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April 12, 2013

Mr. Michael Hinton
New York State Department of Environmental Conservation (NYSDEC)
Division of Water, Region 9
270 Michigan Avenue
Buffalo, New York 14203-2399

RE: Ekonol Polyester Resins Site (#V00653-9)
Quarterly Report for Groundwater Monitoring
Fourth Quarter 2012

Dear Mr. Hinton:

Attached is the report for the fourth quarter of the performance and quarterly monitoring following the bioremediation systems installation at the Ekonol Polyester Resins Site (Site). The performance and quarterly monitoring scope of work is defined in the February 2010 NYSDEC approved "Remedial Action Work Plan (RAWP) for *In Situ* Treatment Using Enhanced Bioremediation," and the NYSDEC-approved (April 10, 2012) changes to the reporting scope and schedule. Documentation of well inspection and maintenance, and sub-slab depressurization system operations and maintenance is also provided in the report.

If you have any questions, please feel free to contact me at (716) 407-4990.

Sincerely,

George W. Hermance

George Hermance
Project Manager

Attachments

cc: W. Barber, Atlantic Richfield Co.
S. Fiorenza, BP
M. Forcucci, NYSDOH (e-copy)
M. Kolar, Patriot (e-copy)
J. Sabbatis, Saint-Gobain (e-copy)
G. Brown, RT Environmental Services (e-copy)

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PERFORMANCE MONITORING REPORT – FOURTH QUARTER 2012
IN SITU TREATMENT USING ENHANCED BIOREMEDIATION

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TOWN OF WHEATFIELD, NIAGARA COUNTY, NEW YORK

Prepared for:

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April 2013

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1.0 Introduction

This report summarizes the fourth quarter of performance and quarterly monitoring following installation of the bioremediation systems at the Ekonol Polyester Resins Site (Site). The scope of work is defined in the February 2010 NYSDEC approved "Remedial Action Work Plan (RAWP) for *In Situ* Treatment Using Enhanced Bioremediation," and the NYSDEC-approved (April 10, 2012) changes to the reporting scope and schedule. Additionally, well inspection and maintenance, and sub-slab depressurization system operations and maintenance is also discussed.

2.0 Bioreactor and Injection/Monitoring Well Inspection

As part of the quarterly event, the surface conditions above the bioreactor trenches were inspected for settlement, and the at-surface protective casing for the injection and monitoring wells were inspected for integrity. During this inspection, the condition of the protective casing and the need for maintenance and repair was assessed and recorded. In December 2012, repairs or maintenance to the protective casings or wells associated with the bioreactor was not necessary.

The pavement in the vicinity of bioreactor area was also inspected in December 2012, to assess the condition of the asphalt and determine if any repairs were needed. The inspection revealed that repairs to the asphalt between the bioreactor trenches were not needed. Inspection records are provided in Attachment A. Minor pitting was observed in the new pavement between the bioreactors.

During this inspection, the conditions and need for maintenance and repairs of other stick-up protective casings throughout the site were evaluated. No repairs were necessary at the time.

3.0 Sub-slab Depressurization System Operations and Maintenance

During the quarterly sampling event, the sub-slab depressurization system was inspected in accordance with the NYSDEC-approved operations and maintenance plan for the system dated December 5, 2011. Results of the inspection identified the system is in proper working order. The tasks included a visual inspection of the system's interior and exterior components, recording of U-Tube manometer measurements, and smoke stick testing. Additionally, the system was shut down temporarily to confirm that the audible alarm functions as designed. The December 2012 inspection checklist for the SSD system is included in Attachment A. In December 2012, repairs and maintenance to the sub-slab depressurization system were not needed.

4.0 Bedrock Injections

Substrate injections occurred in the source area (INJ-06D and INJ-10D) in July 2011. Groundwater samples were collected during June 2011 (baseline), late August 2011 (1 month), November 2011 (3-4 months), March 2012 (7-8 months), June 2012 (11 months), and September 2012 (14 months) and December 2012 (17 months). Performance monitoring for the 2011

bedrock injections indicated that TOC concentrations were lower than optimal, and that additional substrate injections may improve performance. As communicated with the NYSDEC office (Parsons letter to DEC, September 2012), additional substrate was injected into the bedrock groundwater in November 2012.

Additional substrate injections occurred from November 7 to November 20, 2012 in the bedrock treatment zone (INJ-7D, INJ-9D, INJ-10D, and INJ-13D). Bedrock groundwater was extracted from nearby remediation wells for use as make-up water and for a water "push" behind the substrate. The substrate consisted of make-up water and SRS-FR® (proprietary vegetable-oil based substrate with emulsifiers). RNAS-Neutral Zone® (a proprietary insoluble colloidal carbonate buffer) was added in-line during injections as a pH buffer. Iron lactate and iron magnetite were added to the substrate solution during injection at INJ-7D. Specifically, the iron can precipitate and reduce dissolved hydrogen sulfide concentrations and enhance biodegradation and biogeochemical reduction. Table 1 summarizes the total make-up water, vegetable oil substrate, Neutral Zone pH buffer, and bioaugmentation culture volumes for each injection point.

Bioaugmentation was conducted by injecting a microbial consortium including both *Dehalococcoides* (DHC) and *Dehalobacter* (DHB) species of bacteria. Bioaugmentation occurred at each injection point (INJ-7D, INJ-9D, INJ-10D, and INJ-13D). Bioaugmentation at each well occurred near the end of the substrate injection, and was followed by additional substrate. A groundwater "push" was added to each injection point and extraction point, ranging from 7 to 10 gallons (approximately 3 well volumes), after substrate injection to clear the water column of substrate. At PMW-13D, additional bioaumentation culture was added to the facture zone, in order to use the remaining volume.

Prior to substrate injection, pressure transducers were deployed at multiple wells surrounding each injection point to measure and record the changes in pressure, water level elevation, and conductivity during substrate injections. These field measurements were used to evaluate the radius of influence (ROI) for each injection point and verify distribution of substrate in real-time.

5.0 Performance and Quarterly Monitoring

In addition to the operations, monitoring and maintenance (OM&M) activities discussed above, the fourth quarterly groundwater sampling event was completed in December 2012. In addition to monitoring the overall groundwater conditions, performance monitoring was completed to assist in evaluating the effectiveness of the groundwater remediation from the bioreactor and in the bedrock groundwater treatment area. During this event, a complete round of water levels was collected from the monitoring wells. The water levels are provided in Attachment B.

Groundwater sampling was completed between December 4 and December 13, 2012. Samples were collected in accordance with the methods defined in the approved remedial action work plan and the sampling matrix included in Attachment B. Along with performance parameters measured in each sample, groundwater samples were submitted to a qualified

laboratory for analysis of selected volatile organic compounds (VOCs), total organic carbon (TOC), sulfate, chloride, dissolved gases (methane, ethane, ethene, dissolved hydrogen, and acetylene), major and minor ions, and Dehalococcoides (DHC) and Dehalobactor (DHB) bacteria and TCE/VC reductase genes. The analytical laboratories used for these analyses included Lancaster Laboratories, Inc., Microbial Insights, Inc. (bacteria counts), and Microseeps, Inc. (acetylene and dissolved hydrogen).

Low-flow groundwater sampling methods were employed. Dissolved oxygen (DO) concentration, pH, redox potential (ORP), specific conductance, temperature, visual appearance, and depth-to-water were recorded while purging the monitoring wells to establish when parameter stabilization occurred. After parameter stabilization was achieved and samples for the laboratory analyses were collected, groundwater samples were obtained and analyzed in the field for ferrous iron, manganese (II), alkalinity, hydrogen sulfide, and carbon dioxide. Results of the field measurements were recorded on well sampling records and in the field notebook. Sampling records are provided in Attachment B.

The analytical results for these samples were reviewed for usability with respect the NYSDEC requirements. The data are provided in the data usability report included in Attachment B. The data are considered valid for its intended use.

During performance monitoring, wastes including purge water from well sampling, equipment decontamination rinsates, and personal protective equipment (PPE) were generated. Water generated during the quarterly sampling event was contained in 55-gallon drums, evaluated, and subsequently disposed of as hazardous waste at an appropriate offsite location. The PPE was contained in a 55-gallon drum and disposed of as a non-hazardous waste.

6.0 Bioreactor Performance and Quarterly Monitoring Results

6.1 Bioreactor Objective Comparison

This section provides an update on progress of the overburden bioreactor bioremediation through the December 2012 sampling event. The performance of the *in situ* bioremediation was evaluated using the most recent concentrations and data trends (through December 2012) with respect to three main performance objectives. The objectives with general comparisons are provided below. Detailed observations supporting these comparisons are provided in a subsequent section of the report.

- Objective: Provide groundwater geochemical conditions appropriate for anaerobic *in situ* bioremediation including: increased total organic carbon (TOC), decreased sulfate, and stable pH between approximately 6 and 8.
    - In genera, this objective was met for the overburden bioreactors which: are low in ORP (methanogenic levels), show TOC above baseline concentrations, and have pH between 6 and 8 SU. Due to low hydraulic conductivity, it is expected to take a longer time period for conditions in the trenches to create changes

downgradient. TOC has decreased throughout the monitoring period, as expected. Application of additional substrate is being planned.

- Objective: Increase microbiological populations including species known to degrade chlorinated solvent compounds, Dehalococcoides (DHC) and Dehalobacter (DHB).

    - This objective was met for the wells in the bioreactors that were sampled for microbes. The populations of DHC and DHB have been steadily declining since the first quarter 2012 (1Q12) and 2Q12 sampling events. DHB levels within the bioreactor trenches range from 10^1 to 10^2 cells/mL and have decreased approximately 1 to 2 orders of magnitude from previous samples collected. DHC concentrations range from 10^3 to 10^4 cells/mL. While DHC populations in OR-5SM and OR-6SM have increased since the September 2012 sampling event, both populations are still 1 to 2 orders of magnitude below that observed in 1Q12. These populations will be monitored with other performance data to determine if and when application of additional substrate and amendments is necessary.

- Objective: Decreases and/or transformation of CVOCs.

    - This objective was met within the trenches and partially met for some areas outside the trenches. CVOC concentrations in bioreactor trenches remained significantly low after the steady decreases observed in previous monitoring events. Concentrations near but outside the bioreactor are relatively stable. In some locations, there were observed increases in TCE degradation products.

6.2 Overburden Observations Inside the Bioreactor Trenches

The majority of the mulch bioreactor trench was installed during the period from late March 2011 to late April 2011. The westernmost segment of the northern trench was installed in November 2010. Figures 1 and 2 provide data tables and time series graphs for the wells and bioreactor trenches installed as part of the remedy. The concentration of key CVOCs, total ethenes and ethane and TOC related to the remedy performance are provided on the figures.

