94 | 667-1219-101 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 10/12/95 | 72912-1012-114 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | 0.47 J | 0.30 J | <0.50 |
| | | 8/14/96 | 72981496-MW1 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | <0.20 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| MW-2 § | 18-28 | 9/8/89 | 220-908-B21 | <0.2 | – | <1.0 | <0.2 | <1.0 | 1.0 | 0.5 | 0.5 | 14.0 | <2.0 | <0.2 | <2.0 | <2.0 | 0.6 | 12 | 1.1 | 4.9 | – | – | <0.2 |
| | | 12/19/94 | 667-1219-201 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 5.5 | 0.63 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 10/12/95 | 72912-1012-113 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 | 0.36 J | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/14/96 | 72981496-MW2 | 0.29 | 0.52 | <0.20 | 0.65 | <0.20 | 0.86 | 0.89 | <0.20 | <1.00 | <1.0 | <0.30 | <0.50 | <0.50 | 0.46 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| | | 2/27/97 | 729-022797-MW2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.3 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 2/27/97 | 729-022797-MW29 (dup) | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 7/24/98 | 922-072498-MW2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 4.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| MW-3 § | 18-28 | 9/8/89 | 220-908-B31 | <0.2 | – | <1.0 | <0.2 | <1.0 | <0.4 | <0.2 | <0.2 | <2.0 | <2.0 | <0.2 | <2.0 | <2.0 | 0.9 | 1.8 | 0.2 | 1.2 | – | – | <0.2 |
| | | 12/19/94 | 667-1219-301 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 10/12/95 | 72912-1012-115 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | 0.42 J | <0.50 | <0.50 |
| MW-4 | 70-80 | 12/20/94 | 667-1220-401 | **3.7** | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/12/96 | 729-81296-MW4 | **4.58** | 0.33 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | <0.20 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| | | 11/22/96 | 729-112296-MW4 | **3.64** | 0.28 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | <0.20 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| | | 11/22/96 | 729-112296-MW21 (dup) | **3.70** | 0.25 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | <0.20 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| | | 3/13/97 | 729-031397-MW5 | **3.50** | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 7/28/98 | 922-072898-MW4 | **3.2** | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/23/99 | 979-082399-MW4-23 | 2.6 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.5 B | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/25/00 | 1037 -082500-MW4 | 2.4 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | 0.55 | <0.50 | <0.50 |
| | | 9/20/01 | 1086-092001-MW04 | 2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 10/7/04 | 1246-100704-510 | 1.57 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <0.500 | <1.00 | <3.00 | <1.00 | <1.00 | <5.00 | <0.400 | <1.00 | <1.00 | <3.00 | <2.00 | <1.00 | <1.00 |
| MW-5 | 20-30 | 12/20/94 | 667-1220-501 | **34 D** | 1.8 | <0.50 | <0.50 | <0.50 | 3.60 | 0.83 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <1.0 | 0.71 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/12/96 | 729-81296-MW5 | **27.2** | 2.31 | 0.57 | <0.20 | 0.22 | 2.25 | 0.73 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | 0.66 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| | | 8/12/96 | 729-81296-MWA (dup) | **27.2** | 2.43 | 0.58 | <0.20 | 0.22 | 2.39 | 0.78 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | 0.69 | <0.30 | <0.20 | <0.40 | <0.20 | <0.20 | <0.20 |
| | | 11/22/96 | 729-112296-MW5 | **30.8** | 1.97 | 0.49 | <0.20 | <0.20 | 1.49 | 0.57 | <0.20 | <1.00 | <1.00 | <0.30 | <0.50 | <0.50 | 0.52 B | <0.30 | <0.20 | <0.40 | <0.20 | <0.50 | <0.20 |
| | | 3/13/97 | 729-031397-MW4 | **26.0** | 1.60 | 0.44 J | <0.50 | <0.50 | 0.9 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.47 J | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 7/28/98 | 922-072898-MW5 | **23.0** | 1.8 | 0.52 | <0.50 | <0.50 | 0.96 | 0.93 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/12/99 | 979-081299-MW5-05 | **21.0** | 1.7 | 0.63 | <0.50 | <0.50 | 0.77 | 0.81 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.66 B | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/12/99 | 979-081299-MW5-06 (dup) | **21.0** | 1.7 | 0.61 | <0.50 | <0.50 | 0.78 | 0.78 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.2 B | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 8/29/00 | 1037-082900-MW5 | **19.0** | 1.5 | 0.60 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 9/20/01 | 1086-092001-MW05 | **17.0** | 1.7 | 0.77 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 10/21/03 | 1199-102103-004 | **14.2** | 1.59 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <3.00 | <1.00 | <1.00 | <5.00 | <0.400 | <1.00 | <1.00 | <3.00 | <2.00 | <1.00 | <1.00 |
| | | 10/7/04 | 1246-100704-511 | **11.9** | 1.64 | 1.27 | <1.00 | <1.00 | <1.00 | <1.00 | <0.500 | <1.00 | <3.00 | <1.00 | <1.00 | <5.00 | <0.400 | <1.00 | <1.00 | <3.00 | <2.00 | <1.00 | <1.00 |
| | | 4/27/06 | 1295-042706-023 | **8.77** | 1.77 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <0.500 | <1.00 | <3.00 | <1.00 | <1.00 | <5.00 | <0.400 | <1.00 | <1.00 | <3.00 | <2.00 | <1.00 | <1.00 |
| | | 2/20/09 | 1437-022009-112 | **7.11** | 2.12 | 3.24 | <1.00 | <1.00 | <1.00 | <1.00 | <0.500 | <1.00 | <3.00 | <1.00 | <1.00 | <5.00 | <0.400 | <1.00 | <1.00 | <3.00 | <2.00 | <1.00 | <1.00 |
| | | 7/26/11 | 1566-072611-MW07 | **4.73** | 2.28 | 4.05 | <1.00 | <1.00 | <1.00 | <1.00 | <0.500 | <1.00 | <3.00 | <1.00 | <1.00 | <5.00 | <0.400 | <1.00 | <1.00 | <3.00 | <2.00 | <1.00 | <1.00 |
| | | 2/23/17 | MW-5 | 1.53 | 2.05 | 4.41 | 0.979 J | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.20 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/23/17 | MW-6 (DUP) | 1.48 | 2.02 | 4.43 | 0.947 J | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.20 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

**TABLE 1**
**HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)**

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| ADEC Table C Groundwater-Cleanup Level (CUL) | | | | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| ADEC CUL Prior to November 2016 Update | | | | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-6 § | 20-30 | 11/22/94 | 667-1122-601 | 2.2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/13/95 | 72903-1013-MW6 | **2.8** | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/96 | 729-81796-MW6 | **2.83** | <0.20 | <0.20 | <0.20 | <0.50 | <0.50 | <0.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/28/97 | 729-022897-MW6 | 2.6 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/22/98 | 922-072298-MW6 | 2.1 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/22/98 | 922-072298-MW66 (dup) | 2.0 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/99 | 979-081799-MW6-13 | 1.9 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/01 | 1086-091901-MW06 | 1.6 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/7/02 | 1152-100702-018 | 1.55 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/19/05 | 1295-101905-501 | 1.66 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-7 § | 70-80 | 11/22/94 | 667-1122-701 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/13/95 | 72903-1013-MW7 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/96 | 729-81796-MW7 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.50 | <0.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/28/97 | 729-022897-MW7 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/22/98 | 922-072298-MW7 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/99 | 979-081799-MW7-12 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-8 § | 70-80 | 12/20/94 | 667-1220-801 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/13/95 | 72903-1013-MW8 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/96 | 729-81796-MW8 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.50 | <0.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/22/98 | 922-072298-MW8 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/16/99 | 979-081699-MW8-09 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-9 | 20-30 | 12/20/94 | 667-1220-901 | **7.4** | 0.58 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 12/20/94 | 667-1220-902 (dup) | **7.2** | 0.59 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | 1.8 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/13/95 | 72903-1013-MW9 | **7.7** | 0.80 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/13/95 | 72903-1013-MW11 (dup) | **7.3** | 0.76 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/96 | 729-81796-MW9 | **5.62** | 0.65 | <0.20 | <0.20 | <0.50 | <0.50 | <0.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/22/98 | 922-072298-MW9 | **3.7** | 0.53 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/16/99 | 979-081699-MW9-10 | **3.0** | 0.53 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/01 | 1086-091901-MW09 | 2.1 | 0.55 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/02 | 1152-092602-019 | 1.5 | <1.0 | <1.0 | <1.0 | <0.50 | <0.50 | <1.0 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <0.50 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-10 § | 20-30 | 11/28/94 | 667-1128-1001 | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/13/95 | 72903-1013-MW10 | 1.6 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/96 | 729-81796-MW10 | 1.18 | 0.29 | <0.20 | <0.20 | <0.50 | <0.50 | <0.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/96 | 729-81796-MWC (dup) | 1.26 | 0.32 | <0.20 | <0.20 | <0.50 | <0.50 | <0.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/22/98 | 922-072298-MW10 | 0.73 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/20/99 | 979-082099-MW10-20 | 0.57 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/01 | 1086-091901-MW10 | 0.73 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

**TABLE 1**
**HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)**

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-11 § | 70-80 | 11/3/95 | 729-1103-MW11 | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.59 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 5/22/97 | 729-052297-MW11 | 1.6 | 0.41 J | <0.50 | <0.50 | <0.50 | <0.50 | 0.70 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.45 J | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/23/97 | 864-102397-MW11 | 1.28 | <1.0 | <1.0 | <1.0 | <0.50 | <0.50 | <1.0 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/23/98 | 922-072398-MW11 | 1.5 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.62 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/23/99 | 979-082399-MW11-21 | 1.3 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.55 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/23/99 | 979-082399-MW11-22 (dup) | 1.3 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 0.55 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/23/00 | 1037-082300-MW11 | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/28/01 | 1086-092801-MW11 | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/3/02 | 1152-100302-017 | 1.07 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/29/03 | 1199-102903-024 | 1.07 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | 2.04 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/14/04 | 1246-101404-528 | 1.20 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-018 | 1.09 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-12 § | 20-30 | 11/8/95 | 729-1108-MW12 | 0.38 J | 0.63 | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **7.2** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 5/22/97 | 729-062297-MW12 | 1.0 | 0.88 | <0.50 | <0.50 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **17.0** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/23/97 | 864-102397-MW12 | 0.83 | <1.0 | <1.0 | <1.0 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | **17.1** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/23/98 | 922-072398-MW12 | 1.1 | 0.81 | <0.50 | <0.50 | <0.50 | <0.50 | 1.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **14.0** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/99 | 979-081999-MW12-19 | 1.2 | 0.81 | <0.50 | <0.50 | <0.50 | <0.50 | 1.4 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **8.8** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/23/00 | 1037-082300-MW12 | 1.0 | 0.67 | <0.50 | <0.50 | <0.50 | <0.50 | 0.98 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **4.7** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/28/01 | 1086-092801-MW12 | 1.2 | 1.0 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 3.3 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/02 | 1152-092602-014 | 1.1 | <1.0 | <1.0 | <1.0 | <0.50 | <0.50 | <1.0 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 2.2 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-13 | 40-50 | 11/8/95 | 729-1108-MW13 | 1.7 | 0.61 | <0.50 | <0.50 | <0.50 | <0.50 | 0.95 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **31 D** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/96 | 729-81996-MW13 | **3.67** | 1.07 | 0.32 | <0.20 | <0.50 | <0.50 | 1.71 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **63.3** | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/96 | 729-81996-MWD (dup) | **3.84** | 1.10 | 0.31 | <0.20 | <0.50 | <0.50 | 1.8 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **67.2** | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/19/96 | 729-111996-MW13 | **3.24** | 0.96 | 0.3 | <0.20 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **57.6 B** | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/19/96 | 729-111996-MW19 (dup) | **3.55** | 1.08 | 0.31 | <0.20 | <0.50 | <0.50 | 1.83 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **60.6 B** | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 5/15/97 | 729-051597-MW13 | **4.6** | 1.2 | 0.45 J | <0.50 | <0.50 | <0.50 | 2.3 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **43.0** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/1/97 | 864-100197-MW13 | **4.03** | 0.96 J | <1.0 | <1.0 | <0.50 | <0.50 | 2.08 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | **35.5** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/24/98 | 922-072498-MW13 | **4.2** | 1.1 | <0.50 | <0.50 | <0.50 | <0.50 | 2.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **15.0** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/99 | 979-081399-MW13-07 | **5.1** | 1.1 | 0.56 | <0.50 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **4.9** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/8/00 | 1037-090800-MW13 | **5.3** | 1.1 | 0.59 | <0.50 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 2.0 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/24/01 | 1086-092401-MW13 | **5.6** | 1.3 | 0.77 | <0.50 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 1.1 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/02 | 1152-092602-015 | **5.2** | 1.2 | <1.0 | <1.0 | <0.50 | <0.50 | 1.4 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 0.77 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/23/03 | 1199-102303-015 | **5.52** | 1.25 | 1.09 | <1.00 | <0.50 | <0.50 | 1.15 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.45 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/14/04 | 1246-101404-529 | **5.19** | 1.15 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/14/04 | 1246-101404-530 (dup) | **5.63** | 1.28 | 1.00 | <1.00 | <0.50 | <0.50 | 1.01 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/13/06 | 1295-041306-010 | **4.84** | 1.00 | 1.14 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/13/06 | 1295-041306-011 (dup) | **5.18** | 1.05 | 1.25 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/20/07 | 1368-082007-020 | **3.20** | 1.10 | 1.40 | <1.0 | <0.50 | <0.50 | 0.48 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/26/09 | 1437-012609-100 | **3.08** | 1.00 | 1.40 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/11 | 1566-072811-MW21 | 1.87 | 1.22 | 4.12 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/3/12 | 1566-080312-MW23 | 1.72 | 1.07 | 1.89 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/16/13 | 1699-003008 | 2.07 | 1.34 | 2.45 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/22/14 | 1699-104-05 | 1.10 | 0.990 J | 1.73 | <1.00 | <0.50 | <0.50 | <0.500 | <0.25 | <0.50 | <2.5 | <0.50 | 0.520 J | <2.5 | <0.200 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/22/14 | 1699-104-06 (dup) | 1.32 | 1.17 | 1.74 | <1.00 | <0.50 | <0.50 | <0.500 | <0.25 | <0.50 | <2.5 | <0.50 | 0.520 J | <2.5 | <0.200 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-14 | 20-30 | 11/8/95 | 729-1108-MW14 | **4.8** | 1.4 | 0.40 J | <0.50 | <0.50 | <0.50 | 2.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **110 D** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/96 | 729-81996-MW14 | **6.45** | 1.43 | 0.51 | <0.20 | <0.50 | <0.50 | 2.37 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **99.7** | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/19/96 | 729-111996-MW14 | **6.69** | 1.39 | 0.53 | <0.20 | <0.50 | <0.50 | 2.56 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **92.9 B** | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 5/15/97 | 729-051597-MW14 | **6.2** | 1.5 | 0.64 | <0.50 | <0.50 | <0.50 | 2.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **48** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/1/97 | 864-100197-MW14 | **5.66** | 1.27 | <1.0 | <1.0 | <0.50 | <0.50 | 2.35 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | **55.6** | 1.06 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/24/98 | 922-072498-MW14 | **6.4** | 1.4 | 0.66 | <0.50 | <0.50 | <0.50 | 2.5 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **21** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/99 | 979-081399-MW14-08 | **6.2** | 1.3 | 0.7 | <0.50 | <0.50 | <0.50 | 2.2 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **7.4** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/8/00 | 1037-090800-MW14 | **6.0** | 1.3 | 0.76 | <0.50 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 2.5 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/24/01 | 1086-092401-MW14 | **5.5** | 1.5 | 0.93 | <0.50 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 1.2 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/02 | 1152-092602-016 | **4.8** | 1.3 | 1 | <1.0 | <0.50 | <0.50 | 1.3 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 0.86 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/23/03 | 1199-102303-016 | **4.41** | 1.46 | 1.6 | <1.00 | <0.50 | <0.50 | 1.2 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.56 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/15/04 | 1246-101504-531 | **3.68** | 1.15 | 1.43 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.420 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/13/06 | 1295-041306-009 | **3.53** | 1.38 | 2.07 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-15 § | 63-73 | 11/21/95 | 729-1121-MW15 | **12** | 1.1 | 0.43 J | <0.50 | <0.50 | <0.50 | 2.3 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.33 J | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/21/95 | 729-1121-MW30 (dup) | **12** | 1.1 | 0.45 J | <0.50 | <0.50 | <0.50 | 2.4 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.33 J | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 5/15/97 | 729-051597-MW15 | **12** | 1.1 | <0.50 | <0.50 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/24/98 | 922-072498-MW15 | **14** | 1.2 | <0.50 | <0.50 | <0.50 | <0.50 | 2.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/99 | 979-081799-MW15-11 | **15** | 1.1 | <0.50 | <0.50 | <0.50 | <0.50 | 2.4 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/25/00 | 1037-082500-MW15 | **14** | 1.1 | <0.50 | <0.50 | <0.50 | <0.50 | 2.1 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/21/01 | 1086-092101-MW15 | **14** | 1.3 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/25/02 | 1152-092502-011 | **11.7** | 1.21 | <1.00 | <1.00 | <0.50 | <0.50 | 1.32 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/25/02 | 1152-092502-012 (dup) | **11.5** | 1.05 | <1.00 | <1.00 | <0.50 | <0.50 | 1.28 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/24/03 | 1199-102403-019 | **10.2** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/12/04 | 1246-101204-524 | **9.58** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/29/06 | 1330-082906-501 | **9.08** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-15A | 70-75 | 8/20/07 | 1368-082007-017 | 2.70 | 0.40 J | 0.15 J | <1.0 | <0.50 | <0.50 | 0.11 J | <0.25 | <0.50 | <2.5 | <0.50 | 0.18 J | <2.5 | <1.0 | 0.097 J | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-109 | **3.14** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW10 | 2.74 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/15/13 | 1699-003005 | **3.06** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/22/14 | 1699-104-01 | **2.87** | 0.640 J | <0.500 | <1.00 | <0.50 | <0.50 | <0.500 | <0.25 | <0.50 | <2.5 | <0.50 | 0.790 J | <2.5 | <0.200 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-16 § | 10-20 | 11/21/95 | 729-1121-MW-16 | **16** | 1.8 | 0.96 | <0.50 | <0.50 | <0.50 | 3.5 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.68 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/96 | 729-81996-MW16 | **18.6** | 1.69 | 0.74 | <0.20 | <0.50 | <0.50 | 2.94 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.74 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/21/96 | 729-112196-MW16 | **20.8** | 1.86 | 0.87 | <0.20 | <0.50 | <0.50 | 3.09 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.43 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 5/15/97 | 729-051597-MW16 | **18** | 1.8 | 0.84 | <0.50 | <0.50 | <0.50 | 3.1 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.42 J | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/24/98 | 922-072498-MW16 | **17** | 1.6 | 0.68 | <0.50 | <0.50 | <0.50 | 2.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/18/99 | 979-081899-MW16-15 | **16** | 1.4 | 0.67 | <0.50 | <0.50 | <0.50 | 2.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/7/00 | 1037-090700-MW16 | **16** | 1.3 | 0.59 | <0.50 | <0.50 | <0.50 | 2.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/21/01 | 1086-092101-MW16 | **13** | 1.4 | 0.64 | <0.50 | <0.50 | <0.50 | 1.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/25/02 | 1152-092502-013 | **11.5** | 1.18 | <1.00 | <1.00 | <0.50 | <0.50 | 1.57 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/12/04 | 1246-101204-523 | **10.8** | 1.25 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/13/06 | 1295-041306-012 | **9.99** | 1.22 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-16A | 10-20 | 8/20/07 | 1368-082007-018 | **5.3** | 0.78 J | 0.33 J | <1.0 | <0.50 | <0.50 | 0.54 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-110 | **4.65** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW09 | **4.30** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/15/13 | 1699-003006 | **4.29** | 1.12 | 0.560 J | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/22/14 | 1699-104-02 | **3.81** | 0.850 J | 0.490 J | <1.00 | <0.50 | <0.50 | 0.390 J | <0.25 | <0.50 | <2.5 | <0.50 | 0.500 J | <2.5 | <0.200 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-17 | 20-30 | 2/16/96 | 7296-0216-MW17 | **66 D** | 4.2 | 0.88 | <0.50 | <0.50 | <0.50 | 12.0 | <0.25 | <0.50 | <2.5 | <0.50 | 0.85 | <2.5 | 1.1 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/96 | 729-81396-MW17 | **55.6** | 3.79 | 0.82 | <0.20 | <0.50 | <0.50 | 11.9 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 1.10 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/20/96 | 729-112096-MW17 | **58.2** | 3.94 | 0.71 | <0.20 | <0.50 | <0.50 | 11.5 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 1.09 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 3/4/97 | 729-030497-MW17 | **61.0** | 3.6 | 0.73 | <0.50 | <0.50 | <0.50 | 9.2 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.91 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/98 | 922-072898-MW17 | **46.0** | 3.1 | 0.56 | <0.50 | <0.50 | <0.50 | 12.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.70 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/4/99 | 979-080499-MW17-01 | **41.0** | 2.9 | 0.56 | <0.50 | <0.50 | <0.50 | 11.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.59 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/00 | 1037-083000-MW17 | **37.0** | 2.8 | <0.50 | <0.50 | <0.50 | <0.50 | 7.5 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/00 | 1037-083000-001 (dup) | **38.0** | 2.9 | <0.50 | <0.50 | <0.50 | <0.50 | 8.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/25/01 | 1086-092501-MW17 | **30.0** | 3.0 | 0.53 | <0.50 | <0.50 | <0.50 | 4.8 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/25/01 | 1086-092501-MW117 (dup) | **30.0** | 3.1 | 0.54 | <0.50 | <0.50 | <0.50 | 4.8 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/20/03 | 1199-102003-002 | **32.0** | 2.46 | <1.00 | <1.00 | <0.50 | <0.50 | 2.50 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/20/03 | 1199-102003-003 (dup) | **32.2** | 2.35 | <1.00 | <1.00 | <0.50 | <0.50 | 2.29 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-021 | **24.1** | 2.57 | <1.00 | <1.00 | <0.50 | <0.50 | 2.29 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-105 | **18.3** | 2.50 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-106 (dup) | **18.2** | 2.53 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/25/11 | 1566-072511-MW01 | **16.6** | 3.03 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/25/11 | 1566-072511-MW02 (dup) | **15.4** | 2.92 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/15/13 | 1699-003004 | **14.8** | 4.07 | 1.27 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-18 | 20-30 | 2/16/96 | 7296-0216-MW18 | **31 D** | 1.9 | 0.46 J | <0.50 | <0.50 | <0.50 | 6.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.87 | 0.60 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/96 | 729-81396-MW18 | **29.6** | 2.20 | 0.46 | <0.20 | <0.50 | <0.50 | 6.37 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.65 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/20/96 | 729-112096-MW18 | **30.0** | 1.99 | 0.45 | <0.20 | <0.50 | <0.50 | 5.62 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.60 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 3/4/97 | 729-030497-MW18 | **28.0** | 1.7 | 0.40 J | <0.50 | <0.50 | <0.50 | 4.8 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.48 J | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/98 | 922-072898-MW18 | **21.0** | 1.6 | <0.50 | <0.50 | <0.50 | <0.50 | 6.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/98 | 922-072898-MW88 (dup) | **20.0** | 1.6 | <0.50 | <0.50 | <0.50 | <0.50 | 6.1 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/4/99 | 979-080499-MW18-02 | **19.0** | 1.4 | <0.50 | <0.50 | <0.50 | <0.50 | 5.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/5/00 | 1037-090500-MW18 | **19.0** | 1.4 | <0.50 | <0.50 | <0.50 | <0.50 | 3.4 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/27/01 | 1086-092701-MW18 | **16.0** | 1.5 | <0.50 | <0.50 | <0.50 | <0.50 | 2 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/22/03 | 1199-102203-011 | **16.4** | 1.53 | <1.00 | <1.00 | <0.50 | <0.50 | 1.10 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-022 | **9.21** | 1.04 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/20/09 | 1437-022009-111 | **8.43** | 1.19 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/26/11 | 1566-072611-MW06 | **6.42** | 1.29 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/18/13 | 1699-003012 | **6.30** | <1.00 | 0.820 J | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-19 | 69-79 | 2/16/96 | 7296-0216-MW19 | **9.1** | 0.51 | <0.50 | <0.50 | <0.50 | <0.50 | 1.1 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/96 | 729-81396-MW19 | **12.7** | 0.69 | <0.20 | <0.20 | <0.50 | <0.50 | 1.27 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.25 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/20/96 | 729-112096-MW19 | **10.7** | 0.58 | <0.20 | <0.20 | <0.50 | <0.50 | 1.25 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.22 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/12/99 | 979-081299-MW19-04 | **8.8** | 0.55 | <0.20 | <0.20 | <0.50 | <0.50 | 1.3 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/25/00 | 1037-082500-MW19 | **9.9** | 0.54 | <0.50 | <0.50 | <0.50 | <0.50 | 1.2 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/01 | 1086-092601-MW19 | **8.7** | 0.58 | <0.50 | <0.50 | <0.50 | <0.50 | 0.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/24/02 | 1152-092402-010 | **7.45** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/6/04 | 1246-100604-507 | **7.91** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-019 | **6.28** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-020 (dup) | **5.99** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-107 | **4.43** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/25/11 | 1566-072511-MW03 | **4.05** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/23/17 | MW-19 | **3.43** | 0.609 J | <0.50 | 2.28 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-20 | 20-30 | 2/16/96 | 7296-0216-MW20 | **3.5** | 1.1 | 0.97 | <0.50 | <0.50 | <0.50 | 2.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/16/96 | 7296-0216-MW21 (dup) | **3.5** | 1.1 | 1.0 | <0.50 | <0.50 | <0.50 | 2.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/96 | 729-81396-MW20 | **4.17** | 1.47 | 1.10 | <0.20 | <0.50 | <0.50 | 2.18 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/13/96 | 729-81396-MWB (dup) | **3.43** | 1.25 | 0.97 | <0.20 | <0.50 | <0.50 | 2.01 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 11/20/96 | 729-112096-MW20 | **3.2** | 1.17 | 0.9 | <0.20 | <0.50 | <0.50 | 1.82 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/5/99 | 979-080599-MW20-03 | **2.8** | 0.89 | 0.68 | <0.20 | <0.50 | <0.50 | 0.81 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | <0.30 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/00 | 1037-083000-MW20 | **2.8** | 0.80 | 0.71 | <0.50 | <0.50 | <0.50 | 0.94 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/01 | 1086-092601-MW20 | 2.6 | 0.92 | 0.71 | <0.50 | <0.50 | <0.50 | 0.71 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/4/04 | 1246-100404-506 | 1.72 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-21 | 18-28 | 10/17/96 | 729-1017-102 | <0.20 | <0.20 | <0.20 | <0.20 | <0.50 | <0.50 | 1.34 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.20 | 1.23 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/27/97 | 729-022797-MW21 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.5 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/98 | 922-072898-MW21 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 2.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/99 | 979-081999-MW21-17 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 3.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-23 | 4-14 | 8/19/99 | 979-081999-MW23-18 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 6.2 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/23/00 | 1037-082300-MW23 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 7.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-24 § | 20-30 | 8/19/99 | 979-081999-MW24-16 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/31/00 | 1037-083100-MW24 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/1/01 | 1086-100101-MW24 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/18/02 | 1152-091802-001 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-25 | 60-70 | 9/26/01 | 1086-092601-MW25 | **3.2** | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/3/02 | 1152-100302-016 | 2.61 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/21/03 | 1199-102103-008 | **3.00** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/4/04 | 1246-100404-504 | 2.49 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/14/06 | 1295-041406-013 | 2.70 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-26 | 20-30 | 9/26/01 | 1086-092601-MW26 | **11.0** | 6.1 | 1.8 | <0.50 | <0.50 | <0.50 | 5.6 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 0.79 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/18/02 | 1152-091802-003 | **18.4** | 4.17 | 1.94 | <1.00 | <0.50 | <0.50 | 4.45 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.520 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/18/02 | 1152-091802-004 (dup) | **18.5** | 4.12 | 1.87 | <1.00 | <0.50 | <0.50 | 4.36 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.520 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/21/03 | 1199-102103-009 | **14.9** | 2.82 | 1.43 | <1.00 | <0.50 | <0.50 | 3.28 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/4/04 | 1246-100404-505 | **12.3** | 3.77 | 1.64 | <1.00 | <0.50 | <0.50 | 2.85 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/14/06 | 1295-041406-014 | **13.8** | 4.93 | 2.03 | <1.00 | <0.50 | <0.50 | 2.50 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.410 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/07 | 1368-081907-013 | **8.20** | 2.8 | 1.7 | <1.0 | <0.50 | <0.50 | 0.68 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 0.35 J | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/07 | 1368-081907-014 (dup) | **8.30** | 2.5 | 1.6 | <1.0 | <0.50 | <0.50 | 0.56 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 0.38 J | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-108 | **7.31** | 5.42 | 3.15 | <1.00 | <0.50 | <0.50 | 1.10 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/26/11 | 1566-072611-MW04 | **4.19** | 4.89 | 4.42 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/3/12 | 1566-080312-MW22 | **3.20** | 4.89 | 4.89 | <0.620 | <0.50 | <0.50 | <0.620 | <0.25 | <0.50 | <2.5 | <0.50 | <0.620 | <2.5 | <0.240 | <0.620 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/23/17 | MW-26 | 1.94 | 7.67 | 6.13 | 1.55 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 0.157 J | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-27 | 60-70 | 9/25/01 | 1086-092501-MW27 | **3.4** | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/23/02 | 1152-092302-008 | 2.69 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/20/03 | 1199-102003-001 | **2.85** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/4/04 | 1246-100404-502 | 1.76 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/4/04 | 1246-100404-503 (dup) | 1.84 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-28 | 60-70 | 9/25/01 | 1086-092501-MW28 | 1.90 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/23/02 | 1152-092302-009 | 2.52 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/22/03 | 1199-102203-010 | 2.05 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/4/04 | 1246-100404-501 | 1.58 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-29 | 60-70 | 9/27/01 | 1086-092701-MW29 | 1.10 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/23/02 | 1152-092302-007 | 1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/21/03 | 1199-102103-006 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/7/04 | 1246-100704-512 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-30 | 20-30 | 9/27/01 | 1086-092701-MW30 | **8.80** | 1.0 | <0.50 | <0.50 | <0.50 | <0.50 | 0.96 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/18/02 | 1152-091802-002 | **7.48** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | 1.13 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/21/03 | 1199-102103-007 | **10.0** | 1.07 | <1.00 | <1.00 | <0.50 | <0.50 | 1.41 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/7/04 | 1246-100704-513 | **7.18** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/14/06 | 1295-041406-015 | **7.97** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/19/07 | 1368-081907-015 | **6.90** | 1.2 | 0.80 J | <1.0 | <0.50 | <0.50 | 0.34 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/27/09 | 1437-012709-104 | **5.31** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/26/11 | 1566-072611-MW05 | **5.43** | 1.36 | 1.18 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/15/13 | 1699-003002 | **5.68** | 2.06 | 1.92 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/15/13 | 1699-003003 (dup) | **5.39** | 2.04 | 1.83 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-31 | 60-70 | 9/20/01 | 1086-092001-MW31 | **7.10** | 0.57 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/02 | 1152-091902-006 | **7.31** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/23/03 | 1199-102303-017 | **5.80** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/11/04 | 1246-101104-520 | **5.22** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/19/05 | 1295-101905-502 | **4.77** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/19/05 | 1295-101905-503 (dup) | **4.60** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-024 | **4.55** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-32 | 20-30 | 9/20/01 | 1086-092001-MW32 | **360** | **77** | 5.5 | 0.78 | <0.50 | <0.50 | 14 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 1.1 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/20/01 | 1086-092001-MW132 (dup) | **380** | **77** | 5.5 | 0.78 | <0.50 | <0.50 | 14 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 1.1 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/02 | 1152-091902-005 | **320** | **87.5** | 4.82 | <1.00 | <0.50 | <0.50 | 10.5 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.79 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/21/03 | 1199-102103-005 | **230** | **59.5** | 3.28 | <1.00 | <0.50 | <0.50 | 5.63 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.52 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/11/04 | 1246-101104-521 | **225** | **69.6** | 3.53 | <1.00 | <0.50 | <0.50 | 3.01 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/19/05 | 1295-101905-504 | **204** | **62.3** | 3.15 | <1.00 | <0.50 | <0.50 | 2.76 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/27/06 | 1295-042706-025 | **163** | **63.4** | 2.25 | <1.00 | <0.50 | <0.50 | 1.54 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/20/09 | 1437-022009-113 | **59.6** | **99.9** | 2.16 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/26/11 | 1566-072611-MW08 | **27.0** | **61.4** | 1.39 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/18/13 | 1699-003011 | **11.4** | **59.7** | 1.74 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-33 § | 20-30 | 9/19/01 | 1086-091901-MW33 | 2.60 | 0.760 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/3/02 | 1152-100302-015 | 2.63 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.500 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/24/03 | 1199-102403-018 | 2.35 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/11/04 | 1246-101104-522 | 2.35 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/11/06 | 1295-041106-003 | 1.93 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-34 | 69-78 | 10/29/03 | 1199-102903-023 | **8.02** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | 3.38 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/8/04 | 1246-100804-517 | **6.72** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/12/06 | 1295-041206-008 | **6.96** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/29/06 | 1330-082906-502 | **6.37** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/29/06 | 1330-082906-503 (dup) | **6.40** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/20/07 | 1368-082007-019 | **5.20** | 0.68 J | 0.28 J | <1.0 | <0.50 | <0.50 | 0.27 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/23/09 | 1437-022309-114 | **5.55** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/11 | 1566-072811-MW16 | **4.69** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/23/17 | MW-34 | **3.55** | 0.954 J | 0.547 J | 4.45 | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | 0.32 J | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-35 | 29-38 | 10/29/03 | 1199-102903-022 | **9.20** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | 1.07 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/8/04 | 1246-100804-518 | **8.59** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/8/04 | 1246-100804-519 (dup) | **8.64** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/12/06 | 1295-041206-007 | **10.2** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/29/06 | 1330-082906-504 | **9.06** | 1.03 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/20/07 | 1368-082007-020 | **7.70** | 1.1 | 0.46 J | <1.0 | <0.50 | <0.50 | 0.43 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/23/09 | 1437-022309-115 | **7.10** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/11 | 1566-072811-MW17 | **5.43** | 1.11 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/8/12 | 1566-080812-MW24 | **5.40** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/14/13 | 1699-003001 | **5.90** | 1.07 | 0.820 J | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-36 § | 69-79 | 10/29/03 | 1199-102903-021 | 2.45 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | 17.2 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/6/04 | 1246-100604-508 | 2.60 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/14/06 | 1295-041406-016 | 2.31 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/06 | 1330-083006-506 | 2.08 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-37 § | 30-40 | 10/29/03 | 1199-102903-020 | **11.0** | 1.32 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/6/04 | 1246-100604-509 | **10.8** | 1.51 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/14/06 | 1295-041406-017 | **9.97** | 1.10 | 1.04 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/06 | 1330-083006-505 | **9.79** | 1.22 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-38 | 31-41 | 10/14/04 | 1246-101404-526 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/11/06 | 1295-041106-001 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/06 | 1330-083006-508 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/07 | 1368-081707-010 | 1.20 | 0.91 J | 0.63 J | 0.11 J | <0.50 | <0.50 | 0.64 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 0.14 J | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW14 | 1.40 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/16/13 | 1699-003009 | 1.28 | 1.03 | 0.940 J | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/22/14 | 1699-104-03 | 1.16 | 0.660 J | 0.720 J | <1.00 | <0.50 | <0.50 | 0.510 J | <0.25 | <0.50 | <2.5 | <0.50 | 0.660 J | <2.5 | <0.200 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-39 | 20-30 | 10/14/04 | 1246-101404-525 | <1.00 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/11/06 | 1295-041106-002 | 1.16 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/30/06 | 1330-083006-507 | 1.31 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/07 | 1368-081707-011 | 0.92 J | 0.96 J | 0.28 J | <1.0 | <0.50 | <0.50 | 0.58 J | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 0.14 J | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW15 | 1.31 | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/16/13 | 1699-003010 | 1.63 | 1.08 | 1.01 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/22/14 | 1699-104-04 | 1.09 | 0.870 J | 0.910 J | <1.00 | <0.50 | <0.50 | 0.470 J | <0.25 | <0.50 | <2.5 | <0.50 | 0.770 J | <2.5 | 0.140 J | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-103 | 5-10 | 10/24/97 | (sample number not known) | **4.03** | 2.09 | <1.0 | <1.0 | <0.50 | <0.50 | 2.75 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | **185.0** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 6/23/98 | 864-062398-MW103-002-W | **5.00** | 2.60 | <1.0 | <1.0 | <0.50 | <0.50 | 2.40 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | **210.0** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (sample number not known) | **4.03** | 2.04 | <1.0 | <1.0 | <0.50 | <0.50 | 1.96 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | **40.5** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/24/00 | 1037-082400-MW103 | **3.20** | 1.30 | <0.50 | <0.50 | <0.50 | <0.50 | 1.40 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | **7.4** | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/01 | 1086-091901-MW103 | **4.20** | 1.8 | 0.93 | <0.50 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.50 | <2.5 | 4.2 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/02 | 1152-092602-018 | **3.60** | 1.4 | <1.0 | <1.0 | <0.50 | <0.50 | 1.5 | <0.25 | <0.50 | <2.5 | <0.50 | <1.0 | <2.5 | 1.7 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/8/04 | 1246-100804-514 | **3.25** | 1.38 | 1.43 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.800 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/11 | 1566-072811-MW19 | 1.32 | 1.07 | 3.07 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <1.00 | <2.5 | 0.56 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/22/17 | MW-103 | 0.840 J | 0.723 J | 0.749 J | 0.66 J | <0.50 | <0.50 | <0.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-104 | 15-20 | 8/6/97 | (sample number not known) | **9.06** | 1.39 | <1.0 | <1.0 | <0.50 | <0.50 | 2.17 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **82.2** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/25/97 | (sample number not known) | **9.44** | 1.53 | <1.0 | <1.0 | <0.50 | <0.50 | 2.26 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **76.8** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/24/97 | (sample number not known) | **8.63** | 1.45 | <1.0 | <1.0 | <0.50 | <0.50 | 2.56 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **62.3** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/24/97 | (dup) | **8.60** | 1.48 | <1.0 | <1.0 | <0.50 | <0.50 | 2.68 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **61.5** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 6/23/98 | 864-062398-MW104-003-W | **9.70** | 1.60 | 0.65 | <1.0 | <0.50 | <0.50 | <1.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **25.0** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (sample number not known) | **7.42** | 1.22 | <1.0 | <1.0 | <0.50 | <0.50 | 1.61 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 3.32 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/24/00 | 1037-082400-MW104 | **6.60** | 1.10 | 0.84 | <0.50 | <0.50 | <0.50 | 1.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 0.56 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/01 | 1086-091901-MW104 | **6.40** | 1.50 | 1.20 | <0.50 | <0.50 | <0.50 | 1.60 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/8/04 | 1246-100804-515 | **3.63** | 1.11 | 1.39 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/11 | 1566-072811-MW18 | 1.32 | 1.2 | 3.41 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/22/17 | MW-104 | 0.991 J | 0.899 J | 1.35 | 1.91 | <0.50 | <0.50 | 0.409 J | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-105 | 25-30 | 10/24/97 | (sample number not known) | **7.69** | 1.14 | <1.0 | <1.0 | <0.50 | <0.50 | 1.95 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 6/23/98 | 864-062398-MW105-004-W | **8.80** | 1.20 | 0.62 | <1.0 | <0.50 | <0.50 | 1.60 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (sample number not known) | **6.69** | 1.05 | <1.0 | <1.0 | <0.50 | <0.50 | 1.28 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/24/00 | 1037-082400-MW105 | **5.90** | 0.94 | 0.71 | <0.50 | <0.50 | <0.50 | 1.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/19/01 | 1086-091901-MW105 | **5.20** | 1.10 | 0.97 | <0.50 | <0.50 | <0.50 | 1.30 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/8/04 | 1246-100804-516 | **3.04** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/28/11 | 1566-072811-MW20 | 1.59 | <1.00 | 1.7 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/22/17 | MW-105 | 1.30 | 0.466 J | 0.53 J | 1.58 | <0.50 | <0.50 | 0.415 J | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-106 | 20-25 | 10/23/97 | (sample number not known) | **7.55** | 1.35 | <1.0 | <1.0 | <0.50 | <0.50 | 2.39 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **31.3** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 6/24/98 | 864-062498-MW106-007-W | **9.20** | 1.50 | 0.73 | <1.0 | <0.50 | <0.50 | 2.30 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **16.0** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (sample number not known) | **7.23** | 1.26 | <1.0 | <1.0 | <0.50 | <0.50 | 1.71 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 2.81 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/6/00 | 1037-090600-MW106 | **7.40** | 1.40 | 1.10 | <0.50 | <0.50 | <0.50 | 1.80 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 0.76 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/21/01 | 1086-092101-MW106 | **6.40** | 1.40 | 1.30 | <0.50 | <0.50 | <0.50 | 1.60 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/22/03 | 1199-102203-012 | **4.36** | 1.42 | 2.09 | <1.00 | <0.50 | <0.50 | 1.20 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/12/06 | 1295-041206-006 | 2.22 | 1.43 | 1.96 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |

# TABLE 1
## HISTORICAL SUMMARY OF MONITORING WELL RESULTS (µg/L)

| Well Number | Well Screen Depth (feet) | Sample Date | Sample Number | Trichloroethene (TCE) | cis-1,2-Dichloroethene (cDCE) | trans-1,2-Dichloroethene (tDCE) | Tetrachloroethene (PCE) | 1,1-Dichloroethene (1,1-DCE) | 1,1,1-Trichloroethane (TCA) | 1,1-Dichloroethane (1,1-DCA) | 1,2-Dichloroethane (1,2-DCA) | Chloroethane | Bromomethane | Chloroform | Chloromethane | Methylene Chloride (Dichloromethane) | Benzene | Toluene | Ethylbenzene | Total Xylenes | Naphthalene | *n*-Butylbenzene | 1,2-Dichloro-benzene |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Analyte Type | Chlorinated Ethenes | | | | | Chlorinated Ethanes | | | | Halomethanes | | | | BTEX | | | | VOCs | | |
| | | | ADEC Table C Groundwater-Cleanup Level (CUL) | 2.8 | 36 | 360 | 41 | 280 | 8,000 | 28 | 1.7 | 21,000 | 7.5 | 2.2 | 190 | 110 | 4.6 | 1,100 | 15 | 190 | 1.7 | 1,000 | 300 |
| | | | ADEC CUL Prior to November 2016 Update | 5 | 70 | 100 | 5 | 7 | 200 | 7,300 | 5 | 290 | 51 | 140 | 66 | 5 | 5 | 1,000 | 700 | 10,000 | 730 | 370 | 600 |
| MW-107 | 30-35 | 10/23/97 | (sample number not known) | **6.28** | 1.23 | <1.0 | <1.0 | <0.50 | <0.50 | 2.45 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **8.55** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 6/24/98 | 864-062498-MW107-009-W | **8.90** | 1.40 | 0.54 | <1.0 | <0.50 | <0.50 | 2.50 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **6.5** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (sample number not known) | **7.83** | 1.19 | <1.0 | <1.0 | <0.50 | <0.50 | 1.95 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 1.13 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/7/00 | 1037-090700-MW107 | **8.50** | 1.20 | 0.74 | <0.50 | <0.50 | <0.50 | 2.0 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/21/01 | 1086-092101-MW107 | **7.50** | 1.30 | 0.90 | <0.50 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/22/03 | 1199-102203-013 | **6.75** | 1.19 | 1.19 | <1.00 | <0.50 | <0.50 | 1.06 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/22/03 | 1199-102203-014 (dup) | **6.69** | 1.35 | 1.37 | <1.00 | <0.50 | <0.50 | 1.17 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/12/06 | 1295-041206-005 | **6.88** | 1.06 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/17/07 | 1368-081707-012 | **5.20** | 1.1 | 0.71 J | <1.0 | <0.50 | <0.50 | 0.52 J | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/26/09 | 1437-012609-103 | **4.60** | 1.03 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW13 | **3.85** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/22/17 | MW-107 | 2.20 | 0.784 J | 0.912 J | 4.33 | <0.50 | <0.50 | 0.385 J | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | 0.426 J | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| MW-108 | 40-45 | 10/23/97 | (sample number not known) | **7.64** | 1.25 | <1.0 | <1.0 | <0.50 | <0.50 | 2.57 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | **5.09** | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 6/24/98 | 864-062498-MW108-005-W | **10.0** | 1.40 | <1.0 | <1.0 | <0.50 | <0.50 | 2.40 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | 2.8 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (sample number not known) | **9.12** | 1.17 | <1.0 | <1.0 | <0.50 | <0.50 | 1.96 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 8/11/99 | (dup) | **8.78** | 1.11 | <1.0 | <1.0 | <0.50 | <0.50 | 1.79 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <1.0 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/6/00 | 1037-090600-MW108 | **10.0** | 1.20 | <0.50 | <0.50 | <0.50 | <0.50 | 2.10 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/6/00 | 1037-090600-MW200 (dup) | **10.0** | 1.10 | <0.50 | <0.50 | <0.50 | <0.50 | 2.10 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/28/01 | 1086-092801-MW108 | **8.70** | 1.3 | 0.56 | <0.50 | <0.50 | <0.50 | 1.8 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/28/01 | 1086-092801-MW118 (dup) | **8.60** | 1.3 | 0.52 | <0.50 | <0.50 | <0.50 | 1.7 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 9/26/02 | 1152-092602-017 | **8.00** | 1.1 | <1.0 | <1.0 | <0.50 | <0.50 | 1.5 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.50 | <1.0 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 10/14/04 | 1246-101404-527 | **6.38** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | 1.03 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 4/12/06 | 1295-041206-004 | **7.00** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/26/09 | 1437-012609-101 | **4.81** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 1/26/09 | 1437-012609-102 (dup) | **4.83** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW11 | **4.59** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 7/27/11 | 1566-072711-MW12 (dup) | **4.52** | <1.00 | <1.00 | <1.00 | <0.50 | <0.50 | <1.00 | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.400 | <1.00 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| | | 2/22/17 | MW-108 | 2.36 | 0.694 J | 0.583 J | 4.9 | <0.50 | <0.50 | 0.357 J | <0.25 | <0.50 | <2.5 | <0.50 | <0.5 J* | <2.5 | <0.20 | <0.50 | <0.50 | <1.5 | <0.50 | <0.50 | <0.50 |
| USGS 505 § | 15 | 8/18/99 | 979-081899-USGS505-14 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |
| | | 9/11/00 | 1037-091100-USGS505 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | <0.50 | 1.7 B | <0.50 | <0.50 | <0.50 | <1.0 | <0.50 | <0.50 | <0.50 |

Notes:
- Only analytes historically detected are listed.
- – Analyte not quantitated.
- **Bold** Concentration exceeds the ADEC Table C Groundwater-Cleanup Level for that analyte.
- < Analyte not reported above given limit of quantitation (LOQ).
- B Analyte also reported in laboratory blank or trip blank.
- J Estimated concentration. Result was below LOQ.
- D Secondary dilution required for result to fall within instrument calibration range.
- (dup) Field duplicate of preceding sample.
- § Well no longer exists at the site.

# TABLE 2
## 2016 MONITORING WELL REPAIR SUMMARY

| Monitoring Well | Well Location | Date Installed | Well Depth (ft.) | Monument type | Screen Depth from logs (ft. bgs) | 2016 Repairs | Well Access and Repair Notes | Observation Notes |
|---|---|---|---|---|---|---|---|---|
| **South Side of Richardson Highway** | | | | | | | | |
| MW-4 | 1491 Richardson Highway - Walsky property near Ensley Road | 11/9/1994 | 76.59 | Stick-up | 70-80 | Removed old concrete base, leveled, set new concrete base, trimmed PVC. | See photo. Can access via LuAnn Rd. Key possibly not necessary. Permission granted by Buck Walsky (907-632-4963). | Monument is missing a prong to hold cap in place. Loose, but secure when locked. |
| MW-5 | 1491 Richardson Highway - Walsky property near Ensley Road | 11/10/1994 | 25.67 | Stick-up | 20-30 | Removed old concrete base, leveled, set new concrete base, trimmed PVC. | See photo. Can access via LuAnn Rd. Key possibly not necessary. Permission granted by Buck Walsky (907-632-4963). | -- |
| MW-31 | 1491 Richardson Highway - Walsky property near Ensley Road | 1/2/2001 | 71.15 | Stick-up | 59.69-68.59 | Removed old concrete base, leveled, set new concrete base, replaced lock, relabeled monument. | See photo. Can access via LuAnn Rd. Key possibly not necessary. Permission granted by Buck Walsky (907-632-4963). | Frost-jacked about 1 foot out of ground. |
| MW-32 | 1491 Richardson Highway - Walsky property near Ensley Road | 1/4/2001 | 21.69 | Stick-up | 20-30 | Re-attached upper 3 feet of PVC, trimmed PVC, new monument, new lock. | Threaded PVC back into place. Installed new monument, lock. | PVC and monument appear to have been removed from well. |
| MW-17 | 1455 Richardson Highway - Mansfield property | 2/9/1996 | 29.29 | Stick-up | 20-30 | -- | No repairs necessary. | Appears to be in good condition. |
| MW-27 | 1455 Richardson Highway - Mansfield property | 2/9/1996 | 72.15 | Stick-up | 19.81-29.56 | Leveled casing, packed pea gravel under slightly frost-jacked base. | See Photo. Pending owner contact. | -- |
| MW-29 | 1455 Richardson Highway - Mansfield property | 12/29/2000 | 72.13 | Stick-up | 60-68.97 | Cut casing at the bend, replaced damaged section and secured with sleeve and adhesive. | Pending owner contact. No Photo. | PVC was bent and compacted inside casing. |
| **North Side of Richardson Highway** | | | | | | | | |
| MW-12 † | Near MW-11 on Smithson St & Herbert | 11/8/1995 | -- | Unknown | -- | Removed casing and PVC from roadway, filled with grout, capped with bentonite chips and pea gravel | Well was decommissioned in 2002. The monument, casing, and bentonite seal has been frost-jacked into the roadway. No Photo. | See photos. |
| MW-16A | 1430 Richardson Highway - Grieme property | 8/14/2007 | 23.40 | Stick-up | 10.35-19.82 | Removed old concrete base, leveled, set new concrete base, replaced lock. | See Photo. Monitoring well is near the driveway by a large "no trespassing sign". Permission granted by Christine Guzman (907-460-2049). | -- |
| MW-18 | 930 Ensley Road - Palmer property | 2/9/1996 | 15.10 | Stick-up | 19.79-29.5 | Dug out below cement base, leveled, filled with pea gravel and grout. | See Photo. Pending owner contact. | Well not accessible via truck due to overgrown brush and swamp. |