The bioreactors continued to degrade concentrations of CVOCs in overburden groundwater and/or sustain concentrations at decreased levels. In general, concentrations within the trenches remained at significantly decreased levels (Figure 1 and 2) compared to early-time data (Figure 2). With a few exceptions the CVOC concentrations have continued to decline in the monitoring wells inside the bioreactor (injection wells in the bioreactors are not part of this monitoring program). Most of the CVOC decreases have been an order of magnitude or greater. Overall, the total chlorinated ethene (TCE, DCE, and VC) concentration of the groundwater from wells within the bioreactors decreased by approximately 23 µmol/L (86 %) between the first sampling event (June 2011) and December 2012.

TCE the primary CVOC, was not detected (with detection levels between 1 and 10 µg/L) at any location except OR-9SM (estimated at 1.7 µg/L), during December 2012. Furthermore, at 8 of the 10 locations, individual CVOC analytes were at or below 30 µg/L. The two bioreactor

wells above this low concentration range were OR-9SM, where the cis-1,2 DCE concentration was 350 µg/L and VC was 130 µg/L, and OR-18SM, where the cis-1,2 DCE concentration was 160 µg/L and VC was 210 µg/L. Although concentrations were higher at OR-9SM and OR-18SM, (compared to the previous quarter), they remained below the early concentrations of DCE that had been as high as 8,400 µg/L and 390 µg/L, respectively. VC concentrations in OR-18SM, however, were 210 µg/L which is slightly higher than previous sampling events, including the first event when VC was 180 µg/L. Ethene at OR-18SM has continued to increase, indicating the presence of active bioremediation. Overall, the concentrations in the bioreactors have decreased and remain low, with the exception of OR-18SM.

TOC concentrations have steadily decreased in the bioreactor wells, but remain above 50 mg/L, with the exception of OR-5SM (32.5 mg/L), OR-9SM (26.6 mg/L), OR-10SM (39.5 mg/L), and OR-18SM (27.4 mg/L). While there is no defined optimal concentration of TOC for active bioremediation, it is generally considered that between 50 and 100 mg/L is sufficient for microbial activity (AFCEE, 2004). Other factors, such as CVOC degradation, microbial concentrations, and remediation objectives are used in concert with TOC to evaluate ongoing performance. The microbial population results indicate that DHC has decreased within the bioreactor trenches from approximately 10^5 to 10^6 cells/mL in March 2012 to approximately 10^3 to 10^4 cells/mL in December 2012. However, the recent DHC population results are still significantly higher than the early concentration of generally 100 cells/mL or less. The decreases in DHC population are likely due to the lower concentrations of TOC and CVOC required for their growth.

Generally, sulfate remained lower than background levels in the overburden reactor wells. Within the bioreactors, sulfate averaged 64 mg/L, compared with a background of approximately 1,000 to 3,000 mg/L. Low sulfate is conducive to bioremediation.

The pH increased slightly from previous monitoring events but was between 6.0 and 7.0 SU in the overburden bioreactor wells and performance monitoring wells. A pH above approximately 6.0 SU is favorable for DHC activity.

ORP in the bioreactor wells was in the same range as the previous sampling events, as all sampling locations exhibited anaerobic conditions (negative ORP values). Values ranged from -85 eV in OR-4SM, to -399 eV in OR-14SM, with an average ORP value of -210 eV. Strongly anaerobic conditions favor the anaerobic biodegradation of chlorinated solvents through the reductive dehalogenation pathway catalyzed by DHC.

6.3 Overburden Observations Outside the Bioreactor Trenches

CVOC Concentrations

The influence of the bioreactor trenches on shallow groundwater outside of the reactors is expected to be variable, especially in the short term, given the nature of the soils, groundwater flow paths and velocity. As such, there continues to be a large range of CVOC concentrations, from not detected (ND) to 86,450 ug/L in the shallow performance monitoring (PMW) wells

located outside the bioreactor trenches. At some wells potentially influenced by the bioreactor, the CVOC concentrations have decreased, while in other wells, the concentrations have increased slightly or remained fairly constant.

At locations PMW-3S, PMW-4S, and PMW-6S downgradient of the bioreactors, CVOCs have generally increased from the previous sampling event. Data indicate that the decreases in TCE, DCE, and VC at PMW-3S and PMW-6S seen in September 2012 data were temporary, as all but VC in PMW-6S increased in December 2012. In PMW-4S, TCE was at the same concentration between September 2012 and December 2012, while DCE increased. On average, the overburden groundwater total chlorinated ethene concentration (TCE, DCE, and VC) from 10 of 11 wells outside the bioreactors (PMW-1S though PMW-3S, and PMW-5S through PMW-11S) decreased approximately 4 µmol/L between the June 2011 event and the December 2012 event.

At MW-10S, which is located approximately 15 ft southeast of the eastern-most bioreactor trench, TCE concentrations have remained low at 3.2 µg/L and the DCE concentration (313 µg/L; December 2012) continued to decrease from the 5,600 µg/L peak observed in November 2011. VC concentrations have slowly increased to a high of 810 µg/L in September 2012, but have decreased to 280 µg/L in December 2012. Ethene concentrations decreased from 1,700 µg/L (September 2012) to 380 µg/L (December 2012), but remain elevated from July 2011 (18 µg/L).

The ethene concentrations were 430 µg/L at PMW-3S, 360 µg/L at PMW-6S and 53 µg/L at PMW-4S. Additionally, the DHC populations at PMW-3S (only location of these three sampled for microbial populations) have remained at 1.2×10^5 cell/mL from an original concentration of 1.3×10^3. These data (ethene and DHC) indicate that active biodegradation is occurring at these locations outside of the bioreactor trenches.

Between the bioreactors, there is little evidence of biodegradation. At PMW-2S, there continues to be decreasing DCE and VC concentrations (baseline to present) and elevated TOC. However, TCE concentrations increased in PMW-2S between September and December 2012 to its highest recorded level (88 µg/L), from a typical range of less than 25 µg/L. At PMW-9S there are recent increasing trends of TCE and DCE concentrations. Other locations such as PMW-5S and PMW-11S currently show little to no influence from the bioreactors. At PMW-7S, concentrations have been stable, but the concentrations are low (less than 25 µg/L for the entire sampling period). These locations will be further evaluated over time to determine if the treatment zone is expanding. Since the hydraulic conductivity of the fine-grained silt, clay and sand soils is low (less than 1 feet/day), it is expected that the expansion of the treatment zone will be slow.

TOC is low and/or depleted between and downgradient of the bioreactor trenches. After the installation of the bioreactors, TOC had been initially elevated at multiple locations (see Figure 2) but, now ranges from 2 to 48 mg/L.

6.4 Overburden Observations Other Wells

Side and down-gradient shallow wells farther from the bioreactors, such as MW-6S, MW-11S and MW-12S, where elevated CVOC concentrations were observed in previous events, continued to show decreasing or stable CVOC concentrations compared to the previously elevated (or rising) concentrations. Due to their location in relation to the bioreactor, observed changes may be the result of natural attenuation processes rather than the bioreactor. The following is a summary of each location:

- At MW-6S, located approximately 150 ft downgradient and 220 ft downgradient from the bioreactors, CVOCs have remained relatively stable since the installation of the bioreactors, with the exception of DCE where an increase (to 700 µg/L) followed by a decrease (to 100 µg/L) was observed. VC appeared to slightly increase then slightly decrease throughout the period.

- At MW-11S, located approximately 220 ft downgradient, CVOCs have decreased from a spike in concentrations after the installation of the remediation systems. DCE, which was greater than 4,000 µg/L during a previous sampling event, has decreased to approximately 160 µg/L

- At MW-12S, located approximately 200 ft downgradient from the bioreactors, TCA decreased from a spike of 18,000 µg/L in June 2011 to 74 µg/l in December 2012. Additionally, concentrations of TCE decreased from 7,000 µg/L (June 2012) to 740 µg/L (December 2012). DCE decreased from a range of approximately 3,000 - 8,000 to less than 2,000 µg/L. Ethene and ethane showed a slight increasing trend in this well, up to approximately 320 µg/L in December 2012.

- At MW-9S, west of the bioreactors, DCE concentrations continued to decrease slightly between the September and December 2012 sampling events, while VC concentrations decreased between the September and December 2012 sampling events (510 µg/L to 320 µg/L, respectively). TCE concentrations remain undetected at this location.

- At MW-1S, located upgradient of the overburden bioreactors, concentrations of CVOC's remained similar between July 2011 and September 2012. Furthermore, ethene was detected at low concentrations (1.2 µg/L) in December 2012, and sulfate remained at elevated concentrations (2,130 mg/L).

Geochemistry

Sulfate remained depleted at PMW-1S, PMW-2S, and PMW-6S, located outside the bioreactors. In other locations outside the bioreactor, sulfate concentrations were similar to background. This sustained decrease in sulfate is an indication of active microbial activity, likely from the initial increase in TOC after remedial construction.

The pH increased slightly from previous events but remained between 6.0 and 8.0 SU in the performance monitoring wells. A pH above approximately 6.0 is favorable for DHC activity.

ORP values in the shallow performance monitoring wells were generally higher in range than previous sampling events, as all but five sampling locations exhibited anaerobic conditions (negative ORP values). Values ranged from high positive/aerobic (+206 eV in PMW-10S) to highly anaerobic (-288 eV in PMW-8S). The average ORP value for all shallow performance monitoring wells in December 2012 was -49.5 eV, up from an average of -167 eV during the September 2012 sampling event. Highly anaerobic conditions favor the anaerobic biodegradation of chlorinated solvents through the reductive dehalogenation pathway catalyzed by DHC.

7.0 Bedrock Remediation Performance and Quarterly Monitoring Results

7.1 Objectives Comparison

The current level of performance is based on the objectives given below and comparison of current results to these objectives. Detailed observations supporting these comparisons are provided in the next sections following this comparative discussion.

- Objective: Establish geochemical conditions for anaerobic dechlorination in the source area, to the extent that CVOCs are degraded.
    - Overall, the current geochemical conditions are marginal for anaerobic dechlorination in the source area. There are some positive conditions such as a low ORP, sulfate reducing or reduced, and elevated TOC. However, pH in most of the bedrock source area has decreased to levels that may inhibit bioremediation of CVOCs. In a majority of the source area bedrock wells, the pH was appreciably less than 6.0. Additional substrate injections were performed in November 2012 to improve CVOC degradation in the source area, which increased the TOC, but did not maintain a pH above 6.0. Additionally, sulfides are elevated, which could inhibit microbial populations (AFCEE, 2004; Hoelen T.P. and Reinhard M. 2004). Section 7.2 provides more detail regarding the concentration changes.
- Objective: Changes in geochemistry and CVOC concentrations in adjacent and near source downgradient areas as a result of groundwater transport of TOC and subsequent degradation mechanisms.
    - Overall, the objectives were met in some locations but not in others. At some locations, TCE decreased and DCE increased, indicating biodegradation, whereas at other locations both TCE and DCE increased. Given that the additional injection in 2012 occurred approximately 3 – 5 weeks prior to the sampling, variability in concentrations, including increases, is not unexpected. Section 7.2 provides more detail regarding

the concentration changes. Continued quarterly sampling events will provide more information regarding the effectiveness of the additional injections and the remediation as a whole.

- Objective: Long-term expansion of the bedrock groundwater treatment area and/or the area influenced downgradient of the treatment area.
    - This objective is partially met, although discernible changes immediately downgradient of the treatment area have been observed, the degradation is incomplete at this time. Immediately downgradient of the treatment area, the concentrations appear to have changed due to the substrate injections. In a majority of the immediate downgradient locations, TCE decreased and DCE increased, along with increases in TOC. In particular, the pilot test locations, which are downgradient of the INJ-13D injections, showed TCE to DCE transformation. Section 7.2 provides more detail regarding the concentration changes. It is expected that future performance sampling events will show a gradual decrease of these CVOCs over time. This remediation includes treatment or groundwater with CVOC concentrations near solubility limits and evidence of DNAPL, the remediation will progress at a relatively slower rate.

7.2 Bedrock Bioremediation Performance Summary

Figures 3 and 4 provide data tables and time series plots of key CVOCs, total ethene and ethane, and TOC concentrations for the bedrock injection and monitoring wells.

The total molar change in CVOCs (chlorinated ethenes and ethanes) from the June 2011 baseline to 4Q12 sampling results was calculated for source area and downgradient bedrock wells. The average total molar chlorinated ethene and ethane concentrations have increased in the source area (INJ-07D though INJ-10D, PMW-10D, and RMW-2D) by an average of 601 µmol/L. This increase is likely related to the increased solubility of the CVOCs and the re-distribution of mass in the source area.

Immediately downgradient of the source area (PMW-9D, PMW-11D through PMW-15D, and PMW-17D), the average total molar chlorinated ethene and ethane concentrations increased by 350 µmol/L, likely due to the November 2012 injections, as well as mobilization and increased solubility. Slightly further downgradient, but near the treatment area (MW-11D, PMW-16D and RMW-3D), average total chlorinated ethene and ethane concentrations have decreased by 262 µmol/L.

At the farther (approximately 800 feet) downgradient wells (MW-20D, and MW-21D) average total chlorinated ethenes and ethanes have decreased by 94 µmol/L (MW-20D decreased by 198 µmol/L and at MW-21D increased by 10 µmol/L). TCA remains elevated as compared to historical levels at MW-20D, but appears to be decreasing in a similar manner as MW-11D and MW-17D.

The data indicate continued variability in CVOC biodegradation profiles in the bedrock wells. At a considerable number of locations, especially those in the source area, increases in TCE, DCE, and to a minor degree, VC concentrations were observed after substrate injections in November 2012. In a number of other locations, there were observed decreases in TCE associated with increased in DCE. PMW-12D showed decreases of both TCE and DCE in December 2012. This well continues to demonstrate slow but effective degradation of TCE and DCE with relatively little VC accumulation. Fifteen (15) of 29 remediation area and pilot test wells, mostly downgradient of the treatment area, showed decreases in TCE with increases in DCE, suggesting anaerobic biodegradation of the upgradient TCE. At five (5) of the 29 remediation and pilot test wells, mostly on the upgradient side of the treatment area, both TCE and DCE increased, suggesting an increase in solubility due to the vegetable oil substrate. At five (5) of the remediation and pilot test wells, DCE increased and TCE remained relatively constant. At three locations there was no appreciable change. TCE and DCE have been reduced substantially in a few locations, but significant concentrations remain in other wells. Further performance monitoring will be used to evaluate bioremediation and mass destruction rates, and the progression of the remediation.

Groundwater elevation data indicate the groundwater flow conditions have remained similar since the initial June 2011 substrate injections. Groundwater flow is generally southerly across the site with no apparent effects from the bioremediation.

Detailed observations are as follows:

Geochemical and microbiological indicators

- TOC has substantially increased within and downgradient of the treatment area due to the November 2012 injections. In September 2012, average TOC concentrations were 79 mg/L in the 2012 treatment area (INJ-7D through INJ-10D, INJ-13D, PMW-9D, PMW-10D, PMW-11D, and RMW-2D), while in December 2012 (post-injection), TOC averaged 1100 mg/L, and ranged from 7.7 mg/L to 4,420 mg/L. TOC increased downgradient from the treatment area as well, ranging from 6.25 mg/L to 3,900 mg/L, with an average of 1453 mg/L in wells PMW-12D through PMW-17D, up from an average of 240 mg/L during the September 2012 pre-injection sampling. Substantial increases in TOC concentrations are also seen in the pilot test wells further downgradient (INJ-01, PMW-1D through PMW-8D, MW-7D, and RMW-4D). TOC in these wells increased from an average of 129 mg/L in September 2012, to an average of 867 mg/L in December 2012.

- Sulfate remains at decreased levels, although it is increasing in some locations of the treatment area. Sulfate ranges from 1.6 mg/L to 395 mg/L with an average of 63.5 mg/L within the 2012 treatment area in December 2012. The location with the lowest sulfate and low sulfide concentration, INJ-8D, is also the location of significant degradation, with a decrease in TCE from approximately 1,400 µg/L in September 2012 to currently 27 µg/L, and an increase in DCE to 9,546 µg/L in December 2012, the highest recorded level.

- The pH in the bedrock wells continues to be primarily between 6 and 8. However, some locations are exhibiting a pH of less than 6.0, including INJ-01, INJ-9D, PMW-1D, PMW-5D, PMW-7D, PMW-9D, PMW-10D, PMW-12D, PMW-13D, PMW-14D, MW-7D and RMW-4D. The pH levels will be further analyzed during future performance sampling events.

- PMW-14D continues to have a pH of less than 6.0 (5.9 in December 2012). PMW-14D is a location where TOC remains elevated at 1,450 mg/L and is also where the peak TOC concentrations occurred in November 2011 (approximately 3.5 months after the 2011 injections). TCE and DCE concentrations are generally trending upward in this well.

- At well PMW-16D, there was a sustained elevated pH ranging from 10.5 to 12.7 from August 2011 to September 2012. This was likely the result of the sample tubing inlet being subject to grout from the rock socket of the open borehole. During the December 2012 sampling, the sample tubing was replaced to make sure that the intake depth was as close as possible to the fracture zone prior to sampling. The pH returned to an acceptable range (6.14).

- At several locations in the source area and pilot test area, sulfides were elevated. In wells INJ-07D, INJ-08D, PMW-09D, PMW-15D, PMW-17D, and RMW-2D, dissolved sulfide increased into the range of 106 to 161 mg/L, with an average of 138 mg/L in September 2012. These data indicated the potential for sulfide to inhibit CVOC biodegradation at these locations. Iron amendments, including iron lactate and iron magnetite, were added to INJ-7D in November 2012, to test their ability to reduce sulfide via precipitation and to enhance biogeochemical reduction and biodegradation. Notable decreases in dissolved sulfide, and associated increases in dissolved iron between September and December 2012 were observed in INJ-7D, RMW-2D, PMW-9D and PMW-1D (increases to the range of 4 – 40 mg/L). Each of these wells is located in the area or downgradient where the iron was added (INJ-7D). Decreases in sulfide and increases in iron were noted at PWM-9D, and PMW-12D.

- Of the 15 samples for acetylene collected in December 2012, there were three detections: 7.2 ug/L in INJ-7D, 6.3 ug/L in INJ-9D, and 0.91 µg/L at PMW-17D. This indicated there is an active biogeochemical and/or abiotic component to the degradation. Addition of iron may have contributed to a stronger biogeochemical degradation.

- The microbial population results indicate that DHC populations are approximately 10^3 to 10^5 cells/mL within the bedrock treatment area, with significant increases at INJ-07D, INJ-09D, and RMW-2D, likely due to the 2012 bioaugmentation injections. There have also been notable decreases in DHC in wells within and downgradient from the bedrock treatment area, including INJ-10D, PMW-11D, PMW-15D, and PMW-17D, with populations ranging from 109 to 439 cells/mL in December 2012. At PMW-17D, DHC has decreased from 5,320 cells/mL in September 2012 to 439 cells/mL in December 2012, compared to the 2011 baseline of 492 cells/mL. Sulfide increased in these four wells from an average of 78 mg/L in September 2012 to 177 mg/L in December 2012

after the November 2012 injection. Elevated sulfide may contribute to the low DHC populations in these wells. DHC values in these wells are lower than desired, and will be further analyzed during future performance sampling events.

Downgradient Observations

- CVOC concentrations at MW-11D and MW-17D (side and downgradient of the treatment area) continued to decline as shown in Figures 3 and 4. TCA concentrations at MW-11D continued a steep decrease to 270 µg/L from a high of 25,000 at baseline (July 2011). TCA concentrations at MW-17D also continued to decrease, down to 330 µg/L from 7,200 µg/L in August 2011. Other compounds of lesser concentrations also continued to decrease at these locations. The decreasing trends observed at these locations are down from considerable increases observed in the 2011 baseline and 4 week sampling events. The current concentrations are near or within historical concentrations.

- CVOC concentrations in farthest downgradient wells MW-13D, MW-15D, MW-16D, and MW-19D, and in wells side gradient to the bedrock injection area including MW-10D, MW-12D and MW-18D are within historical ranges and do not show clear increasing or decreasing trends. It appears that remediation activities have not significantly influenced concentrations at these locations at this time.

- At downgradient well MW-20D, there was a decrease in TCE, DCE, and VC, as well as a decrease in TCA from a peak level of 14,000 µg/L in June 2012 to 7,700 µg/L in December 2012. The increase of TCA in June 2012 was unusual, but represented a temporary change similar to what was observed during baseline sampling at MW-11D and MW-12S, and later at MW-17D. At each of these wells, located upgradient from MW-20D, TCA steadily decreased to pre-construction concentrations during subsequent sampling events. It is expected that TCA levels in MW-20D will continue to decrease as the upgradient wells have.

- At MW-21D (side gradient to MW-20D), the concentrations of DCE continued to decline from approximately 5,000 after the remediation work to approximately 2,100 in December 2012. VC increased from 580 to 1000 ug/L between September and December 2012. Both are within or near the historical range.

Future performance monitoring events will be used to analyze the effectiveness of the 2012 substrate injections, as December 2012 post-injection sampling results revealed measurable variability in CVOC profiles, dechlorination, and the biogeochemical environment across the bedrock remediation area, especially in the treatment area. This variability is expected for sampling results collected shortly after a bioremediation injection.

Factors that may be limiting or slowing the rate of degradation at some locations in the bedrock are:

- Lower than optimal pH;

- Higher than optimal hydrogen sulfide concentrations;
- Lower than optimal TOC concentrations;
- High natural sulfate concentrations, which creates its own TOC demand;
- A lack of available iron to sustain abiotic degradation;
- Natural heterogeneities in flow paths, permeability, and porosity associated with fractured bedrock;
- High and variable groundwater flow rates; and
- High source area concentrations of CVOCs particularly near INJ-07D.