Notes: Monitoring well repairs were conducted with Homestead Drilling

† monitoring well no longer exists

-- not applicable

ft. feet

bgs below ground surface

# TABLE 3
## 2017 GROUNDWATER MONITORING EVENT SUMMARY (µg/L)

| Analyte Type | Analyte | ADEC CUL | MW-5 | MW-6 § | MW-19 | MW-26 | MW-34 | MW-103 | MW-104 | MW-105 | MW-107 | MW-108 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Chlorinated Ethenes | Tetrachloroethene (PCE) | 41 | 0.979J | 0.947J | 2.28 | 1.55 | 4.45 | 0.66J | 1.91 | 1.58 | 4.33 | 4.9 |
| | Trichloroethene (TCE) | 2.8 | 1.53 | 1.48 | **3.43** | 1.94 | **3.55** | 0.84J | 0.991J | 1.3 | 2.2 | 2.36 |
| | cis-1,2-Dichloroethene (cDCE) | 36 | 2.05 | 2.02 | 0.609J | 7.67 | 0.954J | 0.723J | 0.899J | 0.466J | 0.784J | 0.694J |
| | trans-1,2-Dichloroethene (tDCE) | 360 | 4.41 | 4.43 | <0.5 | 6.13 | 0.547J | 0.749J | 1.35 | 0.53J | 0.912J | 0.583J |
| | 1,1-Dichloroethene (1,1-DCE) | 280 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Vinyl chloride | **0.19** | **<0.075** | **<0.075** | **<0.075** | **<0.075** | **<0.075** | **<0.075** | **<0.075** | **<0.075** | **<0.075** | **<0.075** |
| Chlorinated Ethanes | 1,1,1-Trichloroethane (TCA) | 8000 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,1,1,2-Tetrachloroethane | 5.7 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | 1,1,2,2-Tetrachloroethane | 0.76 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | 1,1,2-Trichloroethane | 0.41 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| | 1,1-Dichloroethane (1,1-DCA) | 28 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | 0.409J | 0.415J | 0.385J | 0.357J |
| | 1,2-Dichloroethane (1,2-DCA) | 1.7 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| Halomethanes | Bromomethane | 7.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| | Bromodichloromethane | 1.3 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | Chloroform | 2.2 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Chloromethane | 190 | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* | <0.5 J* |
| | Dichlorodifluoromethane | 200 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Methylene Chloride (Dichloromethane) | 110 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 | <2.5 |
| BTEX | Benzene | 4.6 | <0.2 | <0.2 | <0.2 | 0.157J | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 | <0.2 |
| | Toluene | 1100 | <0.5 | <0.5 | <0.5 | <0.5 | 0.32J | <0.5 | <0.5 | <0.5 | 0.426J | <0.5 |
| | Ethylbenzene | 15 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | o-Xylene | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | P & M -Xylene | 190 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 | <1 |
| | Total Xylenes | 190 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 | <1.5 |
| VOCs | 1,1-Dichloropropene | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,2,3-Trichlorobenzene | 7 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,2,3-Trichloropropane | **0.0075** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** |
| | 1,2,4-Trichlorobenzene | 4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,2,4-Trimethylbenzene | 15 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,2-Dibromo-3-chloropropane | — | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | 1,2-Dibromoethane | **0.075** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** | **<0.5** |
| | 1,2-Dichlorobenzene | 300 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,2-Dichloropropane | 4.4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,3,5-Trimethylbenzene | 120 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,3-Dichlorobenzene | 300 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 1,3-Dichloropropane | — | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | 1,4-Dichlorobenzene | 4.8 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | 2,2-Dichloropropane | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 2-Butanone (MEK) | 5600 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | 2-Chlorotoluene | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 2-Hexanone | 38 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |

**TABLE 3**
**2017 GROUNDWATER MONITORING EVENT SUMMARY (µg/L)**

| Analyte Type | Analyte | ADEC CUL | MW-5 | MW-6 § | MW-19 | MW-26 | MW-34 | MW-103 | MW-104 | MW-105 | MW-107 | MW-108 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| VOCs continued | 4-Chlorotoluene | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | 4-Methyl-2-pentanone (MIBK) | 6300 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | Bromobenzene | 62 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Bromochloromethane | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Bromoform | 33 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Carbon disulfide | 810 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | Carbon tetrachloride | 4.6 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Chlorobenzene | 78 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | Chloroethane | 21000 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | cis-1,3-Dichloropropene | 4.7 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | Dibromochloromethane | 8.7 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 | <0.25 |
| | Dibromomethane | 8.3 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Hexachlorobutadiene | 1.4 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Isopropylbenzene | 450 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Methyl-t-butyl ether | 140 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | Naphthalene | 1.7 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | n-Butylbenzene | 1000 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | n-Propylbenzene | 660 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | p-Isopropyltoluene | — | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | sec-Butylbenzene | 2000 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Styrene | 1200 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | tert-Butylbenzene | 690 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | trans-1,3-Dichloropropene | 4.7 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Trichlorofluoromethane | 5200 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 | <0.5 |
| | Trichlorotrifluoroethane | 55000 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |
| | Vinyl acetate | 410 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 | <5 |

Notes:

| | |
|---|---|
| ADEC CUL | Alaska Department of Environmental Conservation (ADEC) Groundwater-Cleanup Levels (CULs) from 18 AAC 75.345, Table C. |
| µg/L | micrograms per liter |
| § | Sample MW-6 is a field-duplicate sample pair collected at MW-5. |
| — | ADEC CULs not established. |
| < | Analyte not detected; listed as less than the limit of detection (LOD) unless otherwise flagged due to quality-control failures. |
| J | Estimated concentration, detected greater than the detection limit (DL) and less than the limit of quantitation (LOQ). Flag applied by the laboratory. |
| **Bold** | Reporting limit (LOD) or detected concentration exceeds regulatory limit. |
| VOCs | volatile organic compounds |

**TABLE 4**
**TCE CONCENTRATIONS AND TRENDS DETERMINED IN 2017**

| MW Location | Well Screen Depth (feet) | Latest TCE Concentration (µg/L) † | Latest Sample Date | Sampling Events ± | Set Sampling Frequency | Long-term Trend | Comments |
|---|---|---|---|---|---|---|---|
| MW-4 | 70-80 | 1.57 | 10/7/2004 | 10 | None set | Not assessed | -- |
| MW-5 | 20-30 | 1.53 / 1.48 | 2/23/2017 | 17 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-9 | 20-30 | 1.5 | 9/26/2002 | 9 | None set | Not assessed | -- |
| MW-13 | 40-50 | 1.10 / 1.32 | 9/22/2014 | 24 | Annual § | Stable | TCE increased between 1995-2001, reaching a maximum of 5.63 µg/L in 2004. In 2014, long-term trends changed from no trend to stable. |
| MW-14 | 20-30 | **3.53** | 4/13/2006 | 13 | None set | Not assessed | -- |
| MW-15A | 70-75 | **2.87** | 9/22/2014 | 5 | Annual ±§ | No trend | 2013 was first year with enough data to assess trends. |
| MW-16A | 10-20 | **3.81** | 9/22/2014 | 5 | 5 Years | Decreasing | 2013 is first year with enough data to assess trends. |
| MW-17 | 20-30 | **14.8** | 10/15/2013 | 18 | 2 Years § | Decreasing | TCE concentrations have decreased from a maximum of 66 µg/L during the first sample event in 1996. |
| MW-18 | 20-30 | **6.30** | 10/18/2013 | 14 | 2 Years § | Decreasing | TCE concentrations have decreased from a maximum of 31 µg/L during the first sample event in 1996. |
| MW-19 | 69-79 | **3.43** | 2/23/2017 | 13 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-20 | 20-30 | 1.72 | 10/4/2004 | 9 | None set | Not assessed | -- |
| MW-21 | 18-28 | <0.50 | 8/19/1999 | 4 | None set | Not assessed | -- |
| MW-23 | 4-14 | <0.50 | 8/23/2000 | 2 | None set | Not assessed | -- |
| MW-25 | 60-70 | 2.70 | 4/14/2006 | 5 | None set | Not assessed | -- |
| MW-26 | 20-30 | 1.94 | 2/23/2017 | 12 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2012. |
| MW-27 | 60-70 | 1.76 / 1.84 | 10/4/2004 | 5 | None set | Not assessed | -- |
| MW-28 | 60-70 | 1.58 | 10/4/2004 | 4 | None set | Not assessed | -- |
| MW-29 | 60-70 | <1.00 | 10/7/2004 | 4 | None set | Not assessed | -- |
| MW-30 | 20-30 | **5.68** | 10/15/2013 | 10 | 2 Years § | Decreasing | TCE concentrations have decreased from a maximum of 10 µg/L in 2003. |
| MW-31 | 60-70 | **4.55** | 4/27/2006 | 7 | None set | Not assessed | -- |
| MW-32 | 20-30 | **11.4** | 10/18/2013 | 10 | 2 Years § | Decreasing | TCE concentrations have decreased from a maximum of 380 µg/L in 2001. |
| MW-34 | 69-78 | **3.55** | 2/23/2017 | 9 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-35 | 29-38 | **5.90** | 10/14/2013 | 10 | 2 Years § | Decreasing | TCE concentrations have decreased since 2006 after reaching a maximum of 10.2 µg/L. |
| MW-38 | 31-41 | 1.16 | 9/22/2014 | 7 | Annual § | Probably increasing | First detection in 2007. Long-term trend changed from increasing to no trend with addition of 2013 data; changed from no trend to probably increasing in 2014. |
| MW-39 | 20-30 | 1.09 | 9/22/2014 | 7 | Annual § | No trend | Long-term trends changed from no trend to probably increasing with addition of 2013 data. In 2014, reverted to no trend. |

## TABLE 4
## TCE CONCENTRATIONS AND TRENDS DETERMINED IN 2017

| MW Location | Well Screen Depth (feet) | Latest TCE Concentration (µg/L) † | Latest Sample Date | Sampling Events ± | Set Sampling Frequency | Long-term Trend | Comments |
|---|---|---|---|---|---|---|---|
| MW-103 | 5-10 | 0.840 J | 2/22/2017 | 9 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-104 | 15-20 | 0.991 J | 2/22/2017 | 11 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-105 | 25-30 | 1.30 | 2/22/2017 | 8 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-106 | 20-25 | 2.22 | 4/12/2006 | 7 | None set | Not assessed | -- |
| MW-107 | 30-35 | 2.20 | 2/22/2017 | 12 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |
| MW-108 | 40-45 | 2.36 | 2/22/2017 | 16 | 5 Years | Decreasing | Long-term trend is the same as last reported in 2011. |

Notes:
Sampling frequency last set in our 2014 Long-Term Groundwater Monitoring Report submitted August, 2015.

**Bold** Concentration exceeds the regulatory limit for that analyte.

< Analyte not reported above limit of quantitation (LOQ) shown.

J Estimated concentration, result was below LOQ.

† Field duplicate sample pairs are shown where more than one TCE concentration is reported.

± The number of sampling events included for trend analysis (samples collected including field duplicates).

§ Latest sampling event has surpassed the recommended sampling frequency.

ADNR Alaska Department of Natural Resources

µg/L micrograms per liter

TCE Trichloroethene

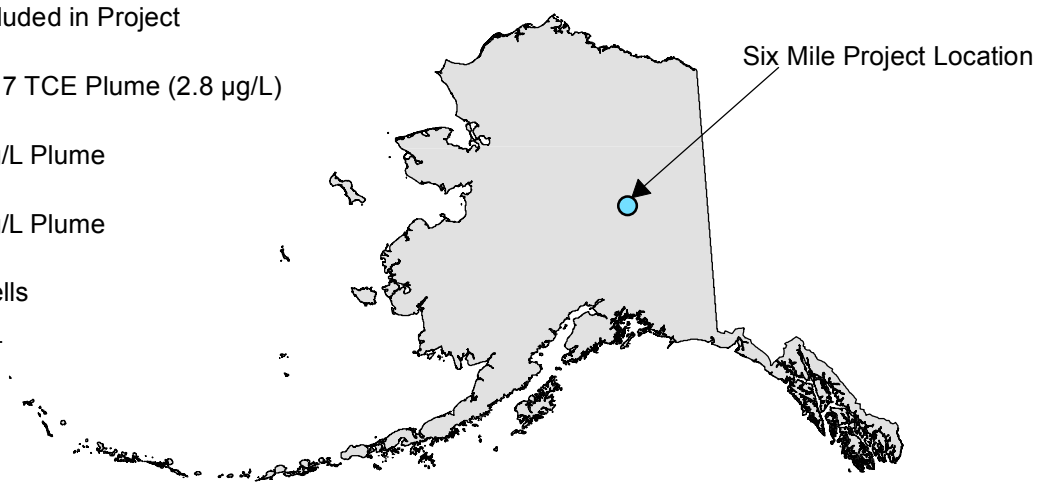
MW Monitoring well

MW-11
MW-12
MW-39
MW-38
MW-14
MW-13
MW-106
MW-107
MW-108
MW-103
MW-104
MW-105
MW-34
MW-35
MW-15
MW-16
MW-15A
MW-16A
MW-36
MW-37
MW-25
MW-26
MW-19
MW-20
MW-17
MW-27
MW-18
MW-28
MW-29
MW-30
MW-33
MW-4
MW-5
MW-31
MW-32
MW-6
MW-7
MW-3
MW-8
MW-9
MW-23
MW-10
MW-1
MW-2
MW-24
OLD RICHARDSON HIGHWAY
RICHARDSON HIGHWAY
N

**LEGEND**

- Properties Included in Project
- Estimated 2017 TCE Plume (2.8 µg/L)
- Historical 1 µg/L Plume
- Historical 5 µg/L Plume
- Monitoring Wells

*All locations are approximate.
*Plume extent is approximate.




Map adapted from aerial imagery provided by Pictometry International Corporation, 2012.

0 500 1,000 1,500

Feet

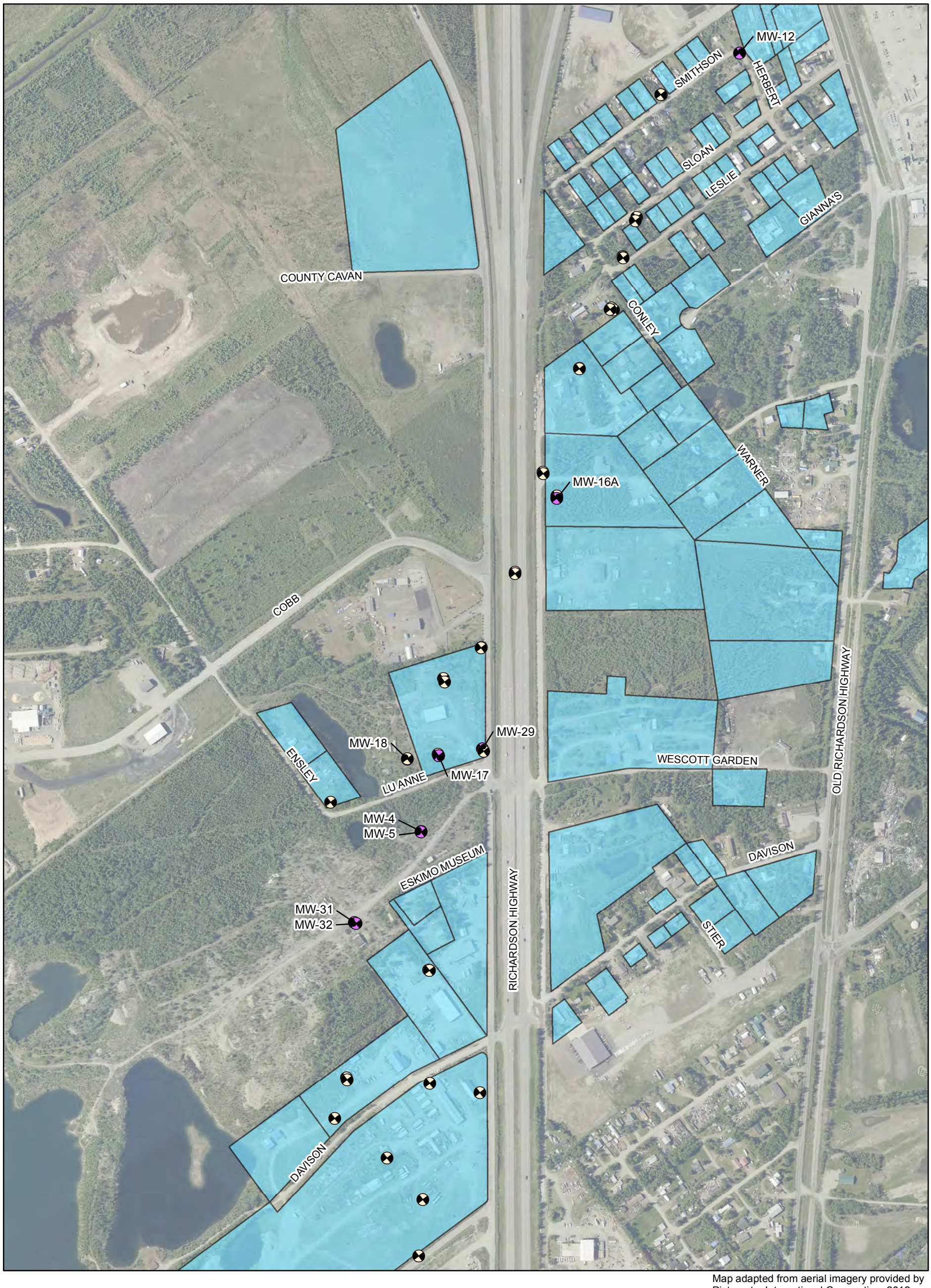
2017 Monitoring Well Report
Six Mile Richardson Highway
Fairbanks, Alaska

**VICINITY MAP**

July 2017 31-1-11843-003

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 1**




Map adapted from aerial imagery provided by Pictometry International Corporation, 2012.

**LEGEND**

**Monitoring Well**

- Good Condition in 2016
- Repaired in 2016
- Properties Included in Project

*All locations are approximate.

N

0 500 1,000

Feet

2017 Monitoring Well Report
Six Mile Richardson Highway
Fairbanks, Alaska

**MONITORING WELLS' CONDITION, 2016**

July 2017 31-1-11843-003

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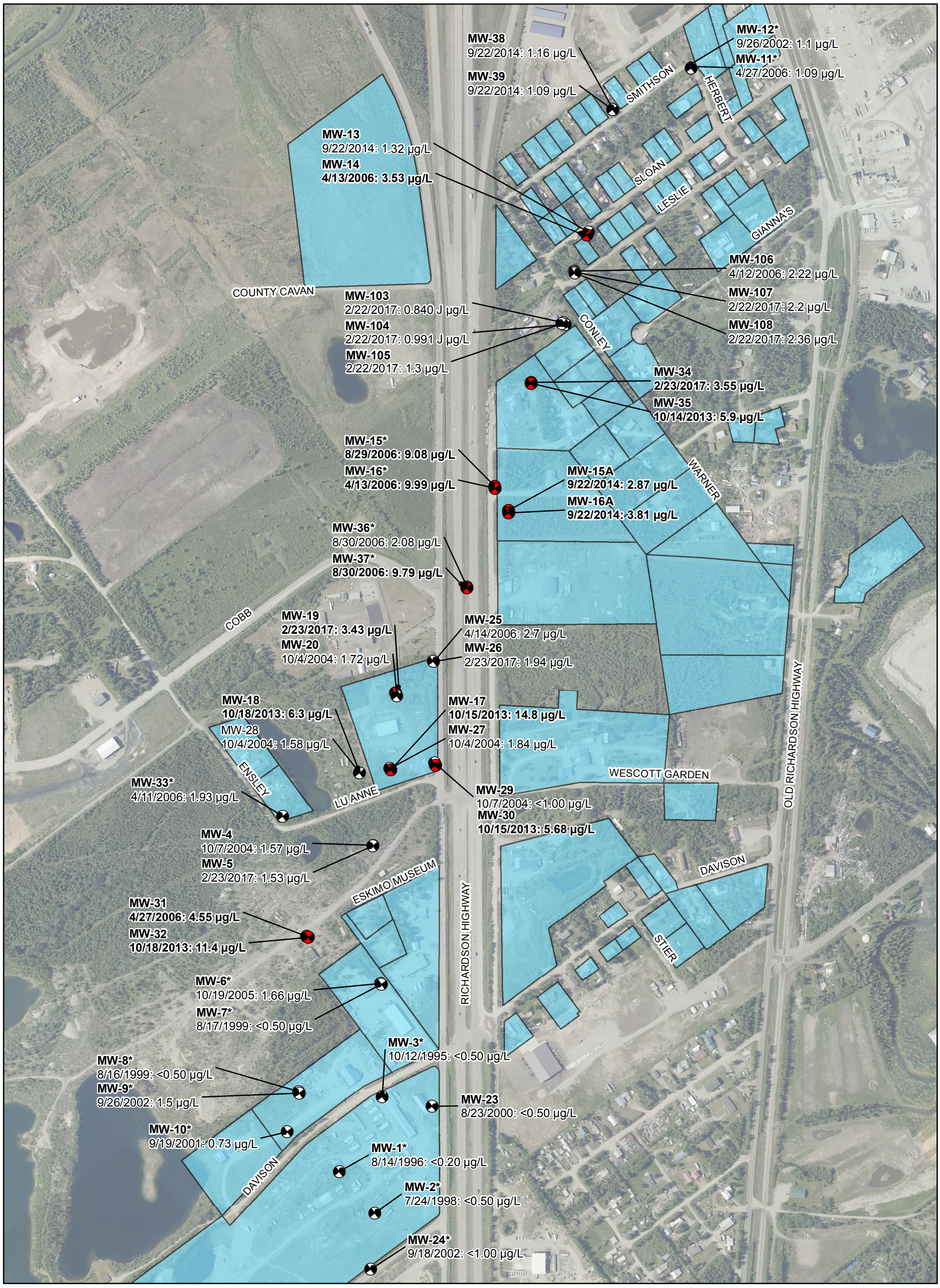
**Figure 2**




**LEGEND**

Properties Included in Project

**Exceeds Cleanup Level**

No

Yes

**Monitoring Well**
Date Sampled: Result Below Cleanup Level
**Date Sampled: Result Above Cleanup Level**

Notes:
Nine of the monitoring wells depicted here no longer exist at the site, indicated with an asterix (*).

µg/L: microgram per liter
J: estimated concentration

All locations are approximate.

N

0 500 1,000

Feet

Map adapted from aerial imagery provided by Pictometry International Corporation, 2012.

2017 Monitoring Well Report
Six Mile Richardson Highway
Fairbanks, Alaska

**MONITORING WELL SAMPLE RESULTS**

July 2017 31-1-11843-003

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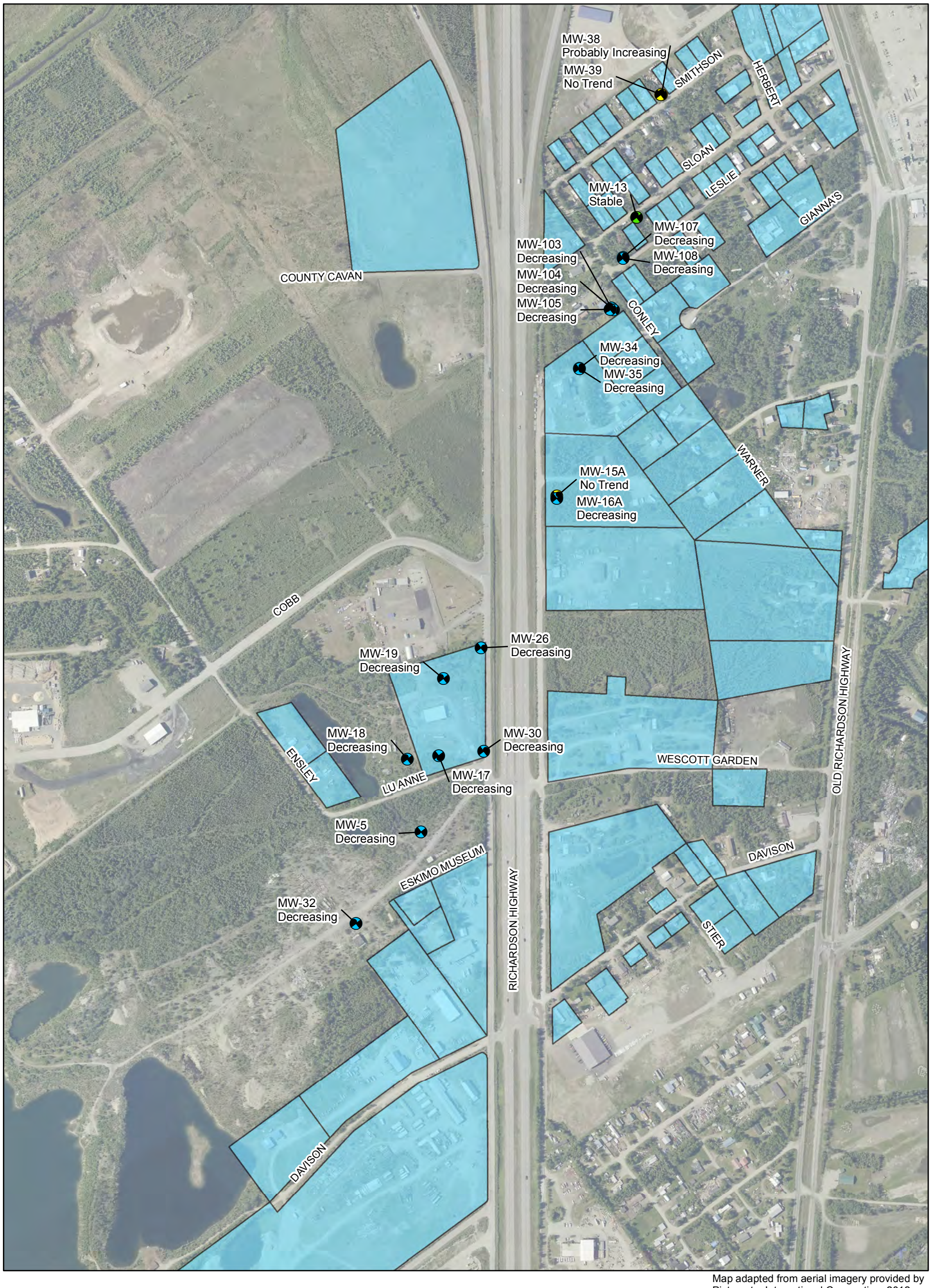
**Figure 3**




Map adapted from aerial imagery provided by Pictometry International Corporation, 2012.

**LEGEND**

**TCE Concentration Trend**

- Decreasing
- Probably Increasing
- Stable
- No Trend
- Properties Included in Project

Notes:
Trends have been calculated for the nineteen monitoring wells depicted here.

*All locations are approximate.