The relatively low TOC in several wells was addressed during the additional injections in November 2012. The addition of soluble and insoluble iron amendments to INJ-7D resulted in decreased sulfide concentrations in a limited area influenced by the single iron injection. Sulfide concentrations will be monitored to determine the longevity of the iron amendments to precipitate sulfide. As of December 2012, pH has not been maintained in a favorable range within portions of the injection area and downgradient by including carbonate buffer with the injections. The pH will continue to be monitored to evaluate whether pH begins to increase.

8.0 General Site Conclusions

Bioreactor: Results of the 2012 data indicate that the bioreactor trenches are functioning well. Items to be monitored in future events include TOC depletion in the bioreactor and the areal extent of CVOC degradation. Additional substrate injections are being planned to replenish TOC. Increase of degradation products outside the bioreactors will continue to be monitored.

Bedrock Bioremediation Area: Additional substrate and amendment injections were completed in November 2012 to selected areas of the treatment zone to encourage CVOC degradation. Amendments included additional substrate, bioaugmentation solution, and biogeochemical enhancement materials (e.g. iron and pH buffer). Additional monitoring events are needed to evaluate the effectiveness of the November 2012 injections.

The data to date suggest that the remediation program is not operating to its fullest potential in the bedrock at this time. Performance monitoring was used to define the need for additional bedrock injections to improve performance.

Future quarterly monitoring in 2013 will be used to provide information on the following areas:

- Identify if the iron injection sustains low sulfide concentrations in the vicinity of INJ-7D and if additional iron injections are warranted;

- Determine if pH begins to increase in bedrock wells in the vicinity of the 2012 injections and if alternative pH control methods are warranted;

- Determine if biodegradation increases in response to the 2012 injections and if increased biodegradation correlates with lower sulfide and higher pH in the presence of adequate TOC; and

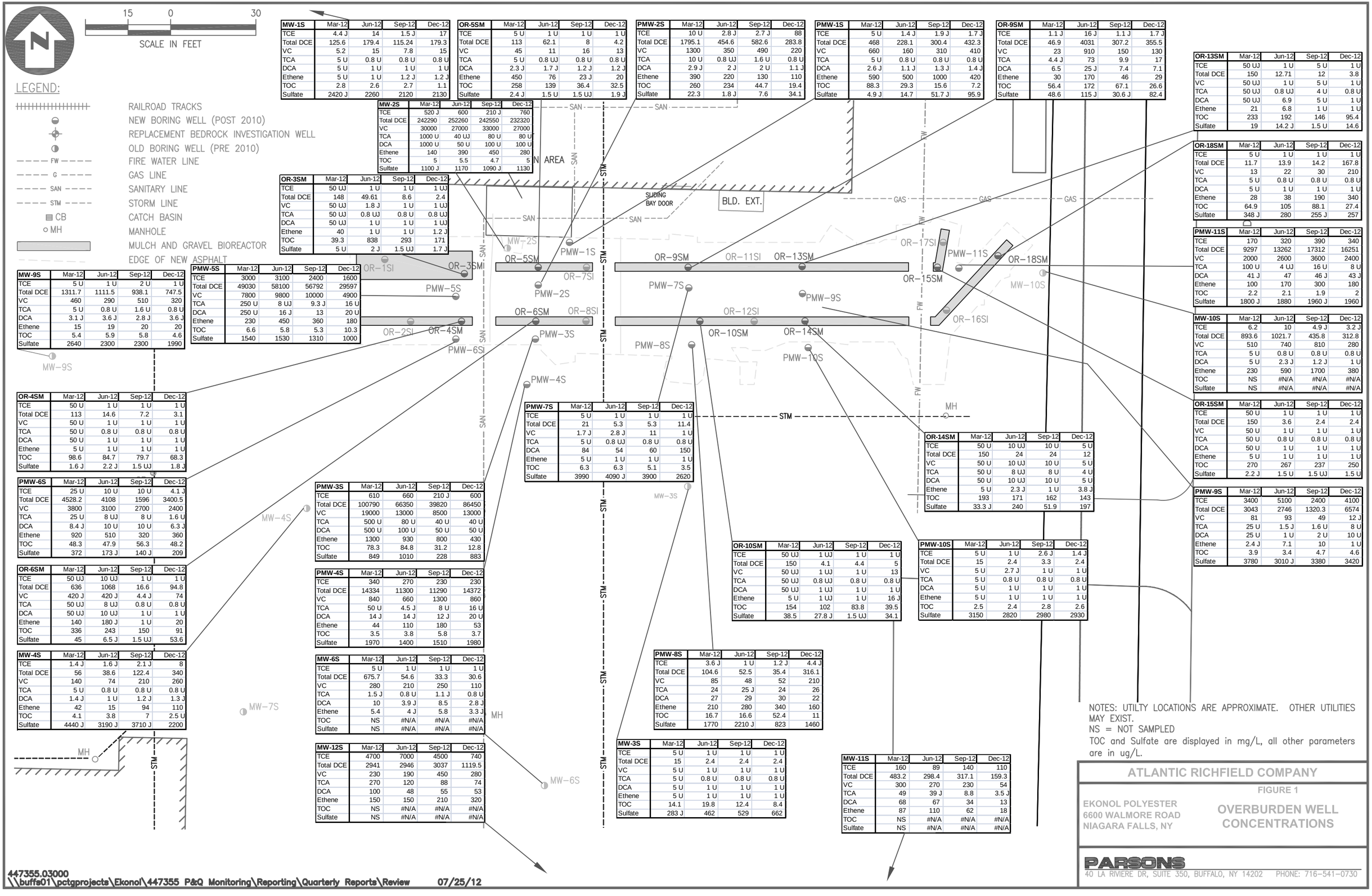
- Determine if additional vegetable oil substrate injection is required in the overburden bioreactors.

9.0 References

Air Force Center for Environmental Excellence (AFCEE), Naval Facilities Engineering Service Center (NFESC), and the Environmental Security Technology Certification Program (ESTCP). 2004. Principles and Practices of Enhanced Anaerobic Bioremediation of Chlorinated Solvents. Prepared by the Parsons Corporation, Denver, Colorado. August 2004.

Hoelen T.P. and Reinhard M. 2004 Complete biological dehalogenation of chlorinated ethylenes in sulfate containing groundwater, Biodegradation 15: 395-403, 2004 Kluwer Academic Publishers.

FIGURES



MW-1S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	4.4 J	14	1.5 J	17
Total DCE	125.6	179.4	115.24	179.3
VC	5.2	15	7.8	15
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	5 U	1 U	1 U	1 U
Ethene	5 U	1 U	1.2 J	1.2 J
TOC	2.8	2.6	2.7	1.1
Sulfate	2420 J	2260	2120	2130

OR-5SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	1 U	1 U
Total DCE	113	62.1	8	4.2
VC	45	11	16	13
TCA	5 U	0.8 UJ	0.8 U	0.8 U
DCA	2.3 J	1.7 J	1.2 J	1.2 J
Ethene	450	76	23 J	20
TOC	258	139	36.4	32.5
Sulfate	2.4 J	1.5 U	1.5 UJ	1.9 J

PMW-2S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	10 U	2.8 J	2.7 J	88
Total DCE	1795.1	454.6	582.6	283.8
VC	1300	350	490	220
TCA	10 U	0.8 UJ	1.6 U	0.8 U
DCA	2.9 J	2 J	2 U	1.1 J
Ethene	390	220	130	110
TOC	260	234	44.7	19.4
Sulfate	22.3	1.8 J	7.6	34.1

PMW-1S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1.4 J	1.9 J	1.7 J
Total DCE	468	228.1	300.4	432.3
VC	660	160	310	410
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	2.6 J	1.1 J	1.3 J	1.4 J
Ethene	590	500	1000	420
TOC	88.3	29.3	15.6	7.2
Sulfate	4.9 J	14.7	51.7 J	95.9

OR-9SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	1.1 J	16 J	1.1 J	1.7 J
Total DCE	46.9	4031	307.2	355.5
VC	23	910	150	130
TCA	4.4 J	73	9.9	17
DCA	6.5	25 J	7.4	7.1
Ethene	30	170	46	29
TOC	56.4	172	67.1	26.6
Sulfate	48.6	115 J	30.6 J	82.4

MW-2S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	520 J	600	210 J	760
Total DCE	242290	252260	242550	232320
VC	30000	27000	33000	27000
TCA	1000 U	40 UJ	80 U	80 U
DCA	1000 U	50 U	100 U	100 U
Ethene	140	390	450	280
TOC	5	5.5	4.7	5
Sulfate	1100 J	1170	1090 J	1130

OR-3SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 UJ	1 U	1 U	1 UJ
Total DCE	148	49.61	8.6	2.4
VC	50 UJ	1.8 J	1 U	1 UJ
TCA	50 UJ	0.8 UJ	0.8 U	0.8 UJ
DCA	50 UJ	1 U	1 U	1 UJ
Ethene	40	1 U	1 U	1.2 J
TOC	39.3	838	293	171
Sulfate	5 U	2 J	1.5 UJ	1.7 J

PMW-5S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	3000	3100	2400	1600
Total DCE	49030	58100	56792	29597
VC	7800	9800	10000	4900
TCA	250 U	8 UJ	9.3 J	16 U
DCA	250 U	16 J	13	20 U
Ethene	230	450	360	180
TOC	6.6	5.8	5.3	10.3
Sulfate	1540	1530	1310	1000

MW-9S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	2 U	1 U
Total DCE	1311.7	1111.5	938.1	747.5
VC	460	290	510	320
TCA	5 U	0.8 U	1.6 U	0.8 U
DCA	3.1 J	3.6 J	2.8 J	3.6 J
Ethene	15	19	20	20
TOC	5.4	5.9	5.8	4.6
Sulfate	2640	2300	2300	1990

OR-4SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 U	1 U	1 U	1 U
Total DCE	113	14.6	7.2	3.1
VC	50 U	1 U	1 U	1 U
TCA	50 U	0.8 U	0.8 U	0.8 U
DCA	50 U	1 U	1 U	1 U
Ethene	5 U	1 U	1 U	1 U
TOC	98.6	84.7	79.7	68.3
Sulfate	1.6 J	2.2 J	1.5 UJ	1.8 J

PMW-6S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	25 U	10 U	10 U	4.1 J
Total DCE	4528.2	4108	1596	3400.5
VC	3800	3100	2700	2400
TCA	25 U	8 UJ	8 U	1.6 U
DCA	8.4 J	10 U	10 U	6.3 J
Ethene	920	510	320	360
TOC	48.3	47.9	56.3	48.2
Sulfate	372	173 J	140 J	209

OR-6SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 UJ	10 UJ	1 U	1 U
Total DCE	636	1068	16.6	94.8
VC	420 J	420 J	4.4 J	74
TCA	50 UJ	8 UJ	0.8 U	0.8 U
DCA	50 UJ	10 UJ	1 U	1 U
Ethene	140	180 J	1 U	20
TOC	336	243	150	91
Sulfate	45	6.5 J	1.5 UJ	53.6

MW-4S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	1.4 J	1.6 J	2.1 J	8
Total DCE	56	38.6	122.4	340
VC	140	74	210	260
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	1.4 J	1 U	1.2 J	1.3 J
Ethene	42	15	94	110
TOC	4.1	3.8	7	2.5 U
Sulfate	4440 J	3190 J	3710 J	2200

PMW-3S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	610	660	210 J	600
Total DCE	100790	66350	39820	86450
VC	19000	13000	8500	13000
TCA	500 U	80 U	40 U	40 U
DCA	500 U	100 U	50 U	50 U
Ethene	1300	930	800	430
TOC	78.3	84.8	31.2	12.8
Sulfate	849	1010	228	883

PMW-4S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	340	270	230	230
Total DCE	14334	11300	11290	14372
VC	840	660	1300	860
TCA	50 U	4.5 J	8 U	16 U
DCA	14 J	14 J	12 J	20 U
Ethene	44	110	180	53
TOC	3.5	3.8	5.8	3.7
Sulfate	1970	1400	1510	1980

MW-6S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	1 U	1 U
Total DCE	675.7	54.6	33.3	30.6
VC	280	210	250	110
TCA	1.5 J	0.8 U	1.1 J	0.8 U
DCA	10	3.9 J	8.5	2.8 J
Ethene	5.4	4 J	5.8	3.3 J
TOC	NS	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

MW-12S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	4700	7000	4500	740
Total DCE	2941	2946	3037	1119.5
VC	230	190	450	280
TCA	270	120	88	74
DCA	100	48	55	53
Ethene	150	150	210	320
TOC	NS	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

PMW-7S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	1 U	1 U
Total DCE	21	5.3	5.3	11.4
VC	1.7 J	2.8 J	11	1 U
TCA	5 U	0.8 UJ	0.8 U	0.8 U
DCA	84	54	60	150
Ethene	5 U	1 U	1 U	1 U
TOC	6.3	6.3	5.1	3.5
Sulfate	3990	4090 J	3900	2620

OR-10SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 UJ	1 UJ	1 U	1 U
Total DCE	150	4.1	4.4	5
VC	50 UJ	1 UJ	1 U	13
TCA	50 UJ	0.8 UJ	0.8 U	0.8 U
DCA	50 UJ	1 UJ	1 U	1 U
Ethene	5 U	1 UJ	1 U	16 J
TOC	154	102	83.8	39.5
Sulfate	38.5	27.8 J	1.5 UJ	34.1

PMW-10S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	2.6 J	1.4 J
Total DCE	15	2.4	3.3	2.4
VC	5 U	2.7 J	1 U	1 U
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	5 U	1 U	1 U	1 U
Ethene	5 U	1 U	1 U	1 U
TOC	2.5	2.4	2.8	2.6
Sulfate	3150	2820	2980	2930

OR-14SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 U	10 UJ	10 U	5 U
Total DCE	150	24	24	12
VC	50 U	10 UJ	10 U	5 U
TCA	50 U	8 UJ	8 U	4 U
DCA	50 U	10 UJ	10 U	5 U
Ethene	5 U	2.3 J	1 U	3.8 J
TOC	193	171	162	143
Sulfate	33.3 J	240	51.9	197

PMW-8S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	3.6 J	1 U	1.2 J	4.4 J
Total DCE	104.6	52.5	35.4	316.1
VC	85	48	52	210
TCA	24	25 J	24	26
DCA	27	29	30	22
Ethene	210	280	340	160
TOC	16.7	16.6	52.4	11
Sulfate	1770	2210 J	823	1460

MW-3S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	1 U	1 U
Total DCE	15	2.4	2.4	2.4
VC	5 U	1 U	1 U	1 U
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	5 U	1 U	1 U	1 U
Ethene	5 U	1 U	1 U	1 U
TOC	14.1	19.8	12.4	8.4
Sulfate	283 J	462	529	662

MW-11S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	160	89	140	110
Total DCE	483.2	298.4	317.1	159.3
VC	300	270	230	54
TCA	49	39 J	8.8	3.5 J
DCA	68	67	34	13
Ethene	87	110	62	18
TOC	NS	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

OR-13SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 UJ	1 U	5 U	1 U
Total DCE	150	12.71	12	3.8
VC	50 UJ	1 U	5 U	1 U
TCA	50 UJ	0.8 UJ	4 U	0.8 U
DCA	50 UJ	6.9	5 U	1 U
Ethene	21	6.8	1 U	1 U
TOC	233	192	146	95.4
Sulfate	19	14.2 J	1.5 U	14.6

OR-18SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	5 U	1 U	1 U	1 U
Total DCE	11.7	13.9	14.2	167.8
VC	13	22	30	210
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	5 U	1 U	1 U	1 U
Ethene	28	38	190	340
TOC	64.9	105	88.1	27.4
Sulfate	348 J	280	255 J	257

PMW-11S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	170	320	390	340
Total DCE	9297	13262	17312	16251
VC	2000	2600	3600	2400
TCA	100 U	4 UJ	16 U	8 U
DCA	41 J	47	46 J	43 J
Ethene	100	170	300	180
TOC	2.2	2.1	1.9	2
Sulfate	1800 J	1880	1960 J	1960

MW-10S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	6.2	10	4.9 J	3.2 J
Total DCE	893.6	1021.7	435.8	312.8
VC	510	740	810	280
TCA	5 U	0.8 U	0.8 U	0.8 U
DCA	5 U	2.3 J	1.2 J	1 U
Ethene	230	590	1700	380
TOC	NS	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

OR-15SM	Mar-12	Jun-12	Sep-12	Dec-12
TCE	50 U	1 U	1 U	1 U
Total DCE	150	3.6	2.4	2.4
VC	50 U	1 U	1 U	1 U
TCA	50 U	0.8 U	0.8 U	0.8 U
DCA	50 U	1 U	1 U	1 U
Ethene	5 U	1 U	1 U	1 U
TOC	270	267	237	250
Sulfate	2.2 J	1.5 U	1.5 UJ	1.5 U

PMW-9S	Mar-12	Jun-12	Sep-12	Dec-12
TCE	3400	5100	2400	4100
Total DCE	3043	2746	1320.3	6574
VC	81	93	49	12 J
TCA	25 U	1.5 J	1.6 U	8 U
DCA	25 U	1 U	2 U	10 U
Ethene	2.4 J	7.1	10	1 U
TOC	3.9	3.4	4.7	4.6
Sulfate	3780	3010 J	3380	3420

NOTES: UTILTY LOCATIONS ARE APPROXIMATE. OTHER UTILITIES MAY EXIST.
NS = NOT SAMPLED
TOC and Sulfate are displayed in mg/L, all other parameters are in ug/L.

ATLANTIC RICHFIELD COMPANY

FIGURE 1

EKONOL POLYESTER
6600 WALMORE ROAD
NIAGARA FALLS, NY

OVERBURDEN WELL CONCENTRATIONS

PARSONS
40 LA RIVIERE DR, SUITE 350, BUFFALO, NY 14202 PHONE: 716-541-0730

N

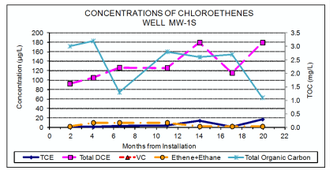
15 0 30

SCALE IN FEET

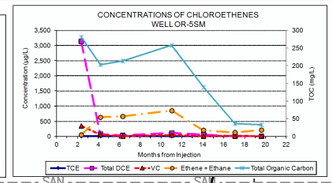
LEGEND:

- RAILROAD TRACKS
- NEW BORING WELL (POST 2010)
- REPLACEMENT BEDROCK INVESTIGATION WELL
- OLD BORING WELL (PRE 2010)
- FW — FIRE WATER LINE
- G — GAS LINE
- SAN — SANITARY LINE
- STM — STORM LINE
- CB — CATCH BASIN
- MH — MANHOLE
- MULCH AND GRAVEL BIOREACTOR
- EDGE OF NEW ASPHALT

CONCENTRATIONS OF CHLOROETHENES
WELL MW-1S



CONCENTRATIONS OF CHLOROETHENES
WELL OR-5SM



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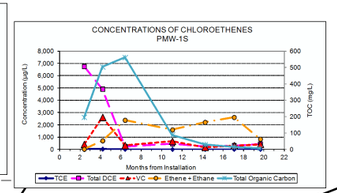
PMW-1S



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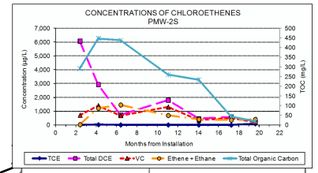
PMW-2S



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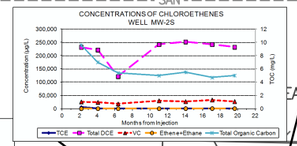
WELL MW-2S



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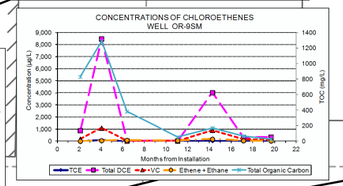
WELL OR-9SM



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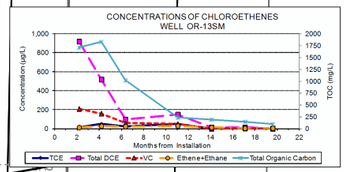
WELL OR-13SM



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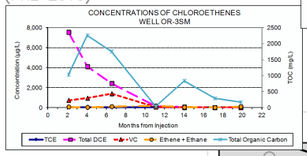
WELL OR-3SM



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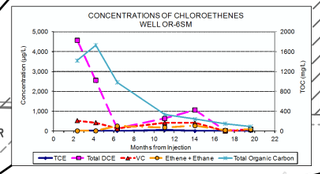
WELL OR-6SM



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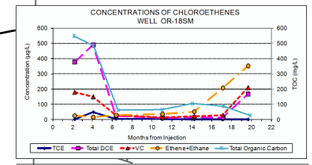
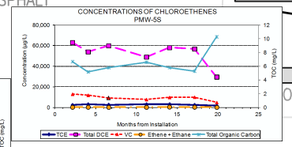
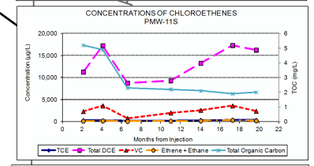
WELL OR-18SM