N

0 500 1,000

Feet

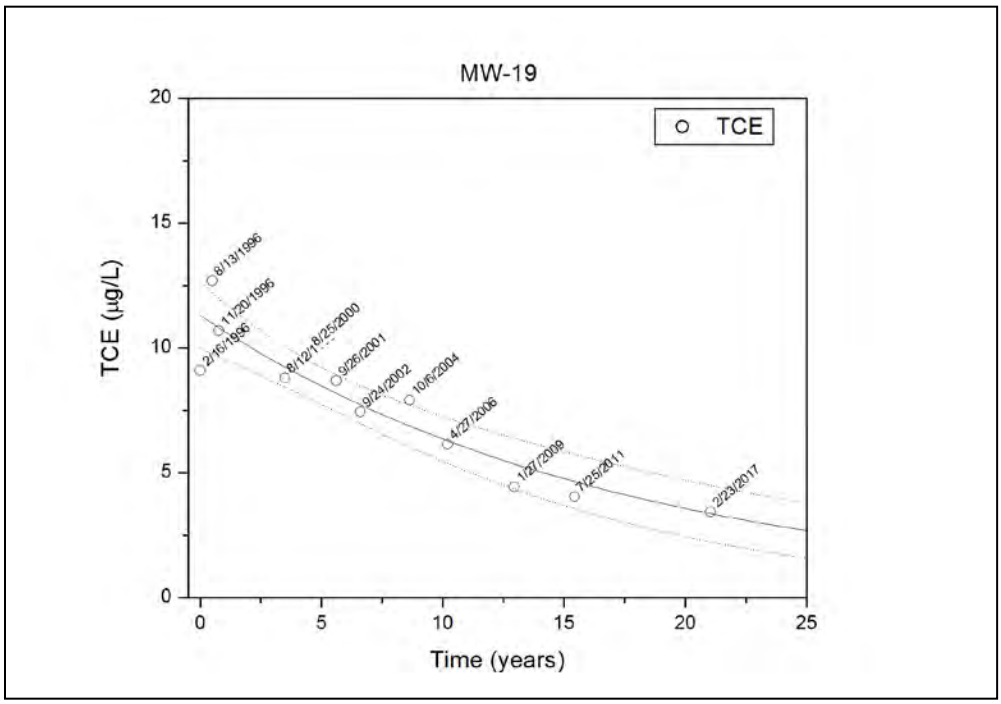
2017 Monitoring Well Report
Six Mile Richardson Highway
Fairbanks, Alaska

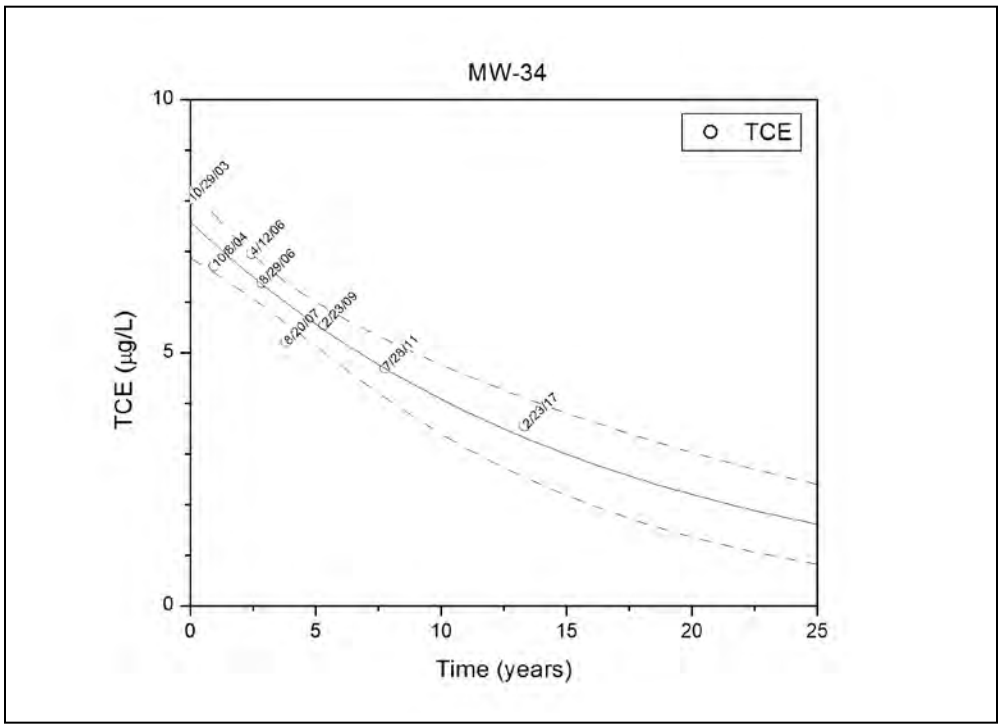
## MONITORING WELL TRENDS

July 2017 31-1-11843-003

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 4**



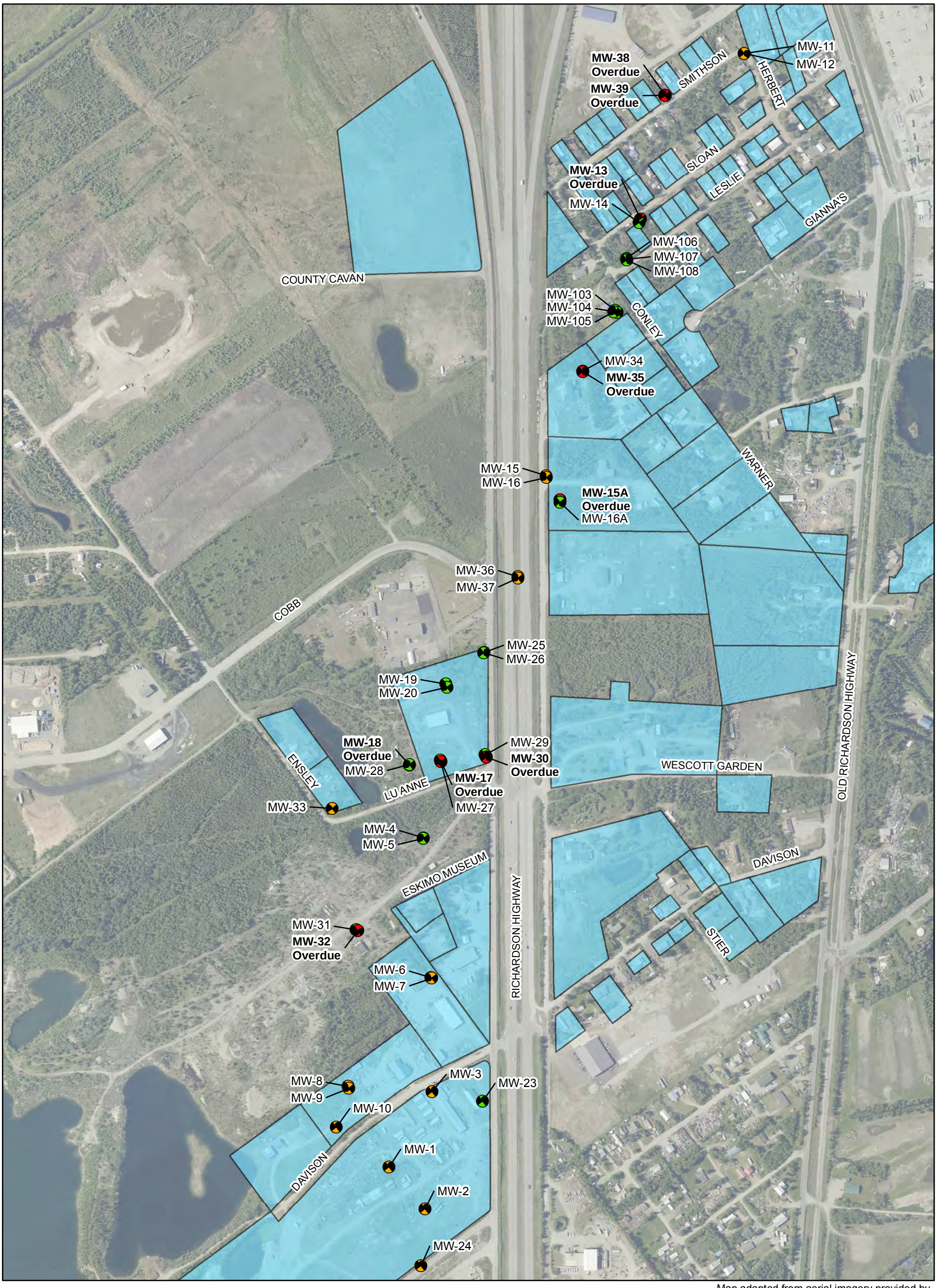

2017 Monitoring Well Report
Six Mile Richardson Highway
Fairbanks, Alaska

**TCE CONCENTRATION VERSUS TIME AND NONLINEAR REGRESSION RESULTS MW-19 AND MW-34**

July 2017 31-1-11843-003

**SHANNON & WILSON, INC.**
Geotechnical & Environmental Consultants

**Figure 5**




Map adapted from aerial imagery provided by Pictometry International Corporation, 2012.

**LEGEND**

Properties Included in Project

**Monitoring Well Status**

- Decommissioned
- On Schedule
- **Overdue for sampling**

*All locations are approximate.

N

0 500 1,000

Feet

2017 Monitoring Well Report
Six Mile Richardson Highway
Fairbanks, Alaska

**MONITORING WELL SAMPLING STATUS**

July 2017 31-1-11843-003

SHANNON & WILSON, INC. GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

**Figure 6**

# APPENDIX A

## FIELD NOTES
## (MONITORING WELL SAMPLING AND REPAIR)

# FIELD ACTIVITIES DAILY LOG

Date 2/21/17
Sheet 1 of 5
Project No. 31-1-11843-002

Project Name: Six Mile Village Groundwater Sampling
Field activity subject: Groundwater sampling
Description of daily activities and events:

13:00 - APW departed the SWI office for the North side of Six Mile Village.

13:20 - APW arrived at the parcel containing MW-108 and MW-107. APW proceeded to search for the flushmounts with a metal detector.

13:40 - APW located MW-107 and MW-108 and proceeded to remove snow from the area.

14:00 - SYR arrived and aided APW with uncovering MW-107 and MW-108.

14:20 - APW and SYR went to Bright Electric to locate MW-34.

14:30 - APW and SYR spoke to a young man on the property claiming to be the owners son. He directed us to the general location of MW-34. APW and SYR searched for MW-34 but abundant metal debris on the property resulted in numerous false hits.

16:00 - APW and SYR located MW-34 and proceeded to remove the snow cover.

16:30 - APW and SYR departed the site and returned to the office.

Visitors on site: N/A

Changes from plans/specifications and other special orders and important decisions:
None

Weather conditions: -5°F Cloudy

Important telephone calls: N/A

Personnel on site: APW, SYR
Signature: Adam Wyborny Date: 2/21/17

# FIELD ACTIVITIES DAILY LOG

Date 2/22/17
Sheet 2 of 5
Project No. 31-1-11843-002

Project Name: Six Mile Village Groundwater Sampling.
Field activity subject: Groundwater sampling
Description of daily activities and events:

09:15 - APW departed the SWI office for the North side of Six Mile Village. SYR followed in a seperate vehicle. anticipating a necessary departure for other obligations.

09:45 - APW and SYR arrived at MW-108 and prepared equipment for sampling. SMH stopped by after her residential sampling appointment.

10:30 - SYR and SMH departed the site. APW remained to sample MW-108. APW was forced to troubleshoot the proactive pump and identified an issue with the controller. The issue was resolved and sampling resumed.

11:45 - APW collected sample "MW-108." SYR returned to the site.

12:24 - APW and SYR collected sample "MW-107" and treated the purge water.

12:40 - Lunch Break

13:30 - APW and SYR arrived at 869 Copley Ave. and met with Muriel Denny. Mrs. Denny directed us to the well cluster. APW and SYR began removing snow from the area and moving sampling equipment. SYR was sent back to the office to retrieve a well key.

15:42 - APW and SYR collected sample "MW-104"

Visitors on site: None

Changes from plans/specifications and other special orders and important decisions:

None

Weather conditions: Overcast with light snow, -1 °F

Important telephone calls: N/A

Personnel on site: APW, SYR

Signature: Adam Wyborny Date: 2/22/17

# FIELD ACTIVITIES DAILY LOG

Date 2/22/17
Sheet 3 of 5
Project No. 31-1-11843-002

Project Name: Six Mile Village
Field activity subject: Groundwater sampling
Description of daily activities and events:

16:15 - APW and SYR collected sample "MW-103."

16:47 - APW and SYR collected sample "MW-105."

17:00 - APW and SYR packed up the sampling equipment and departed the site for the office.

Visitors on site: None

Changes from plans/specifications and other special orders and important decisions:

None

Weather conditions: Overcast with light snow, -1°F

Important telephone calls: N/A

Personnel on site: APW, SYR

Signature: Adam Wyman Date: 2/22/17

# FIELD ACTIVITIES DAILY LOG

Date 2/23/17
Sheet 4 of 5
Project No. 31-1-11843-002

Project Name: Six Mile Village
Field activity subject: Groundwater sampling
Description of daily activities and events:

09:30 - APW departed the office for Bright Electric.

10:00 - APW arrived at Bright Electric and began clearing a path to MW-34. Equipment was moved to the location of MW-34 and purging commenced.

11:15 - APW collected sample "MW-34" and treated the purge water.

12:00 - Lunch Break, SYR arrives.

13:15 - APW and SYR arrive at the Walsky property just off of the Richardson Hwy. The parcel was large and unplowed so the well proved difficult to locate. Once the well was located APW and SYR dug a path and relocated sampling equipment.

14:44 - APW and SYR collected sample "MW-5" and field-duplicate sample "MW-6."

15:10 - APW and SYR packed the sampling equipment offsite and treated the purge water.

15:30 - APW and SYR arrived at Craig Mansfield's property and located MW-26. A path was cleared and sampling equipment was moved into position.

16:13 - APW collected sample "MW-26" while SYR located MW-19. APW treated the purge water while SYR began clearing a Path to MW-19.

Visitors on site: None

Changes from plans/specifications and other special orders and important decisions:

None

Weather conditions: Overcast with snow, 10°F

Important telephone calls: None

Personnel on site: APW, SYR

Signature: Adam Wyeming Date: 2/23/17

# FIELD ACTIVITIES DAILY LOG

Date 2/23/17
Sheet 5 of 5
Project No. 31-1-11843-002

Project Name: Six Mile Village
Field activity subject: Groundwater sampling
Description of daily activities and events:

16:40 - APW and SYR cleared a path to MW-19 and moved sampling equipment.

17:30 - APW and SYR collected sample "MW-19".

17:50 - APW and SYR treated the purge water and packed up sampling equipment. Departed the site for the office.

18:20 - APW and SYR arrived at the office and stored the samples.

Visitors on site: None

Changes from plans/specifications and other special orders and important decisions:

None

Weather conditions: Overcast with snow, 19°F

Important telephone calls: None

Personnel on site: APW, SYR

Signature: Adam Wyhrwot Date: 2/23/17

# FIELD ACTIVITIES DAILY LOG

Date 6/8/2016

Sheet 1 of 1

Project No. 1699-304

Project Name: Six Mile Richardson Highway Monitoring Well Repairs

Field Activity Subject: Monitoring Well Repairs

Description of daily activities and events:

0800: Pack supplies, leave office

0900: Arrive at Walsky property (1491 Richardson Highway)

0930: Homestead Drilling arrives- Carl & Darin

0945: Safety meeting

1000: Begin repairs on MW-5: lift casing, remove old cement, level old casing, set new concrete, and trim PVC casing. Measurements: 0.71ft (MW-5) and 0.43 ft (MW-5(2)). Relabeled casing with MW-5.

1015: Begin repairs on MW-4: lift casing, remove old cement, level old casing, set new concrete, and trim PVC casing. Measurements: 0.70 ft (MW-4) and 0.22 ft (MW-4(2)). Relabeled casing with MW-4.

1045: Begin repairs on MW-32: monument missing, top portion of well casing is unscrewed and on the ground near well. Screwed casing back on, replaced cap, replaced monument, added lock.

1050: Begin repairs on MW-31: lift casing, remove old cement, level old casing, set new concrete, and trim PVC casing. Measurements: 0.48 ft.

1115: Begin repairs on MW-29: PVC is bent at the threads roughly 2 feet down. Will need to return on 6/9 with different tools to complete repair.

1130: MW-17 does not appear to need repairs. MW-27 is slightly frost jacked. Darin and Carl repacked surrounding ground; casing is not loose.

1145: MW-18 is slightly jacked and loose. Cannot fit a truck down alley; releveled casing, filled surrounding with pea gravel. Return 6/9 to apply grout.

1215: Begin repairs on MW-16A: lift casing, remove old cement, level old casing, set new concrete.

1300: Begin repairs on MW-12: Set up traffic cones and signs, dug around casing and PVC. Drillers returning to town to get stronger cable.

1415: Resume work on MW-12: Drill holes in casing, attach cable, and lift out. Metal casing was approx. 0.95 ft. Repeat process to remove PVC. Removed in two sections (clogged with debris). Measurements: 20.35 ft lower section, 4.11 ft upper section. Fill hole with grout, cap with bentonite chips and pea gravel.

1515: clean up site, finish notes, return to office.

Visitors on site: Homestead Drilling crew: Carl Brockway (Master), Darin (Driller)

Changes from plans/specifications and other special orders and important decisions: None.

Weather conditions: ~60F, partly cloudy, scattered showers.

Important telephone calls: None.

Personnel on site: Tiffany Green

Signature: Date: 6/10/16

*Rev. 4-13-15*

# FIELD ACTIVITIES DAILY LOG

Date 6/9/16
Sheet 1 of 1
Project No. 1699-304

Project Name: Six Mile Richardson Highway Monitoring Well Repairs
Field activity subject: Monitoring Well Repairs
Description of daily activities and events:

1000: Pack supplies, leave office
1100: Homestead Drilling arrives at MW-29. Begin repairs; use casing cutter extension to cut casing above bend, use hand tools to smooth out interior of casing and level, cut new PVC matching size of removed section and adhere using PVC sleeve and adhesive. Tested to make sure instruments would not get stuck during future use.
1200: Carry supplies to MW-18 (inaccessable via car due to overgrown brush and swamp). Verified MW-18 was level and secure, added more pea gravel, apply grout: will set after next rain.
1230: Clean site, finish notes, return to office.

Visitors on site: Darin (Driller) from Homestead Drilling.

Changes from plans/specifications and other special orders and important decisions:
None.

Weather conditions: ~60F, Sunny with some clouds.

Important telephone calls: None.

Personnel on site: Tiffany Green
Signature: Date: 6/10/16

# APPENDIX B

# MONITORING WELL SAMPLING LOGS

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 1366 Sloan, Six Mile Village, Block 2, Lot 15
Sampling Personnel: SYR, APW
Weather Conditions: Partly Cloudy  Air Temp. (°F): -1

Project No.: 31-1-11843-002
Date: 2-22-17
Well: MW-108
Time started: 09:50
Time completed: 11:58

Sample No.: MW-108  Time: 11:45
Duplicate: -  Analysis: -  Time: -
Equipment Blank (EB): -  Analysis: -  Time: -

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 10:57
Purge Rate (gal./min.): ~~~~ <1
Pumping End: 11:47

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 42.64
Measured Total Depth of Well Below MP (ft.): -
Depth to Water Below MP (ft.): 5.27
Depth to Ice (if frozen) Below MP (ft.): -
Feet of Water in Well: 37.37
Gallons per foot: 0.17
Gallons in Well: 6.35
Gallons in Well x3 = 19.06
(also enter on back) Total Gallons Purged: ~10
Purge Water Disposal: 5AL drum to ground surface

Pump Set Depth Below MP (ft.): ~40
KuriTec Tubing (ft.): ~55
TruPoly Tubing (ft.): -
Silicone Tubing (ft.): -

Monument Condition: Good

Casing Condition: Good

Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup (Flushmount)
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.65
Monument to ground surface (ft.): -

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)

☑ Frost-jacking? Y / (N)  Temperature Logger Present (TidBit)? Y / N
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes: None

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | (0.17) | 0.38 | 0.66 | 1.5 | 2.6 |

QL SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____
Parameter Criteria: Circle One: (Parameters stabilized) OR > 3 well volumes purged
Total Gallons purged: ~10 Gallons needed for 3WV: 19.06
Water observations: Clear
Notes: none

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 10:57 | Purging start time | | | | | |
| 11:00 | 2.6 | 3.53 | 221.9 | 7.27 | 195.8 | Clear |
| 11:03 | 2.5 | 2.24 | 223.7 | 7.30 | 180.7 | " " |
| 11:06 | 2.3 | 1.87 | 223.9 | 7.29 | 169.9 | " " |
| 11:09 | 2.4 | 1.70 | 224.7 | 7.30 | 160.0 | " " |
| 11:12 | 2.6 | 1.63 | 226.5 | 7.30 | 149.5 | " " |
| 11:15 | 3.0 | 1.58 | 229.9 | 7.30 | 140.0 | " " |
| 11:18 | 3.0 | 1.45 | 230.2 | 7.29 | 126.6 | " " |
| 11:21 | 3.0 | 1.35 | 230.6 | 7.29 | 116.7 | " " |
| 11:24 | 3.0 | 1.33 | 230.9 | 7.28 | 107.7 | " " |
| 11:27 | 3.1 | 1.31 | 231.4 | 7.28 | 100.0 | " " |
| 11:30 | 3.1 | 1.60 | 231.6 | 7.28 | 92.0 | " " |
| 11:33 | 3.1 | 1.38 | 231.8 | 7.28 | 85.6 | " " |
| 11:36 | 3.1 | 1.33 | 231.8 | 7.28 | 80.5 | " " |
| 11:39 | 3.1 | 1.25 | 231.7 | 7.28 | 74.8 | " " |
| 11:42 | 3.1 | 1.24 | 231.5 | 7.28 | 71.8 | " " |
| 11:45 | sample | time | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | Sulfolane (1625B) | 2x 1-Liter amber bottle | none | ☐ | ☐ |
| ☐ | BTEX (8260B) | 3x 40-mL amber VOA vials | HCl | ☐ | ☐ |
| ☐ | Geochem | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☐ | COPC | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☑ | VOC (8260D) | 3x 40-mL amber VOA | HCL | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 1366 Sloan, Six Mile Village, Block 2, Lot 15
Sampling Personnel: SyR, APW
Weather Conditions: Partly Cloudy  Air Temp. (°F): -1

Project No.: 31-1-11843-002
Date: 2-22-17
Well: MW-107
Time started: 09:50
Time completed: 12:40

Sample No.: MW-107  Time: 12:24
Duplicate: -  Analysis: -  Time: -
Equipment Blank (EB): -  Analysis: -  Time: -

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 12:03
Purge Rate (gal./min.): ~~~~ <1
Pumping End: 12:26

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 33.81
Measured Total Depth of Well Below MP (ft.): -
Depth to Water Below MP (ft.): 5.41
Depth to Ice (if frozen) Below MP (ft.): -

Pump Set Depth Below MP (ft.): ~31
KuriTec Tubing (ft.): ~40
TruPoly Tubing (ft.): -
Silicone Tubing (ft.): -

Feet of Water in Well: 28.4
Gallons per foot: 0.17
Gallons in Well: 4.83
Gallons in Well x3 = 14.48
(also enter on back) Total Gallons Purged: ~5
Purge Water Disposal: GAC drum to ground surface

Monument Condition: Good
Casing Condition: Good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.70
Monument to ground surface (ft.): -

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: _____ HOBO
Datalogger serial #:
Measured cable length (ft)
Temperature Logger Present (TidBit)? Y / N

☑ Frost-jacking? Y / (N)
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes: None

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | (0.17) | 0.38 | 0.66 | 1.5 | 2.6 |

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____

Parameter Criteria: Circle One: (Parameters stabilized) OR > 3 well volumes purged

Total Gallons purged: ~5 Gallons needed for 3WV: 14.48

Water observations: Clear

Notes: none.

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 12:03 | Purging start time | | | | | |
| 12:06 | 2.5 | 1.65 | 224.4 | 7.30 | -5.6 | Clear |
| 12:09 | 2.6 | 1.35 | 228.1 | 7.30 | 11.2 | " " |
| 12:12 | 2.6 | 1.23 | 228.3 | 7.29 | 19.4 | " " |
| 12:15 | 2.6 | 1.17 | 228.8 | 7.29 | 21.2 | " " |
| 12:18 | 2.6 | 1.14 | 229.0 | 7.29 | 20.4 | " " |
| 12:21 | 2.6 | 1.13 | 229.2 | 7.28 | 18.7 | " " |
| 12:24 | Sample time | | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | Sulfolane (1625B) | 2x 1-Liter amber bottle | none | ☐ | ☐ |
| ☐ | BTEX (8260B) | 3x 40-mL amber VOA vials | HCl | ☐ | ☐ |
| ☐ | Geochem | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☐ | COPC | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☑ | VOC (8260D) | 3x 40-mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 869 Conley Ave.
Sampling Personnel: SYR, APW
Weather Conditions: Overcast Snow  Air Temp. (°F): -1°F

Project No.: 31-1-11843-002
Date: 2-22-17
Well: MW-104
Time started: 14:20
Time completed: 15:48

Sample No.: MW-104  Time: 15:42
Duplicate: -  Analysis: -  Time: -
Equipment Blank (EB): -  Analysis: -  Time: -

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 15:15
Purge Rate (gal./min.): <1
Pumping End: 15:44

Diameter and Type of Casing: 2", PVC
Approximate Total Depth of Well Below MP (ft.): 22.86
Measured Total Depth of Well Below MP (ft.): -
Depth to Water Below MP (ft.): 9.12
Depth to Ice (if frozen) Below MP (ft.): -
Feet of Water in Well: 13.74
Gallons per foot: 0.17
Gallons in Well: 2.34
Gallons in Well x3 = 7.00
(also enter on back) Total Gallons Purged: ~23
Purge Water Disposal: Ground Surface

Pump Set Depth Below MP (ft.): ~20
KuriTec Tubing (ft.): ~30
TruPoly Tubing (ft.): -
Silicone Tubing (ft.): -

Monument Condition: Good
Casing Condition: Good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: (Stickup) / Flushmount
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.42
Monument to ground surface (ft.): 2.69

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)
Temperature Logger Present (TidBit)? Y / N

☑ Frost-jacking? Y / (N)
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes: None.

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | 0.17 | 0.38 | 0.66 | 1.5 | 2.6 |

OC SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI *Pro Plus* B OR *Rental #* ___ *Handheld s/n:* ___

Parameter Criteria: Circle One: (*Parameters stabilized*) OR *> 3 well volumes purged*

Total Gallons purged: ~23 Gallons needed for 3WV: 7.00

Water observations: Turbid at pump start. Grey in color. Then cleared up.