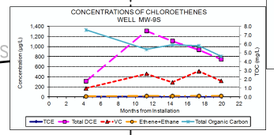
CONCENTRATIONS OF CHLOROETHENES
PMW-5S



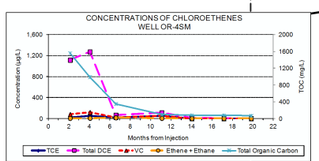
CONCENTRATIONS OF CHLOROETHENES
PMW-11S



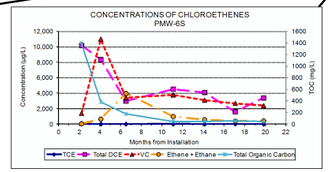
CONCENTRATIONS OF CHLOROETHENES
WELL MW-9S



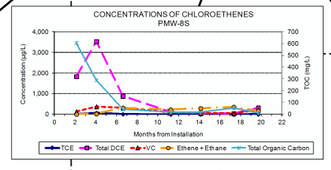
CONCENTRATIONS OF CHLOROETHENES
WELL OR-4SM



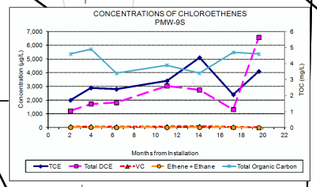
CONCENTRATIONS OF CHLOROETHENES
PMW-6S



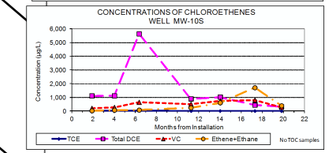
CONCENTRATIONS OF CHLOROETHENES
PMW-8S



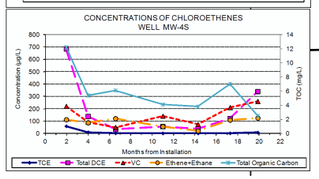
CONCENTRATIONS OF CHLOROETHENES
PMW-9S



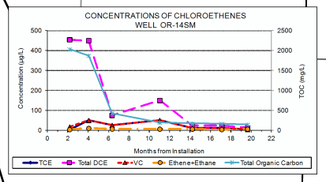
CONCENTRATIONS OF CHLOROETHENES
WELL MW-10S



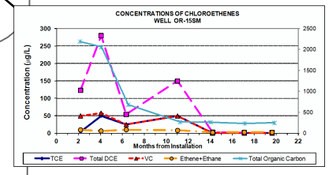
CONCENTRATIONS OF CHLOROETHENES
WELL MW-4S



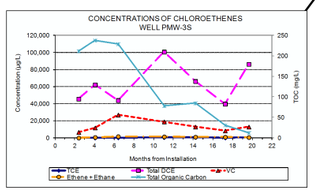
CONCENTRATIONS OF CHLOROETHENES
WELL OR-14SM



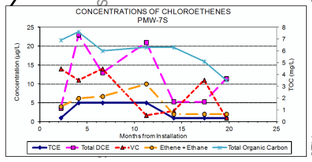
CONCENTRATIONS OF CHLOROETHENES
WELL OR-15SM



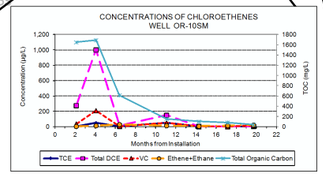
CONCENTRATIONS OF CHLOROETHENES
WELL PMW-3S



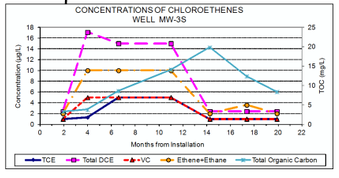
CONCENTRATIONS OF CHLOROETHENES
PMW-7S



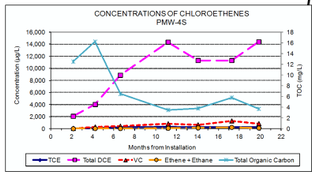
CONCENTRATIONS OF CHLOROETHENES
WELL OR-10SM



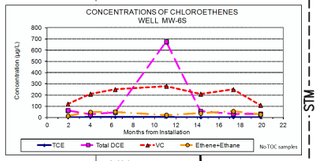
CONCENTRATIONS OF CHLOROETHENES
WELL MW-3S



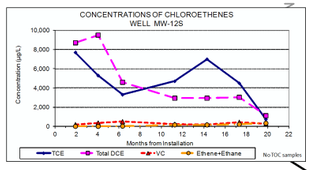
CONCENTRATIONS OF CHLOROETHENES
PMW-4S



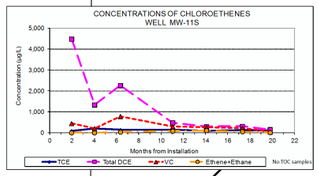
CONCENTRATIONS OF CHLOROETHENES
WELL MW-6S



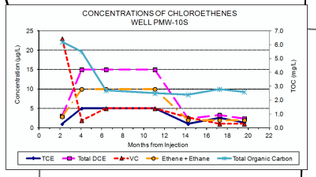
CONCENTRATIONS OF CHLOROETHENES
WELL MW-12S



CONCENTRATIONS OF CHLOROETHENES
WELL MW-11S



CONCENTRATIONS OF CHLOROETHENES
WELL MW-10S



SLIDING BAY DOOR

NOTES: UTILTY LOCATIONS ARE APPROXIMATE OTHER UTILITIES MAY EXIST FINAL LOCATIONS WILL BE DEPENDENT UPON SITE CONDITIONS AND PLANT OPERATIONS
NS = NOT SAMPLED

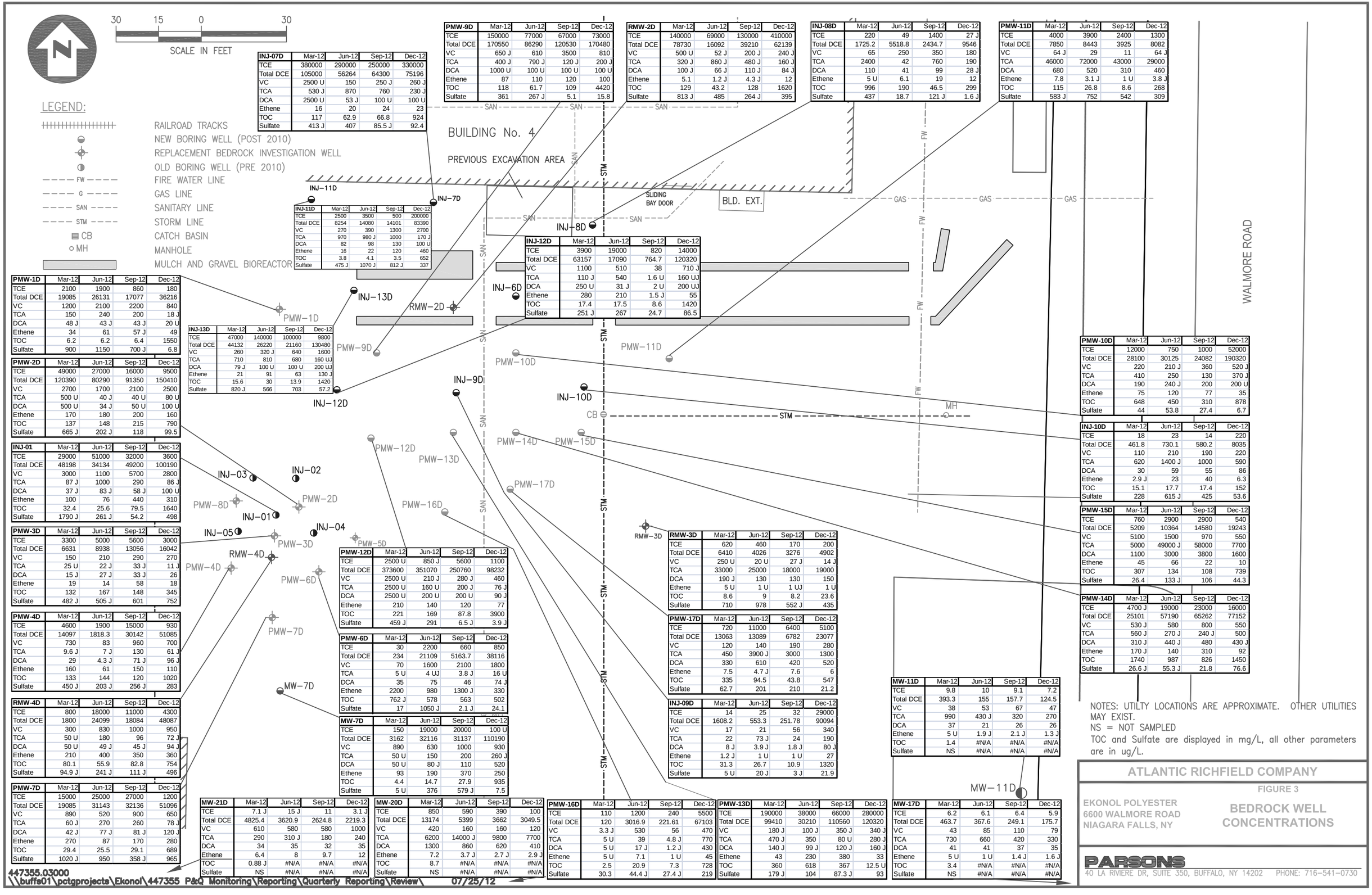
ATLANTIC RICHFIELD COMPANY

EKONOL POLYESTER
6600 WALMORE ROAD
NIAGARA FALLS, NY

FIGURE 2
OVERBURDEN TIME SERIES PLOTS

PARSONS
40 LA RIVIERE DR, SUITE 350, BUFFALO, NY 14202 PHONE: 716-541-0730

447355.02000
P:\Ekonol\447355 P&Q Monitoring\Reporting\Quarterly Reports\4Q12 Final\Figure 2 Ekonol Dec 2012 rem area-Shallow Conc. Charts.pdf



INJ-07D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	380000	290000	250000	330000
Total DCE	105000	56264	64300	75196
VC	2500 U	150	250 J	260 J
TCA	530 J	870	760	230 J
DCA	2500 U	53 J	100 U	100 U
Ethene	16	20	24	23
TOC	117	62.9	66.8	924
Sulfate	413 J	407	85.5 J	92.4

PMW-9D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	150000	77000	67000	73000
Total DCE	170550	86290	120530	170480
VC	650 J	610	3500	810
TCA	400 J	790 J	120 J	200 J
DCA	1000 U	100 U	100 U	100 U
Ethene	87	110	120	100
TOC	118	61.7	109	4420
Sulfate	361	267 J	5.1	15.8

RMW-2D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	140000	69000	130000	410000
Total DCE	78730	16092	39210	62139
VC	500 U	52 J	200 J	240 J
TCA	320 J	860 J	480 J	160 J
DCA	100 J	66 J	110 J	84 J
Ethene	5.1	1.2 J	4.3 J	12
TOC	129	43.2	128	1620
Sulfate	813 J	485	264 J	395

INJ-08D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	220	49	1400	27 J
Total DCE	1725.2	5518.8	2434.7	9546
VC	65	250	350	180
TCA	2400	42	760	190
DCA	110	41	99	28 J
Ethene	5 U	6.1	19	12
TOC	996	190	46.5	299
Sulfate	437	18.7	121 J	1.6 J

PMW-11D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	4000	3900	2400	1300
Total DCE	7850	8443	3925	8082
VC	64 J	29	11	64 J
TCA	46000	72000	43000	29000
DCA	680	520	310	460
Ethene	7.8	3.1 J	1 U	3.8 J
TOC	115	26.8	8.6	268
Sulfate	583 J	752	542	309

INJ-11D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	2500	3500	500	200000
Total DCE	8254	14080	14101	83390
VC	270	390	1300	2700
TCA	970	980 J	1000	170 J
DCA	82	98	130	100 U
Ethene	16	22	120	460
TOC	3.8	4.1	3.5	652
Sulfate	475 J	1070 J	812 J	337

INJ-12D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	3900	19000	820	14000
Total DCE	63157	17090	764.7	120320
VC	1100	510	38	710 J
TCA	110 J	540	1.6 U	160 UJ
DCA	250 U	31 J	2 U	200 UJ
Ethene	280	210	1.5 J	55
TOC	17.4	17.5	8.6	1420
Sulfate	251 J	267	24.7	86.5

PMW-1D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	2100	1900	860	180
Total DCE	19085	26131	17077	36216
VC	1200	2100	2200	840
TCA	150	240	200	18 J
DCA	48 J	43 J	43 J	20 U
Ethene	34	61	57 J	49
TOC	6.2	6.2	6.4	1550
Sulfate	900	1150	700 J	6.8

INJ-13D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	47000	140000	100000	9800
Total DCE	44132	26220	21160	130480
VC	260	320 J	640	1600
TCA	710	810	680	160 UJ
DCA	79 J	100 U	100 U	200 UJ
Ethene	21	91	63	130 J
TOC	15.6	30	13.9	1420
Sulfate	820 J	566	703	57.2

PMW-2D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	49000	27000	16000	9500
Total DCE	120390	80290	91350	150410
VC	2700	1700	2100	2500
TCA	500 U	40 J	40 U	80 U
DCA	500 U	34 J	50 U	100 U
Ethene	170	180	200	160
TOC	137	148	215	790
Sulfate	665 J	202 J	118	99.5

INJ-01	Mar-12	Jun-12	Sep-12	Dec-12
TCE	29000	51000	32000	3600
Total DCE	48198	34134	49200	100190
VC	3000	1100	5700	2800
TCA	87 J	1000	290	86 J
DCA	37 J	83 J	58 J	100 U
Ethene	100	76	440	310
TOC	32.4	25.6	79.5	1640
Sulfate	1790 J	261 J	54.2	498

PMW-3D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	3300	5000	5600	3000
Total DCE	6631	8938	13056	16042
VC	150	210	290	270
TCA	25 U	22 J	33 J	11 J
DCA	15 J	27 J	33 J	26
Ethene	19	14	58	18
TOC	132	167	148	345
Sulfate	482 J	505 J	601	752

PMW-4D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	4600	1900	15000	930
Total DCE	14097	1818.3	30142	51085
VC	730	83	960	700
TCA	9.6 J	7 J	130	61 J
DCA	29	4.3 J	71 J	96 J
Ethene	160	61	150	110
TOC	133	144	120	1020
Sulfate	450 J	203 J	256 J	283

RMW-4D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	800	18000	11000	4300
Total DCE	1800	24099	18084	48087
VC	300	830	1000	950
TCA	50 U	180	96	72 J
DCA	50 U	49 J	45 J	94 J
Ethene	210	400	350	360
TOC	80.1	55.9	82.8	754
Sulfate	94.9 J	241 J	111 J	496

PMW-7D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	15000	25000	27000	1200
Total DCE	19085	31143	32136	51096
VC	890	520	900	650
TCA	60 J	270	260	78 J
DCA	42 J	77 J	81 J	120 J
Ethene	270	87	170	280
TOC	29.4	25.5	29.1	689
Sulfate	1020 J	950	358 J	965

PMW-12D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	2500 U	850 J	5600	1100
Total DCE	373600	351070	250760	98232
VC	2500 U	210 J	280 J	460
TCA	2500 U	160 U	200 J	76 J
DCA	2500 U	200 U	200 U	90 J
Ethene	210	140	120	77
TOC	221	169	87.8	3900
Sulfate	459 J	291	6.5 J	3.9 J

PMW-6D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	30	2200	660	850
Total DCE	234	21109	5163.7	38116
VC	70	1600	2100	1800
TCA	5 U	4 UJ	3.8 J	16 U
DCA	35	75	46	74 J
Ethene	2200	980	1300 J	330
TOC	762 J	578	563	502
Sulfate	17	1050 J	2.1 J	24.1

MW-7D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	150	19000	20000	100 U
Total DCE	3162	32116	31137	110190
VC	890	630	1000	930
TCA	50 U	150	200	260 J
DCA	50 U	80 J	110	520
Ethene	93	190	370	250
TOC	4.4	14.7	27.9	935
Sulfate	5 U	376	579 J	7.5

RMW-3D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	620	460	170	200
Total DCE	6410	4026	3276	4902
VC	250 U	20 U	27 J	14 J
TCA	33000	25000	18000	19000
DCA	190 J	130	130	150
Ethene	5 U	1 U	1 UJ	1 U
TOC	8.6	9	8.2	23.6
Sulfate	710	978	552 J	435

PMW-17D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	720	11000	6400	5100
Total DCE	13063	13089	6782	23077
VC	120	140	190	280
TCA	450	3900 J	3000	1300
DCA	330	610	420	520
Ethene	7.5	4.7 J	7.6	6
TOC	335	94.5	43.8	547
Sulfate	62.7	201	210	21.2

INJ-09D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	14	25	32	29000
Total DCE	1608.2	553.3	251.78	90094
VC	17	21	56	340
TCA	22	73 J	24	190
DCA	8 J	3.9 J	1.8 J	80 J
Ethene	1.2 J	1 U	1 U	27
TOC	31.3	26.7	10.9	1320
Sulfate	5 U	20 J	3 J	21.9

PMW-10D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	12000	750	1000	52000
Total DCE	28100	30125	24082	190320
VC	220	210 J	360	520 J
TCA	410	250	130	370 J
DCA	190	240 J	200	200 U
Ethene	75	120	77	35
TOC	648	450	310	878
Sulfate	44	53.8	27.4	6.7

INJ-10D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	18	23	14	220
Total DCE	461.8	730.1	580.2	8035
VC	110	210	190	220
TCA	620	1400 J	1000	590
DCA	30	59	55	86
Ethene	2.9 J	23	40	6.3
TOC	15.1	17.7	17.4	152
Sulfate	228	615 J	425	53.6

PMW-15D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	760	2900	2900	540
Total DCE	5209	10364	14580	19243
VC	5100	1500	970	550
TCA	5000	49000 J	58000	7700
DCA	1100	3000	3800	1600
Ethene	45	66	22	10
TOC	307	134	108	739
Sulfate	26.4	133 J	106	44.3

PMW-14D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	4700 J	19000	23000	16000
Total DCE	25101	57190	65262	77152
VC	530 J	580	800	550
TCA	560 J	270 J	240 J	500
DCA	310 J	440 J	480	430 J
Ethene	170 J	140	310	92
TOC	1740	987	826	1450
Sulfate	26.6 J	55.3 J	21.8	76.6

MW-11D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	9.8	10	9.1	7.2
Total DCE	393.3	155	157.7	124.5
VC	38	53	67	47
TCA	990	430 J	320	270
DCA	37	21	26	26
Ethene	5 U	1.9 J	2.1 J	1.3 J
TOC	1.4	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

MW-21D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	7.1 J	15 J	11	3.1 J
Total DCE	4825.4	3620.9	2624.8	2219.3
VC	610	580	580	1000
TCA	290	310 J	180	240
DCA	34	35	32	35
Ethene	6.4	8	9.7	12
TOC	0.88 J	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

MW-20D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	850	590	390	100
Total DCE	13174	5399	3662	3049.5
VC	420	160	160	120
TCA	6200	14000 J	9800	7700
DCA	1300	860	620	410
Ethene	7.2	3.7 J	2.7 J	2.9 J
TOC	8.7	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

PMW-16D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	110	1200	240	5500
Total DCE	120	3016.9	221.61	67103
VC	3.3 J	530	56	470
TCA	5 U	39	4.8 J	770
DCA	5 U	17 J	1.2 J	430
Ethene	5 U	7.1	1 U	45
TOC	2.5	20.9	7.3	728
Sulfate	30.3	44.4 J	27.4 J	219

PMW-13D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	190000	38000	66000	280000
Total DCE	99410	30210	110560	120320
VC	180 J	100 J	350 J	340 J
TCA	470 J	350	80 U	280 J
DCA	140 J	99 J	120 J	160 J
Ethene	43	230	380	33
TOC	360	618	367	12.5 U
Sulfate	179 J	104	87.3 J	93

MW-17D	Mar-12	Jun-12	Sep-12	Dec-12
TCE	6.2	6.1	6.4	5.9
Total DCE	463.7	367.6	249.1	175.7
VC	43	85	110	79
TCA	730	660	420	330
DCA	41	41	37	35
Ethene	5 U	1 U	1.4 J	1.6 J
TOC	3.4	#N/A	#N/A	#N/A
Sulfate	NS	#N/A	#N/A	#N/A

NOTES: UTILTY LOCATIONS ARE APPROXIMATE. OTHER UTILITIES MAY EXIST.
NS = NOT SAMPLED
TOC and Sulfate are displayed in mg/L, all other parameters are in ug/L.