Notes:

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 15:15 | Purging start time | | | | | |
| 15:18 | 2.3 | 3.12 | 241.8 | 7.20 | -25.2 | turbid |
| 15:21 | 2.3 | 2.24 | 245.3 | 7.20 | -40.8 | slightly turbid |
| 15:24 | 2.6 | 1.90 | 247.2 | 7.20 | -48.7 | " " |
| 15:27 | 2.6 | 1.71 | 250.5 | 7.21 | -53.8 | clear |
| 15:30 | 2.6 | 1.52 | 250.2 | 7.23 | -57.7 | " " |
| 15:33 | 2.6 | 1.45 | 252.4 | 7.23 | -60.3 | " " |
| 15:36 | 2.6 | 1.41 | 252.6 | 7.23 | -62.2 | " " |
| 15:39 | 2.6 | 1.37 | 252.7 | 7.24 | -63.8 | " " |
| 15:42 | Sample | time | | | | |
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Laboratory *SGS*

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | *Sulfolane (1625B)* | *2x 1-Liter amber bottle* | *none* | ☐ | ☐ |
| ☐ | *BTEX (8260B)* | *3x 40-mL amber VOA vials* | *HCl* | ☐ | ☐ |
| ☐ | *Geochem* | *Multiple (see proposal)* | *Multiple* | ☐ | ☐ |
| ☐ | *COPC* | *Multiple (see proposal)* | *Multiple* | ☐ | ☐ |
| ☑ | VOC (8260D) | 3x 40mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 869 Conley Ave.
Sampling Personnel: SYR, APW
Weather Conditions: Overcast snow
Air Temp. (°F): -1°F

Project No.: 31-1-11843-002
Date: 2-22-17
Well: MW-103
Time started: 15:50
Time completed: 16:20

Sample No.: MW-103
Time: 16:15

Duplicate: - Analysis: -
Time: -

Equipment Blank (EB): - Analysis: -
Time: -

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 15:55
Purge Rate (gal./min.): <1
Pumping End: 16:17

Diameter and Type of Casing: 2", PVC
Approximate Total Depth of Well Below MP (ft.): 12.9
Measured Total Depth of Well Below MP (ft.): -
Depth to Water Below MP (ft.): 9.06
Depth to Ice (if frozen) Below MP (ft.): -
Feet of Water in Well: 3.84
Gallons per foot: 0.17
Gallons in Well: 0.65
Gallons in Well x3 = 1.96
(also enter on back) Total Gallons Purged: ~18
Purge Water Disposal: Ground Surface

Pump Set Depth Below MP (ft.): ~10
KuriTec Tubing (ft.): ~20
TruPoly Tubing (ft.): -
Silicone Tubing (ft.): -

Monument Condition: Good

Casing Condition: Good

Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)

Monument type: (Stickup) / Flushmount
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.54
Monument to ground surface (ft.): 2.98

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: _____ HOBO
Datalogger serial #:
Measured cable length (ft)

☑ Frost-jacking? Y / (N)
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Temperature Logger Present (TidBit)? Y / N

Notes: None.

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | (0.17) | 0.38 | 0.66 | 1.5 | 2.6 |

QL SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____
Parameter Criteria: Circle One: (Parameters stabilized) OR > 3 well volumes purged
Total Gallons purged: ~18 Gallons needed for 3WV: 1.96
Water observations: Very turbid w/ sand at pump start. It cleared quickly.
Notes: None.

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 15:55 | Purging start time | | | | | |
| 15:58 | 1.4 | 2.25 | 360.3 | 6.79 | 1.8 | Clear |
| 16:01 | 1.5 | 1.66 | 362.7 | 6.76 | 8.0 | " " |
| 16:04 | 1.5 | 1.54 | 362.0 | 6.77 | 10.7 | " " |
| 16:07 | 1.5 | 1.49 | 360.5 | 6.78 | 12.4 | " " |
| 16:10 | 1.5 | 1.42 | 360.2 | 6.79 | 13.4 | " " |
| 16:13 | 1.5 | 1.47 | 359.2 | 6.79 | 15.0 | " " |
| 16:15 | Sample | time | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | Sulfolane (1625B) | 2x 1-Liter amber bottle | none | ☐ | ☐ |
| ☐ | BTEX (8260B) | 3x 40-mL amber VOA vials | HCl | ☐ | ☐ |
| ☐ | Geochem | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☐ | COPC | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☑ | VOC (8260D) | 3 x 40 mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client ADEC
Location 869 Conley Ave.
Sampling Personnel SYR, APW
Weather Conditions Overcast snow Air Temp. (°F) -1°F

Project No. 31-1-11843-002
Date 2-22-17
Well MW-105
Time started 16:25
Time completed 17:00

Sample No. MW-105 Time 16:47
Duplicate - Analysis: - Time -
Equipment Blank (EB) - Analysis: - Time -

Depth to Water (ft.) -
Depth to LNAPL (ft.)
NAPL Thickness (ft.)
Method of NAPL Measurement

Pump/Controller Mega Monsoon Pro
Purging Method (portable) / dedicated pump
Pumping Start 16:26
Purge Rate (gal./min.) < 1
Pumping End 16:49

Diameter and Type of Casing 2" PVC
Approximate Total Depth of Well Below MP (ft.) 32.82
Measured Total Depth of Well Below MP (ft.) -
Depth to Water Below MP (ft.) 9.10
Depth to Ice (if frozen) Below MP (ft.) -
Feet of Water in Well 23.72
Gallons per foot 0.17
Gallons in Well 4.03
Gallons in Well x3 = 12.1
(also enter on back) Total Gallons Purged ~20
Purge Water Disposal Ground Surface

Pump Set Depth Below MP (ft.) ~30
KuriTec Tubing (ft.) ~40
TruPoly Tubing (ft.) -
Silicone Tubing (ft.) -

Monument Condition Good

Casing Condition Good

Wiring Condition (dedicated pumps) N/A

Measuring Point (MP) Top of Casing (TOC)
Monument type: (Stickup) / Flushmount
Measurement method: (Tape measure)

Top-of-casing to monument (ft.) 0.43
Monument to ground surface (ft.) 2.65

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)
Temperature Logger Present (TidBit)? Y / N

- ☑ Frost-jacking? Y / (N)
- ☑ Lock present and operational
- ☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes None.

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | 0.17 | 0.38 | 0.66 | 1.5 | 2.6 |

QC SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____
Parameter Criteria: Circle One: (Parameters stabilized) OR > 3 well volumes purged
Total Gallons purged: ~20 Gallons needed for 3WV: 12.1
Water observations: Clear
Notes: None.

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 16:26 | Purging start time | | | | | |
| 16:29 | 3.3 | 1.14 | 232.0 | 7.31 | -26.0 | Clear |
| 16:32 | 3.3 | 1.10 | 232.3 | 7.34 | -33.3 | " " |
| 16:35 | 3.3 | 1.05 | 232.5 | 7.34 | -37.5 | " " |
| 16:38 | 3.4 | 1.41 | 232.6 | 7.33 | -40.5 | " " |
| 16:41 | 3.4 | 1.39 | 232.7 | 7.33 | -42.7 | " " |
| 16:44 | 3.4 | 1.32 | 232.6 | 7.33 | -44.8 | " " |
| 16:47 | Sample time | | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | Sulfolane (1625B) | 2x 1-Liter amber bottle | none | ☐ | ☐ |
| ☐ | BTEX (8260B) | 3x 40-mL amber VOA vials | HCl | ☐ | ☐ |
| ☐ | Geochem | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☐ | COPC | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☑ | VOC (8260D) | 3x 40 mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: Flint Hills Resources Alaska
Location: North Pole Refinery On-Site
Sampling Personnel: APW
Weather Conditions: Overcast, Heavy Snow Air Temp. (°F): 10°F

Project No.: 31-1-11843-007
Date: 2-23-17
Well: MW-34
Time started: 10:00
Time completed: 12:00

Sample No.: MW-34 Time: 11:15
Duplicate: - Analysis: - Time: -
Equipment Blank (EB): - Analysis: - Time: -

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 10:45
Purge Rate (gal./min.): <1
Pumping End: 11:17

Diameter and Type of Casing: 2", PVC
Approximate Total Depth of Well Below MP (ft.): 78.10
Measured Total Depth of Well Below MP (ft.): -
Depth to Water Below MP (ft.): 5.54
Depth to Ice (if frozen) Below MP (ft.): -

Pump Set Depth Below MP (ft.): ~76
KuriTec Tubing (ft.): ~85
TruPoly Tubing (ft.): -
Silicone Tubing (ft.): -

Feet of Water in Well: 72.56
Gallons per foot: 0.17
Gallons in Well: 12.34
Gallons in Well x3 = 37.0
(also enter on back) Total Gallons Purged: ~10
Purge Water Disposal: ~~Refinery Wastewater System~~ GAL drum to ground surface

Monument Condition: Good
Casing Condition: Good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: Stickup / (Flushmount)
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.45
Monument to ground surface (ft.): -

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)

☑ Frost-jacking? Y / (N) Temperature Logger Present (TidBit)? Y / N
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes: None

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | 0.17 | 0.38 | 0.66 | 1.5 | 2.6 |

QC SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: ___

Parameter Criteria: Circle One: *Parameters stabilized* OR *> 3 well volumes purged*

Total Gallons purged: ~10 Gallons needed for 3WV: 37

Water observations: Turbid at pump start, then cleared up after ~12 min.

Notes: None.

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 10:45 | Purging start time | | | | | |
| 10:48 | 3.1 | 3.80 | 172.1 | 7.19 | 78.6 | turbid |
| 10:51 | 3.0 | 2.92 | 173.8 | 7.24 | 42.5 | slightly turbid |
| 10:54 | 3.0 | 2.37 | 175.4 | 7.26 | 21.4 | " " |
| 10:57 | 3.0 | 2.08 | 176.8 | 7.30 | 6.1 | clear |
| 11:00 | 3.1 | 1.80 | 217.7 | 7.32 | -6.0 | " " |
| 11:03 | 3.1 | 1.69 | 217.8 | 7.35 | -16.1 | " " |
| 11:06 | 3.1 | 1.62 | 217.7 | 7.36 | -23.7 | " " |
| 11:09 | 3.1 | 1.60 | 217.5 | 7.37 | -27.0 | " " |
| 11:12 | 3.1 | 1.55 | 217.5 | 7.38 | -30.7 | " " |
| 11:15 | sample | time | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | *Sulfolane (1625B)* | *2x 1-Liter amber bottle* | *none* | ☐ | ☐ |
| ☐ | *BTEX (8260B)* | *3x 40-mL amber VOA vials* | *HCl* | ☐ | ☐ |
| ☐ | *Geochem* | *Multiple (see proposal)* | *Multiple* | ☐ | ☐ |
| ☐ | *COPC* | *Multiple (see proposal)* | *Multiple* | ☐ | ☐ |
| ☑ | VOC (8260 D) | 3x 40mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 1491 Richardson Highway
Sampling Personnel: SYR, APW
Weather Conditions: overcast light snow Air Temp. (°F): 10°F

Project No.: 31-1-11843-002
Date: 2-23-17
Well: MW-5
Time started: 13:15
Time completed: 15:10

Sample No.: MW-5 Time: 14:44
Duplicate: MW-6 Analysis: VOCs Time: 14:34
Equipment Blank (EB): – Analysis: – Time: –

Depth to Water (ft.): 9.49
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Whale G / controller B2
Purging Method: (portable) / dedicated pump
Pumping Start: 14:14
Purge Rate (gal./min.): < 1
Pumping End: 14:46

Diameter and Type of Casing: 2", PVC
Approximate Total Depth of Well Below MP (ft.): 25.67
Measured Total Depth of Well Below MP (ft.): –
Depth to Water Below MP (ft.): 9.49
Depth to Ice (if frozen) Below MP (ft.): –

Pump Set Depth Below MP (ft.): ~ 23
KuriTec Tubing (ft.): ~ 35
TruPoly Tubing (ft.): –
Silicone Tubing (ft.): –

Feet of Water in Well: 16.18
Gallons per foot: 0.17
Gallons in Well: 2.75
Gallons in Well x3 = 8.25
(also enter on back) Total Gallons Purged: ~ 25
Purge Water Disposal: 6AC drum to groundsurface.

Monument Condition: Good
Casing Condition: Good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: (Stickup) / Flushmount
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.29
Monument to ground surface (ft.): 2.67

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: _____ HOBO
Datalogger serial #:
Measured cable length (ft)

☒ Frost-jacking? Y / (N)
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Temperature Logger Present (TidBit)? Y / N

Notes: None

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | 2 | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | 0.17 | 0.38 | 0.66 | 1.5 | 2.6 |

QC SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI *Pro Plus* B OR *Rental #* ___ *Handheld s/n:* _____
Parameter Criteria: Circle One: *Parameters stabilized* OR *> 3 well volumes purged*
Total Gallons purged: ~ 25 Gallons needed for 3WV: 8.25
Water observations: slightly turbid with sand
Notes: None.

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 14:14 | Purging start time | | | | | |
| 14:17 | 2.6 | 3.36 | 237.1 | 7.41 | 26.9 | slightly turbid |
| 14:20 | 2.7 | 2.46 | 238.2 | 7.40 | -2.2 | clear |
| 14:23 | 2.7 | 2.08 | 239.3 | 7.39 | -18.4 | " " |
| 14:26 | 2.7 | 1.90 | 239.4 | 7.39 | -27.0 | " " |
| 14:29 | 2.8 | 1.80 | 239.5 | 7.39 | -33.9 | " " |
| 14:32 | 2.8 | 1.68 | 239.5 | 7.39 | -38.5 | " " |
| 14:35 | 2.8 | 1.59 | 239.8 | 7.39 | -42.6 | " " |
| 14:38 | 2.8 | 1.56 | 239.8 | 7.39 | -45.8 | " " |
| 14:41 | 2.8 | 1.50 | 239.8 | 7.39 | -48.6 | " " |
| 14:44 | sample | time | | | | |
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Laboratory *SGS*

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | *Sulfolane (1625B)* | *2x 1-Liter amber bottle* | *none* | ☐ | ☐ |
| ☐ | *BTEX (8260B)* | *3x 40-mL amber VOA vials* | *HCl* | ☐ | ☐ |
| ☐ | *Geochem* | *Multiple (see proposal)* | *Multiple* | ☐ | ☐ |
| ☐ | *COPC* | *Multiple (see proposal)* | *Multiple* | ☐ | ☐ |
| ☑ | VOCs (8260D) | 3x 40mL amber VOA | HCl | ☑ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 1455 Richardson HWY, Lot 4, Ziegler Subdiv
Sampling Personnel: SYR, APW
Weather Conditions: Overcast light snow  Air Temp. (°F): 10°F

Project No.: 31-1-11843-002
Date: 2-23-17
Well: MW-26
Time started: 15:30
Time completed: 16:40

Sample No.: MW-26  Time: 16:13
Duplicate: –  Analysis: –  Time: –
Equipment Blank (EB): –  Analysis: –  Time: –

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: whale G / controller B2
Purging Method: (portable) / dedicated pump
Pumping Start: 15:49
Purge Rate (gal./min.): <1
Pumping End: 16:15

Diameter and Type of Casing: 2" PVC
Approximate Total Depth of Well Below MP (ft.): 32.81
Measured Total Depth of Well Below MP (ft.): –
Depth to Water Below MP (ft.): 11.11
Depth to Ice (if frozen) Below MP (ft.): –
Feet of Water in Well: 21.7
Gallons per foot: 0.17
Gallons in Well: 3.69
Gallons in Well x3 = 11.07
(also enter on back) Total Gallons Purged: ~20
Purge Water Disposal: GAC drum to ground surface

Pump Set Depth Below MP (ft.): ~30
KuriTec Tubing (ft.): ~45
TruPoly Tubing (ft.): –
Silicone Tubing (ft.): –

Monument Condition: Good
Casing Condition: Good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: (Stickup) / Flushmount
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.37
Monument to ground surface (ft.): 3.09

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: _____ HOBO
Datalogger serial #:
Measured cable length (ft)

☑ Frost-jacking? Y / (N)  Temperature Logger Present (TidBit)? Y / N
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes: None

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | (0.17) | 0.38 | 0.66 | 1.5 | 2.6 |

QL SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____
Parameter Criteria: Circle One: (Parameters stabilized) OR > 3 well volumes purged
Total Gallons purged: ~20 Gallons needed for 3WV: 11.07
Water observations: clear
Notes: None

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 15:49 | Purging start time | | | | | |
| 15:52 | 3.4 | 2.73 | 272.6 | 7.25 | -58.7 | clear |
| 15:55 | 3.5 | 1.90 | 273.3 | 7.24 | -60.5 | " " |
| 15:58 | 3.5 | 1.72 | 272.7 | 7.23 | -62.3 | " " |
| 16:01 | 3.5 | 1.63 | 272.0 | 7.23 | -63.9 | " " |
| 16:04 | 3.5 | 1.52 | 271.9 | 7.23 | -65.3 | " " |
| 16:07 | 3.5 | 1.46 | 271.9 | 7.23 | -66.7 | " " |
| 16:10 | 3.5 | 1.43 | 272.1 | 7.23 | -67.9 | " " |
| 16:13 | sample | time | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | Sulfolane (1625B) | 2x 1-Liter amber bottle | none | ☐ | ☐ |
| ☐ | BTEX (8260B) | 3x 40-mL amber VOA vials | HCl | ☐ | ☐ |
| ☐ | Geochem | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☐ | COPC | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☑ | VOC (8260D) | 3 x 40 mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# MONITORING WELL SAMPLING LOG

Owner/Client: ADEC
Location: 1455 Richardson Highway, Lot 4, Ziegler Subdv
Sampling Personnel: SYR, APW
Weather Conditions: Overcast  Air Temp. (°F): 19°F

Project No.: 31-1-11843-002
Date: 2-23-17
Well: MW-19
Time started: 16:40
Time completed: 17:50

Sample No.: MW-19  Time: 17:30
Duplicate: –  Analysis: –  Time: –
Equipment Blank (EB): –  Analysis: –  Time: –

Depth to Water (ft.):
Depth to LNAPL (ft.):
NAPL Thickness (ft.):
Method of NAPL Measurement:

Pump/Controller: Mega Monsoon Pro
Purging Method: (portable) / dedicated pump
Pumping Start: 17:06
Purge Rate (gal./min.): <1
Pumping End: 17:32

Diameter and Type of Casing: 2", PVC
Approximate Total Depth of Well Below MP (ft.): 82.98
Measured Total Depth of Well Below MP (ft.): –
Depth to Water Below MP (ft.): 11.47
Depth to Ice (if frozen) Below MP (ft.): –

Pump Set Depth Below MP (ft.): ~80
KuriTec Tubing (ft.): ~100
TruPoly Tubing (ft.): –
Silicone Tubing (ft.): –

Feet of Water in Well: 71.51
Gallons per foot: 0.17
Gallons in Well: 12.16
Gallons in Well x3 = 36.47
(also enter on back) Total Gallons Purged: ~20
Purge Water Disposal: GAC drum to ground surface

Monument Condition: Good
Casing Condition: Good
Wiring Condition (dedicated pumps): N/A

Measuring Point (MP): Top of Casing (TOC)
Monument type: (Stickup) / Flushmount
Measurement method: (Tape measure)

Top-of-casing to monument (ft.): 0.42
Monument to ground surface (ft.): 2.89

Datalogger Type (circle): RT-100 GW WL-16 AT-200 LT-700 LT-500 Other: HOBO
Datalogger serial #:
Measured cable length (ft)

☑ Frost-jacking? Y / (N)
Temperature Logger Present (TidBit)? Y / N
☑ Lock present and operational
☑ Well name legible on outside of well (stickup) or inside of well (flushmount)

Notes: None.

## WELL CASING VOLUMES

| Diameter of Well [ID-inches] | CMT | 1¼ | (2) | 3 | 4 | 6 | 8 |
|---|---|---|---|---|---|---|---|
| Gallons per lineal foot | 0.01057 | 0.08 | (0.17) | 0.38 | 0.66 | 1.5 | 2.6 |

OL SYR

# MONITORING WELL SAMPLING LOG

Field Parameter Instrument: YSI Pro Plus B OR Rental # ___ Handheld s/n: _____

Parameter Criteria: Circle One: (Parameters stabilized) OR > 3 well volumes purged

Total Gallons purged: ~20 Gallons needed for 3WV: 36.47

Water observations: Clear

Notes: None.

**FIELD PARAMETERS** [stabilization criteria]

| Time | Temp. (°C) | Dissolved Oxygen (mg/L) [± 0.10 mg/L] | Conductivity (µS/cm) [± 3%] | pH [± 0.10] | ORP (mV) [± 10 mV] | Water Clarity (visual) |
|---|---|---|---|---|---|---|
| 17:06 | Purging start time | | | | | |
| 17:09 | 3.6 | 2.30 | 207.8 | 7.56 | -49.5 | Clear |
| 17:12 | 3.6 | 1.86 | 207.8 | 7.55 | -57.9 | " " |
| 17:15 | 3.6 | 1.60 | 207.8 | 7.54 | -63.7 | " " |
| 17:18 | 3.6 | 1.43 | 207.8 | 7.53 | -67.0 | " " |
| 17:21 | 3.6 | 1.35 | 207.8 | 7.53 | -70.2 | " " |
| 17:24 | 3.6 | 1.32 | 207.8 | 7.53 | -73.0 | " " |
| 17:27 | 3.6 | 1.27 | 207.8 | 7.52 | -75.4 | " " |
| 17:30 | sample | time | | | | |
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Laboratory SGS

| | Analysis | Sample Containers | Preservatives | Dup | EB |
|---|---|---|---|---|---|
| ☐ | Sulfolane (1625B) | 2x 1-Liter amber bottle | none | ☐ | ☐ |
| ☐ | BTEX (8260B) | 3x 40-mL amber VOA vials | HCl | ☐ | ☐ |
| ☐ | Geochem | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☐ | COPC | Multiple (see proposal) | Multiple | ☐ | ☐ |
| ☑ | VOC (8260D) | 3x 40mL amber VOA | HCl | ☐ | ☐ |
| ☐ | | | | ☐ | ☐ |

# APPENDIX C

# 2016 MONITORING WELL REPAIR PHOTO LOG

MW-5 (left) and MW-4 (right) before repair.

MW-5 after repair.

MW-4 after repair.

MW-32 (left) and MW-31 (right) before repair.

MW-32 after repair.

MW-31 after repair.

MW-27 before repair.

MW-27 after repair.

Inside MW-29 after removing portion of bent casing.

Removed portion of bent casing from MW-29.

Inside MW-29 after repair.

MW-12 before repair.

Digging out remaining portions of MW-12.

Metal casing removed from road at former MW-12 location.

PVC removed from road at former MW-12.

Top view of metal casing from MW-12.

Filling former MW-12 location.

Former MW-12 location.

MW-16A (right) and MW-15A (left).

Frost-jacking at MW-18.

Base of MW-18.

MW-18 after repair.

# APPENDIX D

# SGS LABORATORY REPORT WO (1177600)

SGS

## Laboratory Report of Analysis

To: Shannon & Wilson-Fairbanks
2355 Hill Rd
Fairbanks, AK 99707
(907)479-0600

Report Number: **1177600**

Client Project: **31-1-11843-002 Six Mile Vill.**

Dear Sheila Hinckley,

Enclosed are the results of the analytical services performed under the referenced project for the received samples and associated QC as applicable. The samples are certified to meet the requirements of the National Environmental Laboratory Accreditation Conference Standards. Copies of this report and supporting data will be retained in our files for a period of ten years in the event they are required for future reference. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. Any samples submitted to our laboratory will be retained for a maximum of fourteen (14) days from the date of this report unless other archiving requirements were included in the quote.

If there are any questions about the report or services performed during this project, please call Jennifer at (907) 562-2343. We will be happy to answer any questions or concerns which you may have.

Thank you for using SGS North America Inc. for your analytical services. We look forward to working with you again on any additional analytical needs.

Sincerely,
SGS North America Inc.

Stephen C. Ede
Alaska Division Technical Director

Stephen Ede
2017.03.27
14:51:06 -08'00'

Jennifer Dawkins
Project Manager

Date

Print Date: 03/27/2017 2:33:36PM

## Case Narrative

SGS Client: **Shannon & Wilson-Fairbanks**
SGS Project: **1177600**
Project Name/Site: **31-1-11843-002 Six Mile Vill.**
Project Contact: **Sheila Hinckley**

Refer to sample receipt form for information on sample condition.

**LCSD for HBN 1754380 [VXX/3022 (1374532) LCSD**

8260C - LCS/LCSD RPD for chloromethane (23.4%) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

*QC comments may be associated with the field samples found in this report. When applicable, comments will be applied to associated field samples.



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## Laboratory Qualifiers

Enclosed are the analytical results associated with the above work order. All results are intended to be used in their entirety and SGS is not responsible for use of less than the complete report. This document is issued by the Company under its General Conditions of Service accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. Attention is drawn to the limitation of liability, indenmification and jurisdiction issues defined therein.

Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. Any unauthorized alteration, forgery or falsification of the context or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law.

SGS maintains a formal Quality Assurance/Quality Control (QA/QC) program. A copy of our Quality Assurance Plan (QAP), which outlines this program, is available at your request. The laboratory certification numbers are AK00971 (DW Chemistry & Microbiology) for which SGS North America Inc. is Provisionally Certified as of 2/8/2017 & UST-005 (CS) for ADEC and 2944.01 for DOD ELAP/ISO17025 (RCRA methods: 1020B, 1311, 3010A, 3050B, 3520C, 3550C, 5030B, 5035A, 6020A, 7470A, 7471B, 8015C, 8021B, 8082A, 8260C, 8270D, 8270D-SIM, 9040C, 9045D, 9056A, 9060A, AK101 and AK102/103). Except as specifically noted, all statements and data in this report are in conformance to the provisions set forth by the SGS QAP and, when applicable, other regulatory authorities.

The following descriptors or qualifiers may be found in your report:

| | |
|---|---|
| * | The analyte has exceeded allowable regulatory or control limits. |
| ! | Surrogate out of control limits. |
| B | Indicates the analyte is found in a blank associated with the sample. |
| CCV/CVA/CVB | Continuing Calibration Verification |
| CCCV/CVC/CVCA/CVCB | Closing Continuing Calibration Verification |
| CL | Control Limit |
| DF | Dilution Factor |
| DL | Detection Limit (i.e., maximum method detection limit) |
| E | The analyte result is above the calibrated range. |
| GT | Greater Than |
| IB | Instrument Blank |
| ICV | Initial Calibration Verification |
| J | The quantitation is an estimation. |
| LCS(D) | Laboratory Control Spike (Duplicate) |
| LLQC/LLIQC | Low Level Quantitation Check |
| LOD | Limit of Detection (i.e., 1/2 of the LOQ) |
| LOQ | Limit of Quantitation (i.e., reporting or practical quantitation limit) |
| LT | Less Than |
| MB | Method Blank |
| MS(D) | Matrix Spike (Duplicate) |
| ND | Indicates the analyte is not detected. |
| RPD | Relative Percent Difference |
| U | Indicates the analyte was analyzed for but not detected. |

Note: Sample summaries which include a result for "Total Solids" have already been adjusted for moisture content. All DRO/RRO analyses are integrated per SOP.



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## Sample Summary

| Client Sample ID | Lab Sample ID | Collected | Received | Matrix |
|---|---|---|---|---|
| MW-108 | 1177600001 | 02/22/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-107 | 1177600002 | 02/22/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-104 | 1177600003 | 02/22/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-103 | 1177600004 | 02/22/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-105 | 1177600005 | 02/22/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-34 | 1177600006 | 02/23/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-5 | 1177600007 | 02/23/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-6 | 1177600008 | 02/23/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-26 | 1177600009 | 02/23/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| MW-19 | 1177600010 | 02/23/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |
| Trip Blank | 1177600011 | 02/22/2017 | 02/24/2017 | Water (Surface, Eff., Ground) |

| Method | Method Description |
|---|---|
| SW8260C | Volatile Organic Compounds (W) FULL |



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## Detectable Results Summary

Client Sample ID: **MW-108**
Lab Sample ID: 1177600001
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| 1,1-Dichloroethane | 0.357J | ug/L |
| cis-1,2-Dichloroethene | 0.694J | ug/L |
| Tetrachloroethene | 4.90 | ug/L |
| trans-1,2-Dichloroethene | 0.583J | ug/L |
| Trichloroethene | 2.36 | ug/L |

Client Sample ID: **MW-107**
Lab Sample ID: 1177600002
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| 1,1-Dichloroethane | 0.385J | ug/L |
| cis-1,2-Dichloroethene | 0.784J | ug/L |
| Tetrachloroethene | 4.33 | ug/L |
| Toluene | 0.426J | ug/L |
| trans-1,2-Dichloroethene | 0.912J | ug/L |
| Trichloroethene | 2.20 | ug/L |

Client Sample ID: **MW-104**
Lab Sample ID: 1177600003
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| 1,1-Dichloroethane | 0.409J | ug/L |
| cis-1,2-Dichloroethene | 0.899J | ug/L |
| Tetrachloroethene | 1.91 | ug/L |
| trans-1,2-Dichloroethene | 1.35 | ug/L |
| Trichloroethene | 0.991J | ug/L |

Client Sample ID: **MW-103**
Lab Sample ID: 1177600004
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| cis-1,2-Dichloroethene | 0.723J | ug/L |
| Tetrachloroethene | 0.660J | ug/L |
| trans-1,2-Dichloroethene | 0.749J | ug/L |
| Trichloroethene | 0.840J | ug/L |

Client Sample ID: **MW-105**
Lab Sample ID: 1177600005
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| 1,1-Dichloroethane | 0.415J | ug/L |
| cis-1,2-Dichloroethene | 0.466J | ug/L |
| Tetrachloroethene | 1.58 | ug/L |
| trans-1,2-Dichloroethene | 0.530J | ug/L |
| Trichloroethene | 1.30 | ug/L |

Client Sample ID: **MW-34**
Lab Sample ID: 1177600006
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| cis-1,2-Dichloroethene | 0.954J | ug/L |
| Tetrachloroethene | 4.45 | ug/L |
| Toluene | 0.320J | ug/L |
| trans-1,2-Dichloroethene | 0.547J | ug/L |
| Trichloroethene | 3.55 | ug/L |



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## Detectable Results Summary

Client Sample ID: **MW-5**
Lab Sample ID: 1177600007
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| cis-1,2-Dichloroethene | 2.05 | ug/L |
| Tetrachloroethene | 0.979J | ug/L |
| trans-1,2-Dichloroethene | 4.41 | ug/L |
| Trichloroethene | 1.53 | ug/L |

Client Sample ID: **MW-6**
Lab Sample ID: 1177600008
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| cis-1,2-Dichloroethene | 2.02 | ug/L |
| Tetrachloroethene | 0.947J | ug/L |
| trans-1,2-Dichloroethene | 4.43 | ug/L |
| Trichloroethene | 1.48 | ug/L |

Client Sample ID: **MW-26**
Lab Sample ID: 1177600009
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| Benzene | 0.157J | ug/L |
| cis-1,2-Dichloroethene | 7.67 | ug/L |
| Tetrachloroethene | 1.55 | ug/L |
| trans-1,2-Dichloroethene | 6.13 | ug/L |
| Trichloroethene | 1.94 | ug/L |

Client Sample ID: **MW-19**
Lab Sample ID: 1177600010
**Volatile GC/MS**

| Parameter | Result | Units |
|---|---|---|
| cis-1,2-Dichloroethene | 0.609J | ug/L |
| Tetrachloroethene | 2.28 | ug/L |
| Trichloroethene | 3.43 | ug/L |



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Results of **MW-108**

Client Sample ID: **MW-108**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600001
Lab Project ID: 1177600

Collection Date: 02/22/17 11:45
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 16:53 |
| 1,1-Dichloroethane | 0.357 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 16:53 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 16:53 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |

Results of **MW-108**

Client Sample ID: **MW-108**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600001
Lab Project ID: 1177600

Collection Date: 02/22/17 11:45
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| cis-1,2-Dichloroethene | 0.694 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:53 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 16:53 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/27/17 20:11 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 02/27/17 20:11 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Tetrachloroethene | 4.90 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/27/17 20:11 |
| trans-1,2-Dichloroethene | 0.583 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Trichloroethene | 2.36 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:53 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:53 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 16:53 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 16:53 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 104 | | 81-118 | | % | 1 | | 02/26/17 16:53 |
| 4-Bromofluorobenzene (surr) | 98.7 | | 85-114 | | % | 1 | | 02/26/17 16:53 |
| Toluene-d8 (surr) | 102 | | 89-112 | | % | 1 | | 02/26/17 16:53 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-108**

Client Sample ID: **MW-108**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600001
Lab Project ID: 1177600

Collection Date: 02/22/17 11:45
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 16:53
Container ID: 1177600001-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Analytical Batch: VMS16549
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/27/17 20:11
Container ID: 1177600001-B

Prep Batch: VXX30226
Prep Method: SW5030B
Prep Date/Time: 02/27/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL

Results of **MW-107**

Client Sample ID: **MW-107**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600002
Lab Project ID: 1177600

Collection Date: 02/22/17 12:24
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 17:54 |
| 1,1-Dichloroethane | 0.385 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 17:54 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 17:54 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-107**

Client Sample ID: **MW-107**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600002
Lab Project ID: 1177600

Collection Date: 02/22/17 12:24
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| cis-1,2-Dichloroethene | 0.784 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 17:54 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 17:54 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 17:54 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Tetrachloroethene | 4.33 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Toluene | 0.426 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| trans-1,2-Dichloroethene | 0.912 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Trichloroethene | 2.20 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 17:54 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 17:54 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 17:54 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 17:54 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 105 | | 81-118 | | % | 1 | | 02/26/17 17:54 |
| 4-Bromofluorobenzene (surr) | 97.7 | | 85-114 | | % | 1 | | 02/26/17 17:54 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 02/26/17 17:54 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-107**

Client Sample ID: **MW-107**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600002
Lab Project ID: 1177600

Collection Date: 02/22/17 12:24
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 17:54
Container ID: 1177600002-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW-104**

Client Sample ID: **MW-104**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600003
Lab Project ID: 1177600

Collection Date: 02/22/17 15:42
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:09 |
| 1,1-Dichloroethane | 0.409 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:09 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 18:09 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-104**

Client Sample ID: **MW-104**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600003
Lab Project ID: 1177600

Collection Date: 02/22/17 15:42
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| cis-1,2-Dichloroethene | 0.899 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:09 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 18:09 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 18:09 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Tetrachloroethene | 1.91 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| trans-1,2-Dichloroethene | 1.35 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Trichloroethene | 0.991 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:09 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:09 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 18:09 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 18:09 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 106 | | 81-118 | | % | 1 | | 02/26/17 18:09 |
| 4-Bromofluorobenzene (surr) | 97 | | 85-114 | | % | 1 | | 02/26/17 18:09 |
| Toluene-d8 (surr) | 100 | | 89-112 | | % | 1 | | 02/26/17 18:09 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-104**

Client Sample ID: **MW-104**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600003
Lab Project ID: 1177600

Collection Date: 02/22/17 15:42
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 18:09
Container ID: 1177600003-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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Results of **MW-103**

Client Sample ID: **MW-103**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600004
Lab Project ID: 1177600

Collection Date: 02/22/17 16:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:24 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:24 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 18:24 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-103**

Client Sample ID: **MW-103**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600004
Lab Project ID: 1177600

Collection Date: 02/22/17 16:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| cis-1,2-Dichloroethene | 0.723 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:24 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 18:24 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 18:24 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Tetrachloroethene | 0.660 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| trans-1,2-Dichloroethene | 0.749 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Trichloroethene | 0.840 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:24 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:24 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 18:24 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 18:24 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 105 | | 81-118 | | % | 1 | | 02/26/17 18:24 |
| 4-Bromofluorobenzene (surr) | 95.3 | | 85-114 | | % | 1 | | 02/26/17 18:24 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 02/26/17 18:24 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-103**

Client Sample ID: **MW-103**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600004
Lab Project ID: 1177600

Collection Date: 02/22/17 16:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 18:24
Container ID: 1177600004-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW-105**

Client Sample ID: **MW-105**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600005
Lab Project ID: 1177600

Collection Date: 02/22/17 16:47
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:40 |
| 1,1-Dichloroethane | 0.415 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:40 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 18:40 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-105**

Client Sample ID: **MW-105**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600005
Lab Project ID: 1177600

Collection Date: 02/22/17 16:47
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| cis-1,2-Dichloroethene | 0.466 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:40 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 18:40 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 18:40 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Tetrachloroethene | 1.58 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| trans-1,2-Dichloroethene | 0.530 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Trichloroethene | 1.30 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:40 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:40 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 18:40 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 18:40 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 106 | | 81-118 | | % | 1 | | 02/26/17 18:40 |
| 4-Bromofluorobenzene (surr) | 97.3 | | 85-114 | | % | 1 | | 02/26/17 18:40 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 02/26/17 18:40 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-105**

Client Sample ID: **MW-105**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600005
Lab Project ID: 1177600

Collection Date: 02/22/17 16:47
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 18:40
Container ID: 1177600005-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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Results of **MW-34**

Client Sample ID: **MW-34**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600006
Lab Project ID: 1177600

Collection Date: 02/23/17 11:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:55 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 18:55 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 18:55 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |

Results of **MW-34**

Client Sample ID: **MW-34**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600006
Lab Project ID: 1177600

Collection Date: 02/23/17 11:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| cis-1,2-Dichloroethene | 0.954 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 18:55 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 18:55 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 18:55 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Tetrachloroethene | 4.45 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Toluene | 0.320 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| trans-1,2-Dichloroethene | 0.547 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Trichloroethene | 3.55 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 18:55 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 18:55 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 18:55 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 18:55 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 107 | | 81-118 | | % | 1 | | 02/26/17 18:55 |
| 4-Bromofluorobenzene (surr) | 95.9 | | 85-114 | | % | 1 | | 02/26/17 18:55 |
| Toluene-d8 (surr) | 100 | | 89-112 | | % | 1 | | 02/26/17 18:55 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-34**

Client Sample ID: **MW-34**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600006
Lab Project ID: 1177600

Collection Date: 02/23/17 11:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 18:55
Container ID: 1177600006-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600007
Lab Project ID: 1177600

Collection Date: 02/23/17 14:44
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:10 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:10 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 19:10 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |

Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600007
Lab Project ID: 1177600

Collection Date: 02/23/17 14:44
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| cis-1,2-Dichloroethene | 2.05 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:10 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 19:10 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 19:10 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Tetrachloroethene | 0.979 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| trans-1,2-Dichloroethene | 4.41 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Trichloroethene | 1.53 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:10 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:10 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 19:10 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 19:10 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 106 | | 81-118 | | % | 1 | | 02/26/17 19:10 |
| 4-Bromofluorobenzene (surr) | 95.7 | | 85-114 | | % | 1 | | 02/26/17 19:10 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 02/26/17 19:10 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-5**

Client Sample ID: **MW-5**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600007
Lab Project ID: 1177600

Collection Date: 02/23/17 14:44
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 19:10
Container ID: 1177600007-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600008
Lab Project ID: 1177600

Collection Date: 02/23/17 14:34
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:26 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:26 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 19:26 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600008
Lab Project ID: 1177600

Collection Date: 02/23/17 14:34
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| cis-1,2-Dichloroethene | 2.02 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:26 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 19:26 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 19:26 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Tetrachloroethene | 0.947 J | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| trans-1,2-Dichloroethene | 4.43 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Trichloroethene | 1.48 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:26 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:26 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 19:26 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 19:26 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 106 | | 81-118 | | % | 1 | | 02/26/17 19:26 |
| 4-Bromofluorobenzene (surr) | 95.9 | | 85-114 | | % | 1 | | 02/26/17 19:26 |
| Toluene-d8 (surr) | 101 | | 89-112 | | % | 1 | | 02/26/17 19:26 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-6**

Client Sample ID: **MW-6**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600008
Lab Project ID: 1177600

Collection Date: 02/23/17 14:34
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 19:26
Container ID: 1177600008-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



SGS North America Inc.
200 West Potter Drive Anchorage, AK 95518
**t** 907.562.2343 **f** 907.561.5301 www.us.sgs.com

Results of **MW-26**

Client Sample ID: **MW-26**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600009
Lab Project ID: 1177600

Collection Date: 02/23/17 16:13
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:41 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| Benzene | 0.157 | J | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:41 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 19:41 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-26**

Client Sample ID: **MW-26**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600009
Lab Project ID: 1177600

Collection Date: 02/23/17 16:13
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| cis-1,2-Dichloroethene | 7.67 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:41 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 19:41 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 19:41 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Tetrachloroethene | 1.55 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| trans-1,2-Dichloroethene | 6.13 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Trichloroethene | 1.94 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:41 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:41 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 19:41 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 19:41 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 107 | | 81-118 | | % | 1 | | 02/26/17 19:41 |
| 4-Bromofluorobenzene (surr) | 97.1 | | 85-114 | | % | 1 | | 02/26/17 19:41 |
| Toluene-d8 (surr) | 102 | | 89-112 | | % | 1 | | 02/26/17 19:41 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-26**

Client Sample ID: **MW-26**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600009
Lab Project ID: 1177600

Collection Date: 02/23/17 16:13
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 19:41
Container ID: 1177600009-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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Results of **MW-19**

Client Sample ID: **MW-19**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600010
Lab Project ID: 1177600

Collection Date: 02/23/17 17:30
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:56 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 19:56 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 19:56 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-19**

Client Sample ID: **MW-19**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600010
Lab Project ID: 1177600

Collection Date: 02/23/17 17:30
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Chloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| cis-1,2-Dichloroethene | 0.609 | J | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| cis-1,3-Dichloropropene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| Dibromochloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 19:56 |
| Dibromomethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Dichlorodifluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Ethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Freon-113 | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| Hexachlorobutadiene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Isopropylbenzene (Cumene) | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Methylene chloride | 2.50 | U | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 19:56 |
| Methyl-t-butyl ether | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| Naphthalene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| n-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| n-Propylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| o-Xylene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| P & M -Xylene | 1.00 | U | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 19:56 |
| sec-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Styrene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| tert-Butylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Tetrachloroethene | 2.28 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Toluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| trans-1,2-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| trans-1,3-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Trichloroethene | 3.43 | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Trichlorofluoromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 19:56 |
| Vinyl acetate | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 19:56 |
| Vinyl chloride | 0.0750 | U | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 19:56 |
| Xylenes (total) | 1.50 | U | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 19:56 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 106 | | 81-118 | | % | 1 | | 02/26/17 19:56 |
| 4-Bromofluorobenzene (surr) | 97 | | 85-114 | | % | 1 | | 02/26/17 19:56 |
| Toluene-d8 (surr) | 99.9 | | 89-112 | | % | 1 | | 02/26/17 19:56 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **MW-19**

Client Sample ID: **MW-19**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600010
Lab Project ID: 1177600

Collection Date: 02/23/17 17:30
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 19:56
Container ID: 1177600010-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600011
Lab Project ID: 1177600

Collection Date: 02/22/17 11:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| 1,1,1-Trichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,1,2,2-Tetrachloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| 1,1,2-Trichloroethane | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 16:07 |
| 1,1-Dichloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,1-Dichloroethene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,1-Dichloropropene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2,3-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2,3-Trichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2,4-Trichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2,4-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2-Dibromo-3-chloropropane | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2-Dibromoethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2-Dichloroethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| 1,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,3,5-Trimethylbenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,3-Dichlorobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 1,3-Dichloropropane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| 1,4-Dichlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| 2,2-Dichloropropane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 2-Butanone (MEK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| 2-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 2-Hexanone | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| 4-Chlorotoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 4-Isopropyltoluene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| 4-Methyl-2-pentanone (MIBK) | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| Benzene | 0.200 | U | 0.400 | 0.120 | ug/L | 1 | | 02/26/17 16:07 |
| Bromobenzene | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Bromochloromethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Bromodichloromethane | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| Bromoform | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Bromomethane | 2.50 | U | 5.00 | 1.50 | ug/L | 1 | | 02/26/17 16:07 |
| Carbon disulfide | 5.00 | U | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| Carbon tetrachloride | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Chlorobenzene | 0.250 | U | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| Chloroethane | 0.500 | U | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |

Print Date: 03/27/2017 2:33:45PM

J flagging is activated

Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600011
Lab Project ID: 1177600

Collection Date: 02/22/17 11:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

| Parameter | Result | Qual | LOQ/CL | DL | Units | DF | Allowable Limits | Date Analyzed |
|---|---|---|---|---|---|---|---|---|
| Chloroform | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Chloromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| cis-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| cis-1,3-Dichloropropene | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| Dibromochloromethane | 0.250 U | | 0.500 | 0.150 | ug/L | 1 | | 02/26/17 16:07 |
| Dibromomethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Dichlorodifluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Ethylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Freon-113 | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| Hexachlorobutadiene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Isopropylbenzene (Cumene) | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Methylene chloride | 2.50 U | | 5.00 | 1.00 | ug/L | 1 | | 02/26/17 16:07 |
| Methyl-t-butyl ether | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| Naphthalene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| n-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| n-Propylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| o-Xylene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| P & M -Xylene | 1.00 U | | 2.00 | 0.620 | ug/L | 1 | | 02/26/17 16:07 |
| sec-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Styrene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| tert-Butylbenzene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Tetrachloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Toluene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| trans-1,2-Dichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| trans-1,3-Dichloropropene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Trichloroethene | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Trichlorofluoromethane | 0.500 U | | 1.00 | 0.310 | ug/L | 1 | | 02/26/17 16:07 |
| Vinyl acetate | 5.00 U | | 10.0 | 3.10 | ug/L | 1 | | 02/26/17 16:07 |
| Vinyl chloride | 0.0750 U | | 0.150 | 0.0500 | ug/L | 1 | | 02/26/17 16:07 |
| Xylenes (total) | 1.50 U | | 3.00 | 1.00 | ug/L | 1 | | 02/26/17 16:07 |
| **Surrogates** | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 104 | | 81-118 | | % | 1 | | 02/26/17 16:07 |
| 4-Bromofluorobenzene (surr) | 99.4 | | 85-114 | | % | 1 | | 02/26/17 16:07 |
| Toluene-d8 (surr) | 100 | | 89-112 | | % | 1 | | 02/26/17 16:07 |



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Results of **Trip Blank**

Client Sample ID: **Trip Blank**
Client Project ID: **31-1-11843-002 Six Mile Vill.**
Lab Sample ID: 1177600011
Lab Project ID: 1177600

Collection Date: 02/22/17 11:15
Received Date: 02/24/17 16:10
Matrix: Water (Surface, Eff., Ground)
Solids (%):
Location:

Results by **Volatile GC/MS**

**Batch Information**

Analytical Batch: VMS16543
Analytical Method: SW8260C
Analyst: NRB
Analytical Date/Time: 02/26/17 16:07
Container ID: 1177600011-A

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 02/26/17 06:00
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1754380 [VXX/30220]
Blank Lab ID: 1374530

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1177600001, 1177600002, 1177600003, 1177600004, 1177600005, 1177600006, 1177600007, 1177600008, 1177600009, 1177600010, 1177600011

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| 1,1,1,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,1-Trichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1,2,2-Tetrachloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,1,2-Trichloroethane | 0.200U | 0.400 | 0.120 | ug/L |
| 1,1-Dichloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,1-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,3-Trichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2,4-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dibromo-3-chloropropane | 5.00U | 10.0 | 3.10 | ug/L |
| 1,2-Dibromoethane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,2-Dichloroethane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3,5-Trimethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichlorobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| 1,3-Dichloropropane | 0.250U | 0.500 | 0.150 | ug/L |
| 1,4-Dichlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| 2,2-Dichloropropane | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Butanone (MEK) | 5.00U | 10.0 | 3.10 | ug/L |
| 2-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 2-Hexanone | 5.00U | 10.0 | 3.10 | ug/L |
| 4-Chlorotoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Isopropyltoluene | 0.500U | 1.00 | 0.310 | ug/L |
| 4-Methyl-2-pentanone (MIBK) | 5.00U | 10.0 | 3.10 | ug/L |
| Benzene | 0.200U | 0.400 | 0.120 | ug/L |
| Bromobenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Bromochloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Bromodichloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Bromoform | 0.500U | 1.00 | 0.310 | ug/L |
| Bromomethane | 2.50U | 5.00 | 1.50 | ug/L |
| Carbon disulfide | 5.00U | 10.0 | 3.10 | ug/L |
| Carbon tetrachloride | 0.500U | 1.00 | 0.310 | ug/L |
| Chlorobenzene | 0.250U | 0.500 | 0.150 | ug/L |
| Chloroethane | 0.500U | 1.00 | 0.310 | ug/L |
| Chloroform | 0.500U | 1.00 | 0.310 | ug/L |



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## Method Blank

Blank ID: MB for HBN 1754380 [VXX/30220]
Blank Lab ID: 1374530

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1177600001, 1177600002, 1177600003, 1177600004, 1177600005, 1177600006, 1177600007, 1177600008, 1177600009, 1177600010, 1177600011

Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| Chloromethane | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| cis-1,3-Dichloropropene | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromochloromethane | 0.250U | 0.500 | 0.150 | ug/L |
| Dibromomethane | 0.500U | 1.00 | 0.310 | ug/L |
| Dichlorodifluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Ethylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Freon-113 | 5.00U | 10.0 | 3.10 | ug/L |
| Hexachlorobutadiene | 0.500U | 1.00 | 0.310 | ug/L |
| Isopropylbenzene (Cumene) | 0.500U | 1.00 | 0.310 | ug/L |
| Methylene chloride | 2.50U | 5.00 | 1.00 | ug/L |
| Methyl-t-butyl ether | 5.00U | 10.0 | 3.10 | ug/L |
| Naphthalene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| n-Propylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| o-Xylene | 0.500U | 1.00 | 0.310 | ug/L |
| P & M -Xylene | 1.00U | 2.00 | 0.620 | ug/L |
| sec-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Styrene | 0.500U | 1.00 | 0.310 | ug/L |
| tert-Butylbenzene | 0.500U | 1.00 | 0.310 | ug/L |
| Tetrachloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,2-Dichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| trans-1,3-Dichloropropene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichloroethene | 0.500U | 1.00 | 0.310 | ug/L |
| Trichlorofluoromethane | 0.500U | 1.00 | 0.310 | ug/L |
| Vinyl acetate | 5.00U | 10.0 | 3.10 | ug/L |
| Vinyl chloride | 0.0750U | 0.150 | 0.0500 | ug/L |
| Xylenes (total) | 1.50U | 3.00 | 1.00 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 105 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 98.8 | 85-114 | | % |
| Toluene-d8 (surr) | 99.4 | 89-112 | | % |

## Method Blank

Blank ID: MB for HBN 1754380 [VXX/30220]
Blank Lab ID: 1374530

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1177600001, 1177600002, 1177600003, 1177600004, 1177600005, 1177600006, 1177600007, 1177600008, 1177600009, 1177600010, 1177600011

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|

### Batch Information

Analytical Batch: VMS16543
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 2/26/2017 1:51:00PM

Prep Batch: VXX30220
Prep Method: SW5030B
Prep Date/Time: 2/26/2017 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1177600 [VXX30220]
Blank Spike Lab ID: 1374531
Date Analyzed: 02/26/2017 14:07

Spike Duplicate ID: LCSD for HBN 1177600 [VXX30220]
Spike Duplicate Lab ID: 1374532
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1177600001, 1177600002, 1177600003, 1177600004, 1177600005, 1177600006, 1177600007, 1177600008, 1177600009, 1177600010, 1177600011

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| 1,1,1,2-Tetrachloroethane | 30 | 32.0 | 107 | 30 | 32.2 | 107 | ( 78-124 ) | 0.69 | (< 20 ) |
| 1,1,1-Trichloroethane | 30 | 29.8 | 100 | 30 | 30.2 | 101 | ( 74-131 ) | 1.20 | (< 20 ) |
| 1,1,2,2-Tetrachloroethane | 30 | 30.3 | 101 | 30 | 29.7 | 99 | ( 71-121 ) | 2.10 | (< 20 ) |
| 1,1,2-Trichloroethane | 30 | 31.7 | 106 | 30 | 30.8 | 103 | ( 80-119 ) | 2.80 | (< 20 ) |
| 1,1-Dichloroethane | 30 | 27.7 | 92 | 30 | 28.1 | 94 | ( 77-125 ) | 1.70 | (< 20 ) |
| 1,1-Dichloroethene | 30 | 28.0 | 93 | 30 | 28.6 | 95 | ( 71-131 ) | 2.10 | (< 20 ) |
| 1,1-Dichloropropene | 30 | 30.9 | 103 | 30 | 31.2 | 104 | ( 79-125 ) | 1.10 | (< 20 ) |
| 1,2,3-Trichlorobenzene | 30 | 32.5 | 108 | 30 | 32.2 | 107 | ( 69-129 ) | 0.77 | (< 20 ) |
| 1,2,3-Trichloropropane | 30 | 30.6 | 102 | 30 | 29.9 | 100 | ( 73-122 ) | 2.40 | (< 20 ) |
| 1,2,4-Trichlorobenzene | 30 | 30.3 | 101 | 30 | 30.5 | 102 | ( 69-130 ) | 0.66 | (< 20 ) |
| 1,2,4-Trimethylbenzene | 30 | 31.8 | 106 | 30 | 33.0 | 110 | ( 79-124 ) | 3.50 | (< 20 ) |
| 1,2-Dibromo-3-chloropropane | 30 | 31.5 | 105 | 30 | 28.8 | 96 | ( 62-128 ) | 9.20 | (< 20 ) |
| 1,2-Dibromoethane | 30 | 32.2 | 107 | 30 | 31.2 | 104 | ( 77-121 ) | 3.20 | (< 20 ) |
| 1,2-Dichlorobenzene | 30 | 28.8 | 96 | 30 | 29.0 | 97 | ( 80-119 ) | 0.59 | (< 20 ) |
| 1,2-Dichloroethane | 30 | 27.3 | 91 | 30 | 27.3 | 91 | ( 73-128 ) | 0.04 | (< 20 ) |
| 1,2-Dichloropropane | 30 | 30.5 | 102 | 30 | 30.8 | 103 | ( 78-122 ) | 0.75 | (< 20 ) |
| 1,3,5-Trimethylbenzene | 30 | 31.9 | 106 | 30 | 33.1 | 110 | ( 75-124 ) | 3.90 | (< 20 ) |
| 1,3-Dichlorobenzene | 30 | 28.7 | 96 | 30 | 29.3 | 98 | ( 80-119 ) | 2.00 | (< 20 ) |
| 1,3-Dichloropropane | 30 | 31.5 | 105 | 30 | 30.8 | 103 | ( 80-119 ) | 2.20 | (< 20 ) |
| 1,4-Dichlorobenzene | 30 | 29.5 | 98 | 30 | 30.3 | 101 | ( 79-118 ) | 2.60 | (< 20 ) |
| 2,2-Dichloropropane | 30 | 29.3 | 98 | 30 | 29.8 | 100 | ( 60-139 ) | 1.70 | (< 20 ) |
| 2-Butanone (MEK) | 90 | 104 | 116 | 90 | 87.6 | 97 | ( 56-143 ) | 17.20 | (< 20 ) |
| 2-Chlorotoluene | 30 | 30.5 | 102 | 30 | 31.7 | 106 | ( 79-122 ) | 4.00 | (< 20 ) |
| 2-Hexanone | 90 | 94.3 | 105 | 90 | 87.1 | 97 | ( 57-139 ) | 8.00 | (< 20 ) |
| 4-Chlorotoluene | 30 | 30.6 | 102 | 30 | 31.7 | 106 | ( 78-122 ) | 3.40 | (< 20 ) |
| 4-Isopropyltoluene | 30 | 32.8 | 109 | 30 | 32.8 | 109 | ( 77-127 ) | 0.18 | (< 20 ) |
| 4-Methyl-2-pentanone (MIBK) | 90 | 95.8 | 106 | 90 | 99.6 | 111 | ( 67-130 ) | 3.80 | (< 20 ) |
| Benzene | 30 | 29.4 | 98 | 30 | 29.6 | 99 | ( 79-120 ) | 0.64 | (< 20 ) |
| Bromobenzene | 30 | 29.0 | 97 | 30 | 29.7 | 99 | ( 80-120 ) | 2.20 | (< 20 ) |
| Bromochloromethane | 30 | 27.7 | 92 | 30 | 28.0 | 93 | ( 78-123 ) | 1.20 | (< 20 ) |
| Bromodichloromethane | 30 | 30.0 | 100 | 30 | 30.1 | 100 | ( 79-125 ) | 0.33 | (< 20 ) |
| Bromoform | 30 | 33.3 | 111 | 30 | 32.3 | 108 | ( 66-130 ) | 2.90 | (< 20 ) |
| Bromomethane | 30 | 27.9 | 93 | 30 | 31.4 | 105 | ( 53-141 ) | 11.50 | (< 20 ) |
| Carbon disulfide | 45 | 39.9 | 89 | 45 | 40.6 | 90 | ( 64-133 ) | 1.80 | (< 20 ) |

## Blank Spike Summary

Blank Spike ID: LCS for HBN 1177600 [VXX30220]
Blank Spike Lab ID: 1374531
Date Analyzed: 02/26/2017 14:07

Spike Duplicate ID: LCSD for HBN 1177600 [VXX30220]
Spike Duplicate Lab ID: 1374532
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1177600001, 1177600002, 1177600003, 1177600004, 1177600005, 1177600006, 1177600007, 1177600008, 1177600009, 1177600010, 1177600011

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| Carbon tetrachloride | 30 | 31.1 | 104 | 30 | 31.6 | 105 | ( 72-136 ) | 1.60 | (< 20 ) |
| Chlorobenzene | 30 | 28.7 | 96 | 30 | 29.3 | 98 | ( 82-118 ) | 1.90 | (< 20 ) |
| Chloroethane | 30 | 28.8 | 96 | 30 | 28.5 | 95 | ( 60-138 ) | 0.80 | (< 20 ) |
| Chloroform | 30 | 27.6 | 92 | 30 | 28.1 | 94 | ( 79-124 ) | 1.80 | (< 20 ) |
| Chloromethane | 30 | 27.0 | 90 | 30 | 34.2 | 114 | ( 50-139 ) | 23.40 * | (< 20 ) |
| cis-1,2-Dichloroethene | 30 | 27.1 | 90 | 30 | 28.2 | 94 | ( 78-123 ) | 4.10 | (< 20 ) |
| cis-1,3-Dichloropropene | 30 | 31.6 | 105 | 30 | 31.9 | 106 | ( 75-124 ) | 0.85 | (< 20 ) |
| Dibromochloromethane | 30 | 31.9 | 106 | 30 | 31.2 | 104 | ( 74-126 ) | 2.20 | (< 20 ) |
| Dibromomethane | 30 | 28.2 | 94 | 30 | 28.1 | 94 | ( 79-123 ) | 0.14 | (< 20 ) |
| Dichlorodifluoromethane | 30 | 30.4 | 101 | 30 | 31.0 | 103 | ( 32-152 ) | 2.10 | (< 20 ) |
| Ethylbenzene | 30 | 30.4 | 101 | 30 | 30.5 | 102 | ( 79-121 ) | 0.56 | (< 20 ) |
| Freon-113 | 45 | 44.2 | 98 | 45 | 44.9 | 100 | ( 70-136 ) | 1.60 | (< 20 ) |
| Hexachlorobutadiene | 30 | 29.9 | 100 | 30 | 30.5 | 102 | ( 66-134 ) | 2.00 | (< 20 ) |
| Isopropylbenzene (Cumene) | 30 | 32.5 | 108 | 30 | 31.6 | 105 | ( 72-131 ) | 2.70 | (< 20 ) |
| Methylene chloride | 30 | 28.4 | 95 | 30 | 26.5 | 88 | ( 74-124 ) | 7.20 | (< 20 ) |
| Methyl-t-butyl ether | 45 | 48.5 | 108 | 45 | 48.0 | 107 | ( 71-124 ) | 1.00 | (< 20 ) |
| Naphthalene | 30 | 33.1 | 110 | 30 | 28.2 | 94 | ( 61-128 ) | 15.80 | (< 20 ) |
| n-Butylbenzene | 30 | 32.9 | 110 | 30 | 31.0 | 103 | ( 75-128 ) | 6.00 | (< 20 ) |
| n-Propylbenzene | 30 | 31.6 | 105 | 30 | 32.5 | 108 | ( 76-126 ) | 2.90 | (< 20 ) |
| o-Xylene | 30 | 31.3 | 104 | 30 | 31.5 | 105 | ( 78-122 ) | 0.54 | (< 20 ) |
| P & M -Xylene | 60 | 62.7 | 104 | 60 | 62.9 | 105 | ( 80-121 ) | 0.46 | (< 20 ) |
| sec-Butylbenzene | 30 | 32.6 | 109 | 30 | 32.2 | 107 | ( 77-126 ) | 1.10 | (< 20 ) |
| Styrene | 30 | 32.4 | 108 | 30 | 30.7 | 102 | ( 78-123 ) | 5.30 | (< 20 ) |
| tert-Butylbenzene | 30 | 31.9 | 106 | 30 | 31.7 | 106 | ( 78-124 ) | 0.50 | (< 20 ) |
| Tetrachloroethene | 30 | 30.7 | 102 | 30 | 30.6 | 102 | ( 74-129 ) | 0.20 | (< 20 ) |
| Toluene | 30 | 27.3 | 91 | 30 | 27.6 | 92 | ( 80-121 ) | 1.10 | (< 20 ) |
| trans-1,2-Dichloroethene | 30 | 27.5 | 92 | 30 | 28.2 | 94 | ( 75-124 ) | 2.30 | (< 20 ) |
| trans-1,3-Dichloropropene | 30 | 32.5 | 108 | 30 | 30.3 | 101 | ( 73-127 ) | 7.20 | (< 20 ) |
| Trichloroethene | 30 | 29.9 | 100 | 30 | 30.1 | 100 | ( 79-123 ) | 0.70 | (< 20 ) |
| Trichlorofluoromethane | 30 | 29.2 | 97 | 30 | 29.7 | 99 | ( 65-141 ) | 1.70 | (< 20 ) |
| Vinyl acetate | 30 | 30.3 | 101 | 30 | 31.9 | 106 | ( 54-146 ) | 5.10 | (< 20 ) |
| Vinyl chloride | 30 | 28.4 | 95 | 30 | 29.7 | 99 | ( 58-137 ) | 4.50 | (< 20 ) |
| Xylenes (total) | 90 | 94.0 | 104 | 90 | 94.5 | 105 | ( 79-121 ) | 0.49 | (< 20 ) |



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1177600 [VXX30220]
Blank Spike Lab ID: 1374531
Date Analyzed: 02/26/2017 14:07

Spike Duplicate ID: LCSD for HBN 1177600 [VXX30220]
Spike Duplicate Lab ID: 1374532
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1177600001, 1177600002, 1177600003, 1177600004, 1177600005, 1177600006, 1177600007, 1177600008, 1177600009, 1177600010, 1177600011

## Results by **SW8260C**

| | Blank Spike (%) | | | Spike Duplicate (%) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 96.5 | 97 | 30 | 96.3 | 96 | ( 81-118 ) | 0.17 | |
| 4-Bromofluorobenzene (surr) | 30 | 101 | 101 | 30 | 101 | 101 | ( 85-114 ) | 0.03 | |
| Toluene-d8 (surr) | 30 | 101 | 101 | 30 | 101 | 101 | ( 89-112 ) | 0.59 | |

## Batch Information

Analytical Batch: **VMS16543**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX30220**
Prep Method: **SW5030B**
Prep Date/Time: **02/26/2017 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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## Method Blank

Blank ID: MB for HBN 1754425 [VXX/30226]
Blank Lab ID: 1374671

Matrix: Water (Surface, Eff., Ground)

QC for Samples:
1177600001

## Results by **SW8260C**

| Parameter | Results | LOQ/CL | DL | Units |
|---|---|---|---|---|
| o-Xylene | 0.500U | 1.00 | 0.310 | ug/L |
| P & M -Xylene | 1.00U | 2.00 | 0.620 | ug/L |
| Toluene | 0.500U | 1.00 | 0.310 | ug/L |
| **Surrogates** | | | | |
| 1,2-Dichloroethane-D4 (surr) | 107 | 81-118 | | % |
| 4-Bromofluorobenzene (surr) | 98.2 | 85-114 | | % |
| Toluene-d8 (surr) | 99.6 | 89-112 | | % |

## Batch Information

Analytical Batch: VMS16549
Analytical Method: SW8260C
Instrument: VPA 780/5975 GC/MS
Analyst: NRB
Analytical Date/Time: 2/27/2017 6:33:00PM

Prep Batch: VXX30226
Prep Method: SW5030B
Prep Date/Time: 2/27/2017 6:00:00AM
Prep Initial Wt./Vol.: 5 mL
Prep Extract Vol: 5 mL



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## Blank Spike Summary

Blank Spike ID: LCS for HBN 1177600 [VXX30226]
Blank Spike Lab ID: 1374672
Date Analyzed: 02/27/2017 18:48

Spike Duplicate ID: LCSD for HBN 1177600 [VXX30226]
Spike Duplicate Lab ID: 1374673
Matrix: Water (Surface, Eff., Ground)

QC for Samples: 1177600001

## Results by **SW8260C**

| | Blank Spike (ug/L) | | | Spike Duplicate (ug/L) | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Parameter | Spike | Result | Rec (%) | Spike | Result | Rec (%) | CL | RPD (%) | RPD CL |
| o-Xylene | 30 | 29.9 | 100 | 30 | 30.1 | 100 | ( 78-122 ) | 0.80 | (< 20 ) |
| P & M -Xylene | 60 | 59.9 | 100 | 60 | 60.0 | 100 | ( 80-121 ) | 0.20 | (< 20 ) |
| Toluene | 30 | 26.4 | 88 | 30 | 26.8 | 89 | ( 80-121 ) | 1.50 | (< 20 ) |
| **Surrogates** | | | | | | | | | |
| 1,2-Dichloroethane-D4 (surr) | 30 | 98.9 | 99 | 30 | 97.5 | 98 | ( 81-118 ) | 1.40 | |
| 4-Bromofluorobenzene (surr) | 30 | 99.2 | 99 | 30 | 101 | 101 | ( 85-114 ) | 1.40 | |
| Toluene-d8 (surr) | 30 | 100 | 100 | 30 | 99.2 | 99 | ( 89-112 ) | 0.80 | |

## Batch Information

Analytical Batch: **VMS16549**
Analytical Method: **SW8260C**
Instrument: **VPA 780/5975 GC/MS**
Analyst: **NRB**

Prep Batch: **VXX30226**
Prep Method: **SW5030B**
Prep Date/Time: **02/27/2017 06:00**
Spike Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL
Dupe Init Wt./Vol.: 30 ug/L Extract Vol: 5 mL



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1177600

# SHANNON & WILSON, INC.
Geotechnical and Environmental Consultants

# CHAIN ECORD

Page 1 of 17

Laboratory SGS

Attn:

400 N. 34th Street, Suite 100
Seattle, WA 98103
(206) 632-8020

2355 Hill Road
Fairbanks, AK 99709
(907) 479-0600

2255 S.W. Canyon Road
Portland, OR 97201-2498
(503) 223-6147

2043 Westport Center Drive
St. Louis, MO 63146-3564
(314) 699-9660

5430 Fairbanks Street, Suite 3
Anchorage, AK 99518
(907) 561-2120

1321 Bannock Street, Suite 200
Denver, CO 80204
(303) 825-3800

2705 Saint Andrews Loop, Suite A
Pasco, WA 99301-3378
(509) 946-6309

**Analysis Parameters/Sample Container Description**
(include preservative if used)

| Sample Identity | Lab No. | Time | Date Sampled | Comp. | Grab | VOCs EPA 8260D | | | | | | Total Number of Containers | Remarks/Matrix |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MW-108 | (1) A-C | 11:45 | 2/22/17 | | X | X | | | | | | 3 | Groundwater |
| MW-107 | (2) A-C | 12:24 | | | X | X | | | | | | 3 | |
| MW-104 | (3) A-C | 15:42 | | | X | X | | | | | | 3 | |
| MW-103 | (4) A-C | 16:15 | | | X | X | | | | | | 3 | |
| MW-105 | (5) A-C | 16:47 | | | X | X | | | | | | 3 | |
| MW-34 | (6) A-C | 11:15 | 2/23/17 | | X | X | | | | | | 3 | |
| MW-5 | (7) A-C | 14:44 | | | X | X | | | | | | 3 | |
| MW-6 | (8) A-C | 14:34 | | | X | X | | | | | | 3 | |
| MW-26 | (9) A-C | 16:13 | | | X | X | | | | | | 3 | |
| MW-19 | (10) A-C | 17:30 | | | X | X | | | | | | 3 | (11) A-C |

| Project Information | | Sample Receipt | |
|---|---|---|---|
| Project Number: | 31-1-11843-002 | Total Number of Containers | 30 |
| Project Name: | Six Mile Village | COC Seals/Intact? Y/N/NA | |
| Contact: | SMH | Received Good Cond./Cold | |
| Ongoing Project? | Yes ☑ No ☐ | Delivery Method: | Hand |
| Sampler: | SYR, APW | (attach shipping bill, if any) | |

**Instructions**

Requested Turnaround Time: Standard

Special Instructions:

Bill to Shannon & Wilson

| Relinquished By: 1. | Relinquished By: 2. | Relinquished By: 3. |
|---|---|---|
| Signature: Time: 09:43 | Signature: Time: 1230 | Signature: Time: |
| Printed Name: Adam Wyburny Date: 2/24/17 | Printed Name: SAD Date: 2-24-17 | Printed Name: Date: |
| Company: Shannon & Wilson, Inc. | Company: SGS | Company: |
| **Received By: 1.** | **Received By: 2.** | **Received By: 3.** |
| Signature: Time: 943 | Signature: Time: | Signature: Time: 16:10 |
| Printed Name: Ben Pacillas Date: 2-24-17 | Printed Name: Date: | Printed Name: Nicholas Wells Date: 2/24/17 |
| Company: SGS | Company: | Company: SGS |

Distribution: White - w/shipment - returned to Shannon & Wilson w/ laboratory report
Yellow - w/shipment - for consignee files
Pink - Shannon & Wilson - Job File

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F-19-91/UR

ANC: TB: 2.6 #D20 CS: 1F, 1B

No. 34338

SGS

1177600

# FAIRBANKS SAMPLE RECEIPT FORM

**Note: This form is to be completed by Fairbanks Receiving Staff for all samples**

| Review Criteria: | Condition: | Comments/Actions Taken |
|---|---|---|
| Were **custody seals** intact? Note # & location, if applicable.<br>COC accompanied samples? | Yes No ~~N/A~~<br>~~Yes~~ No N/A | □*Exemption permitted if sampler hand carries/delivers.* |
| **Temperature blank** compliant* (i.e., 0-6°C)<br>*If >6°C, were samples collected <8 hours ago?*<br>*If <0°C, were all sample containers ice free?*<br>Cooler ID: 1 @ 4.2 w/Therm. ID: D21<br>Cooler ID:_____@_____w/Therm. ID:_____<br>Cooler ID:_____@_____w/Therm. ID:_____<br>Cooler ID:_____@_____w/Therm. ID:_____<br>Cooler ID:_____@_____w/Therm. ID:_____<br>If samples are received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank and "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note ambient ( ) or chilled ( ). Please check one. | ~~Yes~~ No<br>Yes No ~~N/A~~<br>Yes No ~~N/A~~ | □*Exemption permitted if chilled & collected <8hrs ago*<br>***Note: Identify containers received at non-compliant temperature. Use form FS-0029 if more space is needed.*** |
| Delivery Method: ~~Client~~ (hand carried) Other:_____ | Tracking/AB# :<br>Or see attached<br>~~Or N/A~~ | |
| →For samples received with payment, note amount ($ ) and whether cash / check / CC (**circle one**) was received. | | |
| Were samples in **good condition** (no leaks/cracks/breakage)?<br>Packing material used (specify all that apply): Bubble Wrap<br>Separate plastic bags Vermiculite Other:_____ | ~~Yes~~ No N/A | ***Note: some samples are sent to Anchorage without inspection by SGS Fairbanks personnel.*** |
| Were **Trip Blanks** (i.e., VOAs, LL-Hg) in cooler with samples? | ~~Yes~~ No N/A | |
| For **RUSH/SHORT Hold Time**, were COC/Bottles flagged accordingly? Was Rush/Short HT email sent, if applicable? | Yes No ~~N/A~~<br>Yes No ~~N/A~~ | |

Additional notes (if applicable):

Profile #: 265915

***Note to Client: any "no" circled above indicates non-compliance with standard procedures and may impact data quality.***

027 FAI 1866 7493

027-1866 7493

Shipper's Name and Address
SGS North America Inc
200 W Potter Drive
Anchorage, AK 99518
USA
Tel: 9075622343

Shipper's Account Number: 27400215947
Customer's ID Number: 9069

Not Negotiable

**Air Waybill**

Issued By: Alaska AIR CARGO
P.O. BOX 68900 SEATTLE, WA 98168
800-225-2752 ALASKACARGO.COM

Consignee's Name and Address
SGS North America Inc
200 W Potter Drive
Anchorage, AK 99518
USA
Tel: 9075622343

Consignee's Account Number: 27400215947

Also notify
Tel:

Issuing Carrier's Agent and City

Accounting Information
9069
SGS North America Inc
200 W Potter Drive
Anchorage, AK 99518
USA

GoldStreak

Agent's IATA Code

Account No.

Airport of Departure (Addr. of First Carrier) and Requested Routing
Fairbanks

| To | By First Carrier | To / By | To / By | Currency | WT/A | Other | Declared Value For Carriage | Declared Value For Customs |
|---|---|---|---|---|---|---|---|---|
| ANC | Alaska Airlines | | | USD | PX | X / X | NVD | NCV |

| Airport of Destination | Flight/Date | Flight/Date | Amount of Insurance |
|---|---|---|---|
| Anchorage | AS 055/24 | | XXX |

Handling Information

SCI

| No of Pieces | Gross Weight | kg / lb | Commodity Item No. | Chargeable Weight | Rate / Charge | Total | Nature and Quantity of Goods (incl. Dimensions or Volume) |
|---|---|---|---|---|---|---|---|
| 3 | 118.0 | K | Q | 118.0 | | AS AGREED | WATER SAMPLES<br>Dims: 13 x 14 x24 x 3<br>GSX |
| 3 | 118.0 | | | | | AS AGREED | Volume: 7.583 |

| Prepaid | Weight Charge | Collect | Other Charges |
|---|---|---|---|
| AS AGREED | | | XBC 0.00 |

Valuation Charge

Tax

Total Other Charges Due Agent

Total Other Charges Due Carrier

Shipper certifies that the particulars on the face hereof are correct and that **insofar as any part of the consignment contains dangerous goods, such part is properly described by name and is in proper condition for carriage by air according to the applicable Dangerous Goods Regulations. I consent to the inspection of this cargo.**

For: SGS North America Inc

Signature of Shipper or his Agent

JP THIS SHIPMENT DOES NOT CONTAIN DANGEROUS GOODS

THIS SHIPMENT DOES CONTAIN DANGEROUS GOODS

| Total Prepaid | Total Collect |
|---|---|
| AS AGREED | |

24 Feb 2017 13:19 — Executed On (Date)

Fairbanks — at (Place)

Alaska Airlines — Signature of Issuing Carrier or its Agent

027-1866 7493

**Alert Expeditors Inc.**

Citywide Delivery • 440-3351
8421 Flamingo Drive • Anchorage, Alaska 99502

Date 2/24/17

From SES

To SES

| Collect ☐ | Prepay ☐ Account ☐ | Advance Charges ☐ |
|---|---|---|
| Job # | PO# | |

2117 lbs

T = 74C

Shipped Signature

Total Charge

Received By:_____

e-Sample Receipt Form

**SGS Workorder #:** **1177600**

| Review Criteria | Condition (Yes, No, N/A) | Exceptions Noted below |
|---|---|---|
| **Chain of Custody / Temperature Requirements** | | ☐ Exemption permitted if sampler hand carries/delivers. |
| Were Custody Seals intact? Note # & location | Yes | 1F/1B |
| COC accompanied samples? | Yes | |
| ☐ **Exemption permitted if chilled & collected <8 hours ago, or for samples where chilling is not required | | |
| Temperature blank compliant* (i.e., 0-6 °C after CF)? | Yes | Cooler ID: 1 @ 2.6 °C Therm. ID: D20 |
| | | Cooler ID: @ °C Therm. ID: |
| | | Cooler ID: @ °C Therm. ID: |
| | | Cooler ID: @ °C Therm. ID: |
| | | Cooler ID: @ °C Therm. ID: |
| *If >6°C, were samples collected <8 hours ago? | | |
| If <0°C, were sample containers ice free? | | |
| If samples received without a temperature blank, the "cooler temperature" will be documented in lieu of the temperature blank & "**COOLER TEMP**" will be noted to the right. In cases where neither a temp blank nor cooler temp can be obtained, note "ambient" or "chilled". | | |
| Note: Identify containers received at non-compliant temperature . Use form FS-0029 if more space is needed. | | |
| **Holding Time / Documentation / Sample Condition Requirements** | | Note: Refer to form F-083 "Sample Guide" for specific holding times. |
| Were samples received within holding time? | Yes | |
| Do samples **match COC**** (i.e.,sample IDs,dates/times collected)? | Yes | |
| **Note: If times differ <1hr, record details & login per COC. | | |
| Were analyses requested unambiguous? (i.e., method is specified for analyses with >1 option for analysis) | Yes | Method 8260C |
| | | ☐ ***Exemption permitted for metals (e.g,200.8/6020A). |
| Were proper containers (type/mass/volume/preservative***)used? | Yes | |
| **Volatile / LL-Hg Requirements** | | |
| Were Trip Blanks (i.e., VOAs, LL-Hg) in cooler with samples? | Yes | |
| Were all water VOA vials free of headspace (i.e., bubbles ≤ 6mm)? | Yes | |
| Were all soil VOAs field extracted with MeOH+BFB? | | |

**Note to Client:** Any "No", answer above indicates non-compliance with standard procedures and may impact data quality.

Additional notes (if applicable):

## Sample Containers and Preservatives

| Container Id | Preservative | Container Condition | Container Id | Preservative | Container Condition |
|---|---|---|---|---|---|
| 1177600001-A | HCL to pH < 2 | OK | | | |
| 1177600001-B | HCL to pH < 2 | OK | | | |
| 1177600001-C | HCL to pH < 2 | OK | | | |
| 1177600002-A | HCL to pH < 2 | OK | | | |
| 1177600002-B | HCL to pH < 2 | OK | | | |
| 1177600002-C | HCL to pH < 2 | OK | | | |
| 1177600003-A | HCL to pH < 2 | OK | | | |
| 1177600003-B | HCL to pH < 2 | OK | | | |
| 1177600003-C | HCL to pH < 2 | OK | | | |
| 1177600004-A | HCL to pH < 2 | OK | | | |
| 1177600004-B | HCL to pH < 2 | OK | | | |
| 1177600004-C | HCL to pH < 2 | OK | | | |
| 1177600005-A | HCL to pH < 2 | OK | | | |
| 1177600005-B | HCL to pH < 2 | OK | | | |
| 1177600005-C | HCL to pH < 2 | OK | | | |
| 1177600006-A | HCL to pH < 2 | OK | | | |
| 1177600006-B | HCL to pH < 2 | OK | | | |
| 1177600006-C | HCL to pH < 2 | OK | | | |
| 1177600007-A | HCL to pH < 2 | OK | | | |
| 1177600007-B | HCL to pH < 2 | OK | | | |
| 1177600007-C | HCL to pH < 2 | OK | | | |
| 1177600008-A | HCL to pH < 2 | OK | | | |
| 1177600008-B | HCL to pH < 2 | OK | | | |
| 1177600008-C | HCL to pH < 2 | OK | | | |
| 1177600009-A | HCL to pH < 2 | OK | | | |
| 1177600009-B | HCL to pH < 2 | OK | | | |
| 1177600009-C | HCL to pH < 2 | OK | | | |
| 1177600010-A | HCL to pH < 2 | OK | | | |
| 1177600010-B | HCL to pH < 2 | OK | | | |
| 1177600010-C | HCL to pH < 2 | OK | | | |
| 1177600011-A | HCL to pH < 2 | OK | | | |
| 1177600011-B | HCL to pH < 2 | OK | | | |
| 1177600011-C | HCL to pH < 2 | OK | | | |

| Container Id | Preservative | Container Condition | Container Id | Preservative | Container Condition |
|---|---|---|---|---|---|

Container Condition Glossary

Containers for bacteriological, low level mercury and VOA vials are not opened prior to analysis and will be assigned condition code OK unless evidence indicates than an inappropriate container was submitted.

OK - The container was received at an acceptable pH for the analysis requested.
BU - The container was received with headspace greater than 6mm.
DM- The container was received damaged.
FR- The container was received frozen and not usable for Bacteria or BOD analyses.
PA - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt and the container is now at the correct pH. See the Sample Receipt Form for details on the amount and lot # of the preservative added.
PH - The container was received outside of the acceptable pH for the analysis requested. Preservative was added upon receipt, but was insufficient to bring the container to the correct pH for the analysis requested. See the Sample Receipt Form for details on the amount and lot # of the preservative added.

# APPENDIX E

# ADEC LABORATORY DATA REVIEW CHECKLIST

# Laboratory Data Review Checklist

Completed by: Sheila Hinckley

Title: Environmental Scientist Date: March 28, 2017

CS Report Name: 2017 Six Mile Monitoring Well Sampling Report Date: March 27, 2017

Consultant Firm: Shannon & Wilson, Inc.

Laboratory Name: SGS North America, Inc. Laboratory Report Number: 1177600_Rev 1

ADEC File Number: 100.38.112 ADEC RecKey Number:

1. Laboratory
   a. Did an ADEC CS approved laboratory receive and perform all of the submitted sample analyses?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

   b. If the samples were transferred to another "network" laboratory or sub-contracted to an alternate laboratory, was the laboratory performing the analyses ADEC CS approved?
      ☐Yes ☐ No ☒NA (Please explain.) Comments:

      Samples were not transferred to a sub-contracted laboratory.

2. Chain of Custody (COC)
   a. COC information completed, signed, and dated (including released/received by)?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

   b. Correct analyses requested?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

3. Laboratory Sample Receipt Documentation
   a. Sample/cooler temperature documented and within range at receipt (4° ± 2° C)?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

      Temperature blanks were measured within the acceptable temperature range of 0 °C to 6 °C upon receipt at the SGS Fairbanks receiving office and their Anchorage laboratory. As specified in the EPA publication SW-846, temperatures within this range are considered acceptable; this range has been approved by ADEC.

b. Sample preservation acceptable – acidified waters, Methanol preserved VOC soil (GRO, BTEX, Volatile Chlorinated Solvents, etc.)?
☒Yes ☐ No ☐NA (Please explain.) Comments:

c. Sample condition documented – broken, leaking (Methanol), zero headspace (VOC vials)?
☒Yes ☐ No ☐NA (Please explain.) Comments:

Samples were received in good condition.

d. If there were any discrepancies, were they documented? For example, incorrect sample containers/preservation, sample temperature outside of acceptable range, insufficient or missing samples, etc.?
☐Yes ☐ No ☒NA (Please explain.) Comments:

There were no discrepancies noted by the laboratory.

e. Data quality or usability affected? (Please explain.)
Comments:

The data quality and usability were unaffected; see above.

4. Case Narrative
a. Present and understandable?
☒Yes ☐ No ☐NA (Please explain.) Comments:

b. Discrepancies, errors or QC failures identified by the lab?
☒Yes ☐ No ☐NA (Please explain.) Comments:

The LCS/LCSD RPD for chloromethane (23.4%) does not meet QC criteria. This analyte was not detected above the LOQ in the associated samples.

c. Were all corrective actions documented?
☐Yes ☐ No ☒NA (Please explain.) Comments:

Corrective action were not documented by the laboratory.

d. What is the effect on data quality/usability according to the case narrative?
Comments:

The laboratory does not list an effect on data quality or usability. Refer to Section 6.b below for further qualifications.

5. Samples Results
   a. Correct analyses performed/reported as requested on COC?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

   b. All applicable holding times met?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

   c. All soils reported on a dry weight basis?
      ☐Yes ☐ No ☒NA (Please explain.) Comments:

      Soil samples were not submitted for this work order.

   d. Are the reported PQLs less than the Cleanup Level or the minimum required detection level for the project?
      ☐Yes ☒ No ☐NA (Please explain.) Comments:

      All project samples had LODs for 1,2-dibromoethane and 1,2,3-trichloropropane that were greater than the ADEC groundwater-cleanup levels.

   e. Data quality or usability affected?
      Comments:

      Yes. It is not possible to determine if the analytes listed in 5.d. were present below detection limits but exceeding the ADEC groundwater-cleanup levels.

6. QC Samples
   a. Method Blank
      i. One method blank reported per matrix, analysis and 20 samples?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

      ii. All method blank results less than PQL?
      ☒Yes ☐ No ☐NA (Please explain.) Comments:

iii. If above PQL, what samples are affected?

Comments:

| |
|---|
| N/A; no project analytes were detected in the method blank. |

iv. Do the affected sample(s) have data flags and if so, are the data flags clearly defined?

☐Yes ☐ No ☒NA (Please explain.) Comments:

| |
|---|
| No project analytes were detected in the method blank. |

v. Data quality or usability affected? (Please explain.)

Comments:

| |
|---|
| The data quality and usability were unaffected; see above. |

b. Laboratory Control Sample/Duplicate (LCS/LCSD)

i. Organics – One LCS/LCSD reported per matrix, analysis and 20 samples? (LCS/LCSD required per AK methods, LCS required per SW846)

☒Yes ☐ No ☐NA (Please explain.) Comments:

| |
|---|
| LCS/LCSD samples were reported for VOC anlaysis. |

ii. Metals/Inorganics – one LCS and one sample duplicate reported per matrix, analysis and 20 samples?

☐Yes ☐ No ☒NA (Please explain.) Comments:

| |
|---|
| Metals analysis was not requested. |

iii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods: AK101 60%-120%, AK102 75%-125%, AK103 60%-120%; all other analyses see the laboratory QC pages)

☒Yes ☐ No ☐NA (Please explain.) Comments:

| |
|---|
| |

iv. Precision – All relative percent differences (RPD) reported and less than method or laboratory limits? And project specified DQOs, if applicable. RPD reported from LCS/LCSD, MS/MSD, and or sample/sample duplicate. (AK Petroleum methods 20%; all other analyses see the laboratory QC pages)

☐Yes ☒ No ☐NA (Please explain.) Comments:

| |
|---|
| The LCS/LCSD (1374531/32) RPD for chloromethane was outside laboratory acceptance criteria. |

v. If %R or RPD is outside of acceptable limits, what samples are affected?

Comments:

| |
|---|
| Chloromethane was not detected in the project samples MW-108, MW-107, MW-104, MW-103, MW-105, MW-34, MW-5, MW-6, MW-26, MW-19, and the trip blank. |

vi. Do the affected sample(s) have data flags? If so, are the data flags clearly defined?
☒Yes ☐ No ☐NA (Please explain.) Comments:

The results are considered estimated and are flagged 'UJ' in the analytical tables.

vii. Data quality or usability affected? (Use comment box to explain.)
Comments:

Yes; see above.

c. Surrogates – Organics Only

i. Are surrogate recoveries reported for organic analyses – field, QC and laboratory samples?
☒Yes ☐ No ☐NA (Please explain.) Comments:

ii. Accuracy – All percent recoveries (%R) reported and within method or laboratory limits? And project specified DQOs, if applicable. (AK Petroleum methods 50-150 %R; all other analyses see the laboratory report pages)
☒Yes ☐ No ☐NA (Please explain.) Comments:

iii. Do the sample results with failed surrogate recoveries have data flags? If so, are the data flags clearly defined?
☐Yes ☐ No ☒NA (Please explain.) Comments:

There were no surrogate-recovery failures.

iv. Data quality or usability affected? (Use the comment box to explain.)
Comments:

The data quality and usability were unaffected; see above.

d. Trip blank – Volatile analyses only (GRO, BTEX, Volatile Chlorinated Solvents, etc.): Water and Soil

i. One trip blank reported per matrix, analysis and for each cooler containing volatile samples? (If not, enter explanation below.)
☒Yes ☐ No ☐NA (Please explain.) Comments:

ii. Is the cooler used to transport the trip blank and VOA samples clearly indicated on the COC? (If not, a comment explaining why must be entered below)
☐Yes ☒ No ☐NA (Please explain.) Comments:

The COC did not clearly specify that the trip blank and VOA samples were transported in the same cooler. However, only one cooler was submitted to the laboratory and the sample receipt document notes that the trip blank was in the same cooler as the VOA samples. The sample results are not considered affected by this omission.

iii. All results less than PQL?
☒Yes ☐ No ☐NA (Please explain.) Comments:

iv. If above PQL, what samples are affected?
Comments:

No analytes were detected in the trip blank.

v. Data quality or usability affected? (Please explain.)
Comments:

The data quality and usability were unaffected; see above.

e. Field Duplicate

i. One field duplicate submitted per matrix, analysis and 10 project samples?
☒Yes ☐ No ☐NA (Please explain.) Comments:

ii. Submitted blind to lab?

☒Yes ☐ No ☐NA (Please explain.) Comments:

| |
|---|
| The field-duplicate pair MW-5/MW-6 was submitted with this work order. |

iii. Precision – All relative percent differences (RPD) less than specified DQOs? (Recommended: 30% water, 50% soil)

$$\text{RPD (\%)} = \text{Absolute value of: } \frac{(R_1-R_2)}{((R_1+R_2)/2)} \times 100$$

Where $R_1$ = Sample Concentration

$R_2$ = Field Duplicate Concentration

☒Yes ☐ No ☐NA (Please explain.) Comments:

| |
|---|
| The field-duplicate RPDs were within the recommended DQO for water samples, where calculable. |

iv. Data quality or usability affected? (Use the comment box to explain why or why not.)

Comments:

| |
|---|
| The data quality and usability were unaffected; see above. |

f. Decontamination or Equipment Blank (If not used explain why).

☐Yes ☒ No ☐NA (Please explain.) Comments:

| |
|---|
| No equipment blank was submitted. The equipment blank submitted for this project in 2013 indicated decontamination procedures are adequate. |

i. All results less than PQL?

☐Yes ☐ No ☒NA (Please explain.) Comments:

| |
|---|
| No equipment blank was submitted. |

ii. If above PQL, what samples are affected?

Comments:

| |
|---|
| N/A; see above. |

iii. Data quality or usability affected? (Please explain.)

Comments:

| |
|---|
| The data quality and usability were unaffected; see above. |

7. Other Data Flags/Qualifiers (ACOE, AFCEE, Lab Specific, etc.)
   a. Defined and appropriate?
      ☐Yes ☐ No ☒NA (Please explain.) Comments:

| |
|---|
| No other data qualifiers were used. |

# APPENDIX F

# QUALITY CONTROL AND QUALITY ASSURANCE

# APPENDIX F

# QUALITY CONTROL AND QUALITY ASSURANCE

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# APPENDIX F

# QUALITY CONTROL AND QUALITY ASSURANCE

## F.1 OVERVIEW

Quality Control/Quality Assurance (QC/QA) procedures assist in producing data of acceptable quality and reliability. We reviewed the analytical results for laboratory QC samples, and conducted our own QA assessment for this project. We reviewed the chain-of-custody records and laboratory receipt forms to check that custody was not breached, sample-holding times were met, and the samples were kept chilled (between 0 degrees Celsius [°C] and 6 °C) during shipping. Our QA-review procedures allowed us to document the accuracy and precision of analytical data, as well as check that analyses were sufficiently sensitive to detect analytes at levels below regulatory standards.

Laboratory QC procedures include evaluating surrogate recovery, performing continuing calibration checks, and analyzing method blanks, laboratory control samples (LCS), and matrix spikes (MS) to assess accuracy and precision. LCS, LCS duplicate (LCSD), MS, MS duplicate (MSD), and surrogate recovery analyses were performed to evaluate accuracy of the analytical process. Analytical precision was assessed by comparing results of duplicate analyses performed on LCS/LCSD, MS/MSD, and duplicate-sample pairs.

QC procedures in the field include using single-use equipment to reduce the potential for sample cross-contamination. We used a new, clean pair of nitrile gloves when sampling at each monitoring well. The laboratory reports contain a case narrative and forms documenting sample-receipt conditions. Details regarding the results of our QA review are presented below. The SGS laboratory report and corresponding ADEC Laboratory Data Review Checklist is presented in Appendix D and Appendix E, respectively, of this report.

## F.2 SAMPLE HANDLING

We hand-delivered coolers containing the groundwater samples to the SGS sample-receiving office in Fairbanks, Alaska. The samples were received in good condition at the laboratories and within the acceptable temperature range of 0 °C to 6 °C.

We completed chain-of-custody forms, which were signed upon release and receipt at the Fairbanks office. The samples were analyzed by SGS at their laboratory in Anchorage. There were no sample-handling discrepancies noted by the laboratory.

## F.3 ANALYTICAL SENSITIVITY

The laboratory's detection limit (DL) is the lowest analyte concentration that can be measured. The laboratory's LOQ or reporting limit (RL) is the lowest analyte concentration that can be routinely measured in the sampled matrix with confidence, the point at which a concentration is considered quantitative. Sample matrix, instrument performance, sample dilutions, and other factors may affect the DL and LOQ. Analytes may be present in samples at concentrations below the reporting limits. In cases where analytes were not detected at concentrations above their DL, the analytical results are presented in our data-summary tables with reference to their LODs or RLs. For example, a sample that does not contain an analyte at a concentration greater than its DL and has an LOD of 1.5 would be tabulated as "<1.5," where "<" indicates the analyte was not detected above the DL. If the analyte is detected between the DL and the LOQ, its concentration is considered an estimate; in our tables, this value is flagged with a 'J'. The flag is applied by the laboratory.

The laboratory LODs were compared to the 18 AAC 75 *Table C – Groundwater Cleanup Levels* prior to the sampling event to assess if the requested analyses were sufficiently sensitive for the groundwater monitoring program. Laboratory LODs of the requested VOC analytes for the 2015 and 2016 sampling events were adequate for report preparation and data analysis at the time of the sample collection.

We note that CULs were updated, effective November 6, 2016. The laboratory LODs of the requested analytes were sufficiently sensitive for reporting purposes for all analytes with the exception of 1,2,3-trichloropropane; 1,2-dibromoethane; and vinyl chloride. Shannon & Wilson is in contact with the SGS laboratory to address these issues. The laboratory is currently developing alternative methods for the VOC analytes that would provide lower LODs that meet the CULs. We will request to use these alternative methods once available by the laboratory.

To evaluate the potential for cross-contamination between samples or introduction of contamination from an outside source, laboratory-supplied trip blanks were carried with the samples in their cooler during sampling and shipping. Trip blanks were analyzed as part of each sampling event for VOCs. Project analytes were not detected in trip blanks above the laboratory LOQs.

Laboratory method blanks (MBs) were also analyzed in association with samples collected for this project to check for contributions to the analytical results possibly attributable to laboratory-based contamination. Project analytes were not detected in the MBs.

An equipment blank (EB) is collected to assess the possibility of sample contamination from sampling equipment. Equipment blank samples were not collected for this sampling event. The equipment blank submitted for this project in 2013 indicated decontamination procedures are adequate.

Analytical sensitivity was sufficient for the purposes of this investigation.

## F.4 ACCURACY

Accuracy refers to determining the correct analyte concentration, and is a comparison between the measured value and a known or expected value. Laboratory analytical accuracy may be assessed through analyte recoveries from LCS/LCSD analyses and MS/MSD analyses, and the recovery of analyte surrogates (for organic analytes) added to project samples. The LCS/LCSDs are spikes of known analyte concentrations added to a clean matrix; MS/MSDs are spikes of known analyte concentrations in a matrix similar to field samples. The laboratory's LCS, LCSD and surrogate recoveries were within laboratory acceptance criteria.

## F.5 PRECISION

We collected field-duplicate samples at a frequency of at least ten percent of the total number of samples to evaluate precision of analytical measurements and reproducibility of our sampling technique. The field duplicate-sample set was MW-5 / MW-6. The duplicate sample was submitted "blind" (i.e., the laboratory could not identify it as a duplicate) and analyzed by the same test methods as the original sample. To evaluate precision of the data, we calculated the relative percent difference (RPD; difference between the sample and its duplicate divided by the mean of the two). RPDs can be evaluated only if results of the analyses for both the sample and its duplicate are reported above the DL.

The data quality objective for water samples' RPD is 30 percent. Where concentrations were reported in both samples, we calculated the RPDs. The RPDs were within acceptance criteria, where calculable.

Laboratory analytical precision can also be assessed by comparing results of duplicate analyses performed on LCS/LCSD, MS/MSD, and laboratory-duplicate samples, and evaluating the associated RPDs. The data-quality objective is 20 percent for laboratory QC samples. The laboratory LCS/LSCD, MS/MSD, and laboratory-duplicate sample RPDs were within laboratory acceptance criteria, with the exception of the LCS/LCSD for chloromethane with an RPD of 23.4 percent. Chloromethane was not detected in the project samples or the trip blank. The results are considered estimated and are flagged '< J' in the analytical tables.

## F.6 DATA QUALITY SUMMARY

By conducting our field activities in general accordance with our standard QC/QA procedures, the samples we collected are considered representative of site conditions at the locations and times they were obtained. Based on our QA review, no datum was rejected as unusable due to QC failures, and our completeness goal of obtaining 85-percent useable data was met. In our opinion, the data produced by SGS for this project are suitable for characterizing groundwater quality at the locations sampled.

# APPENDIX G

# IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

SHANNON & WILSON, INC.
GEOTECHNICAL AND ENVIRONMENTAL CONSULTANTS

Attachment to and part of Report: 31-1-11843-003

Date: July 26, 2017

To: ADEC
Attn: Janice Wiegers

Re: 2017 Monitoring Well Report, Six Mile Richardson Highway, Fairbanks, AK.

# IMPORTANT INFORMATION ABOUT YOUR GEOTECHNICAL/ENVIRONMENTAL REPORT

**CONSULTING SERVICES ARE PERFORMED FOR SPECIFIC PURPOSES AND FOR SPECIFIC CLIENTS.**

Consultants prepare reports to meet the specific needs of specific individuals. A report prepared for a civil engineer may not be adequate for a construction contractor or even another civil engineer. Unless indicated otherwise, your consultant prepared your report expressly for you and expressly for the purposes you indicated. No one other than you should apply this report for its intended purpose without first conferring with the consultant. No party should apply this report for any purpose other than that originally contemplated without first conferring with the consultant.

**THE CONSULTANT'S REPORT IS BASED ON PROJECT-SPECIFIC FACTORS.**

A geotechnical/environmental report is based on a subsurface exploration plan designed to consider a unique set of project-specific factors. Depending on the project, these may include: the general nature of the structure and property involved; its size and configuration; its historical use and practice; the location of the structure on the site and its orientation; other improvements such as access roads, parking lots, and underground utilities; and the additional risk created by scope-of-service limitations imposed by the client. To help avoid costly problems, ask the consultant to evaluate how any factors that change subsequent to the date of the report may affect the recommendations. Unless your consultant indicates otherwise, your report should not be used: (1) when the nature of the proposed project is changed (for example, if an office building will be erected instead of a parking garage, or if a refrigerated warehouse will be built instead of an unrefrigerated one, or chemicals are discovered on or near the site); (2) when the size, elevation, or configuration of the proposed project is altered; (3) when the location or orientation of the proposed project is modified; (4) when there is a change of ownership; or (5) for application to an adjacent site. Consultants cannot accept responsibility for problems that may occur if they are not consulted after factors which were considered in the development of the report have changed.

**SUBSURFACE CONDITIONS CAN CHANGE.**

Subsurface conditions may be affected as a result of natural processes or human activity. Because a geotechnical/environmental report is based on conditions that existed at the time of subsurface exploration, construction decisions should not be based on a report whose adequacy may have been affected by time. Ask the consultant to advise if additional tests are desirable before construction starts; for example, groundwater conditions commonly vary seasonally.

Construction operations at or adjacent to the site and natural events such as floods, earthquakes, or groundwater fluctuations may also affect subsurface conditions and, thus, the continuing adequacy of a geotechnical/environmental report. The consultant should be kept apprised of any such events, and should be consulted to determine if additional tests are necessary.

**MOST RECOMMENDATIONS ARE PROFESSIONAL JUDGMENTS.**

Site exploration and testing identifies actual surface and subsurface conditions only at those points where samples are taken. The data were extrapolated by your consultant, who then applied judgment to render an opinion about overall subsurface conditions. The actual interface between materials may be far more gradual or abrupt than your report indicates. Actual conditions in areas not sampled may differ from those predicted in your report. While nothing can be done to prevent such situations, you and your consultant can work together to help reduce their impacts. Retaining your consultant to observe subsurface construction operations can be particularly beneficial in this respect.

**A REPORT'S CONCLUSIONS ARE PRELIMINARY.**

The conclusions contained in your consultant's report are preliminary because they must be based on the assumption that conditions revealed through selective exploratory sampling are indicative of actual conditions throughout a site. Actual subsurface conditions can be discerned only during earthwork; therefore, you should retain your consultant to observe actual conditions and to provide conclusions. Only the consultant who prepared the report is fully familiar with the background information needed to determine whether or not the report's recommendations based on those conclusions are valid and whether or not the contractor is abiding by applicable recommendations. The consultant who developed your report cannot assume responsibility or liability for the adequacy of the report's recommendations if another party is retained to observe construction.

**THE CONSULTANT'S REPORT IS SUBJECT TO MISINTERPRETATION.**

Costly problems can occur when other design professionals develop their plans based on misinterpretation of a geotechnical/environmental report. To help avoid these problems, the consultant should be retained to work with other project design professionals to explain relevant geotechnical, geological, hydrogeological, and environmental findings, and to review the adequacy of their plans and specifications relative to these issues.

**BORING LOGS AND/OR MONITORING WELL DATA SHOULD NOT BE SEPARATED FROM THE REPORT.**

Final boring logs developed by the consultant are based upon interpretation of field logs (assembled by site personnel), field test results, and laboratory and/or office evaluation of field samples and data. Only final boring logs and data are customarily included in geotechnical/environmental reports. These final logs should not, under any circumstances, be redrawn for inclusion in architectural or other design drawings, because drafters may commit errors or omissions in the transfer process.

To reduce the likelihood of boring log or monitoring well misinterpretation, contractors should be given ready access to the complete geotechnical engineering/environmental report prepared or authorized for their use. If access is provided only to the report prepared for you, you should advise contractors of the report's limitations, assuming that a contractor was not one of the specific persons for whom the report was prepared, and that developing construction cost estimates was not one of the specific purposes for which it was prepared. While a contractor may gain important knowledge from a report prepared for another party, the contractor should discuss the report with your consultant and perform the additional or alternative work believed necessary to obtain the data specifically appropriate for construction cost estimating purposes. Some clients hold the mistaken impression that simply disclaiming responsibility for the accuracy of subsurface information always insulates them from attendant liability. Providing the best available information to contractors helps prevent costly construction problems and the adversarial attitudes that aggravate them to a disproportionate scale.

**READ RESPONSIBILITY CLAUSES CLOSELY.**

Because geotechnical/environmental engineering is based extensively on judgment and opinion, it is far less exact than other design disciplines. This situation has resulted in wholly unwarranted claims being lodged against consultants. To help prevent this problem, consultants have developed a number of clauses for use in their contracts, reports, and other documents. These responsibility clauses are not exculpatory clauses designed to transfer the consultant's liabilities to other parties; rather, they are definitive clauses that identify where the consultant's responsibilities begin and end. Their use helps all parties involved recognize their individual responsibilities and take appropriate action. Some of these definitive clauses are likely to appear in your report, and you are encouraged to read them closely. Your consultant will be pleased to give full and frank answers to your questions.

The preceding paragraphs are based on information provided by the
ASFE/Association of Engineering Firms Practicing in the Geosciences, Silver Spring, Maryland