ATLANTIC RICHFIELD COMPANY

FIGURE 3

EKONOL POLYESTER
6600 WALMORE ROAD
NIAGARA FALLS, NY

BEDROCK WELL CONCENTRATIONS

PARSONS
40 LA RIVIERE DR, SUITE 350, BUFFALO, NY 14202 PHONE: 716-541-0730

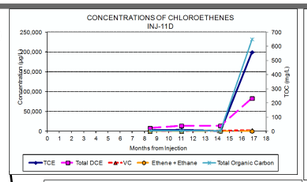
30 15 0 30

SCALE IN FEET

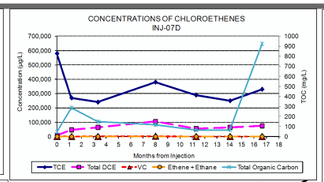
LEGEND:

- RAILROAD TRACKS
- NEW BORING WELL (POST 2010)
- REPLACEMENT BEDROCK INVESTIGATION
- OLD BORING WELL (PRE 2010)
- FW — FIRE WATER LINE
- G — GAS LINE
- SAN — SANITARY LINE
- STM — STORM LINE
- CB — CATCH BASIN
- MH — MANHOLE
- MULCH AND GRAVEL BIOREACTOR

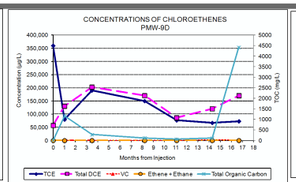
CONCENTRATIONS OF CHLOROETHENES
INJ-11D



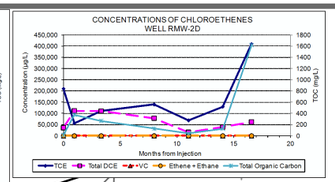
CONCENTRATIONS OF CHLOROETHENES
INJ-07D



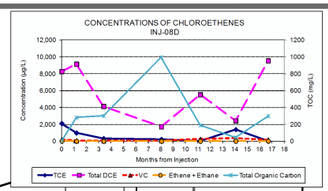
CONCENTRATIONS OF CHLOROETHENES
PMW-9D



CONCENTRATIONS OF CHLOROETHENES
WELL RMW-2D



CONCENTRATIONS OF CHLOROETHENES
INJ-08D



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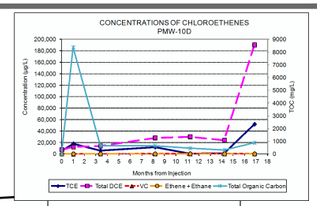
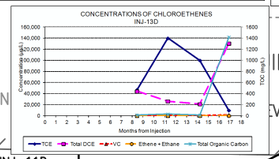
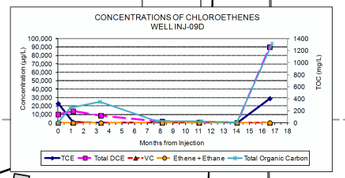
PMW-10D



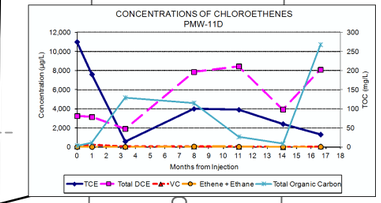
CONCENTRATIONS OF CHLOROETHENES
INJ-13D



CONCENTRATIONS OF CHLOROETHENES
WELL INJ-09D



CONCENTRATIONS OF CHLOROETHENES
PMW-11D



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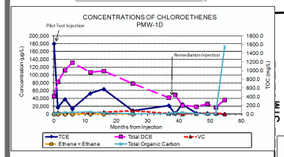
PMW-1D



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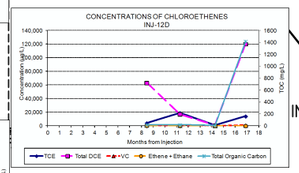
INJ-12D



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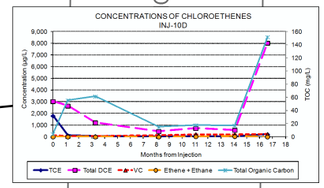
INJ-10D



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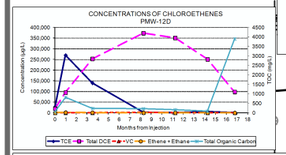
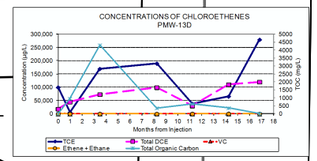
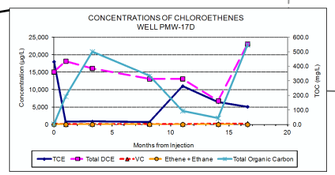
PMW-12D



CONCENTRATIONS OF CHLOROETHENES
PMW-13D



CONCENTRATIONS OF CHLOROETHENES
WELL PMW-17D



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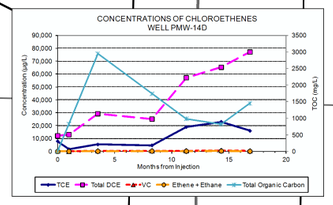
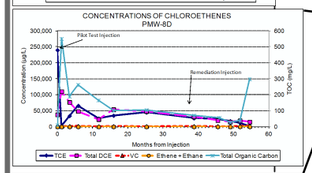
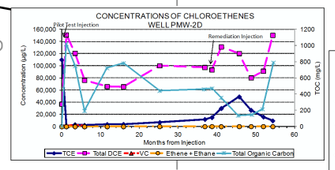
WELL PMW-14D



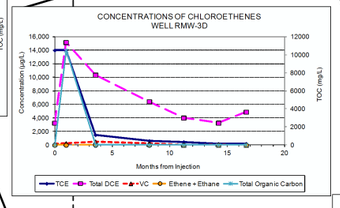
CONCENTRATIONS OF CHLOROETHENES
PMW-8D



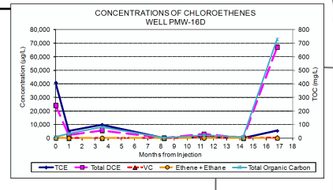
CONCENTRATIONS OF CHLOROETHENES
WELL PMW-2D



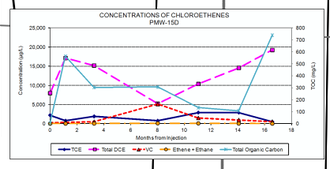
CONCENTRATIONS OF CHLOROETHENES
WELL RMW-3D



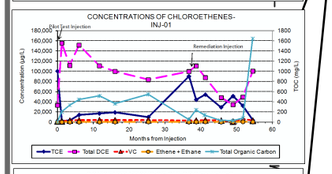
CONCENTRATIONS OF CHLOROETHENES
WELL PMW-16D



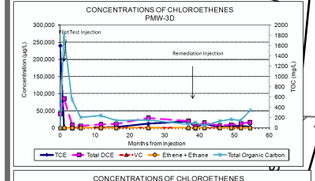
CONCENTRATIONS OF CHLOROETHENES
PMW-15D



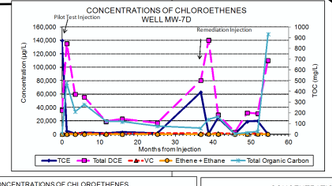
CONCENTRATIONS OF CHLOROETHENES-
INJ-01



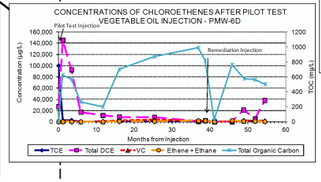
CONCENTRATIONS OF CHLOROETHENES
PMW-3D



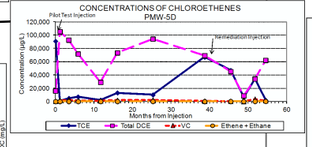
CONCENTRATIONS OF CHLOROETHENES
WELL MW-7D



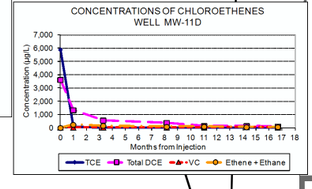
CONCENTRATIONS OF CHLOROETHENES AFTER PILOT TEST
VEGETABLE OIL INJECTION - PMW-6D



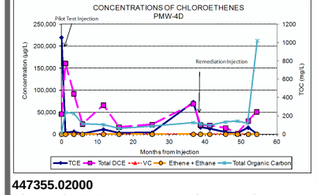
CONCENTRATIONS OF CHLOROETHENES
PMW-5D



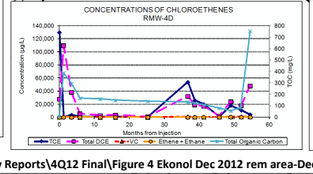
CONCENTRATIONS OF CHLOROETHENES
WELL MW-11D



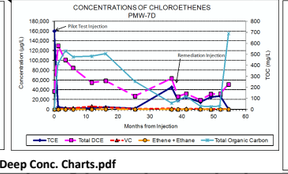
CONCENTRATIONS OF CHLOROETHENES
PMW-4D



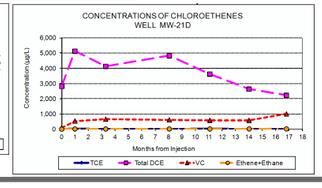
CONCENTRATIONS OF CHLOROETHENES
RMW-4D



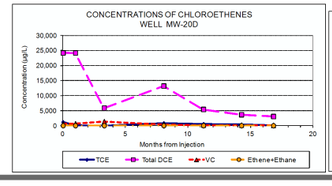
CONCENTRATIONS OF CHLOROETHENES
PMW-7D



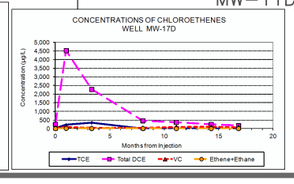
CONCENTRATIONS OF CHLOROETHENES
WELL MW-21D



CONCENTRATIONS OF CHLOROETHENES
WELL MW-20D



CONCENTRATIONS OF CHLOROETHENES
WELL MW-17D



ILDING No. 4

EVIOUS EXCAVATION AREA

SLIDING BAY DOOR

BLD. EXT.

ORE RO

INJ-11D
INJ-7D
INJ-8D
INJ-13D
INJ-6D
RMW-2D
PMW-1D
PMW-9D
PMW-10D
PMW-11D
INJ-9D
INJ-10D
INJ-12D
PMW-12D
PMW-13D
PMW-14D
PMW-15D
PMW-17D
INJ-03
INJ-02
PMW-8D
PMW-2D
PMW-16D
INJ-01
INJ-04
INJ-05
PMW-3D
RMW-3D
PMW-5D
RMW-4D
PMW-4D
PMW-6D
PMW-7D
MW-7D
MW-11D
CB
MH
SAN
STM
FW
GAS

NOTES: UTILTY LOCATIONS ARE APPROXIMATE OTHER UTILITIES MAY EXIST FINAL LOCATIONS WILL BE DEPENDENT UPON SITE CONDITIONS AND PLANT OPERATIONS
NS = NOT SAMPLED

ATLANTIC RICHFIELD COMPANY

EKONOL POLYESTER
6600 WALMORE ROAD
NIAGARA FALLS, NY

FIGURE 4
BEDROCK WELL TIME SERIES PLOTS

PARSONS
40 LA RIVIERE DR, SUITE 350, BUFFALO, NY 14202 PHONE: 716-541-0730

447355.02000
P:\Ekonol\447355 P&Q Monitoring\Reporting\Quarterly Reports\4Q12 Final\Figure 4 Ekonol Dec 2012 rem area-Deep Conc. Charts.pdf

Table 1
November 2012 Injection Summary

Injection Location:		**INJ-13D**	
	Total Substrate Volume:	1287 gallons	
	Total Bioaugmentation volume:	9 liters	
Batch # 1	**Additive**	**Gallons**	**Notes:**
	Make up water	545	First batch of make-up water from INJ-13D
	SRS-FR	70	
	Neutral Zone	22	
	Bioaugmentation	3 Liters	
	Push	15	tap water
Batch # 2	**Additive**	**Gallons**	**Notes:**
	Make up water	560	Make-up water from INJ-11D,INJ-9D,INJ-12D
	SRS-FR	69	
	Neutral Zone	21	
	Bioaugmentation	6 Liters	
	Push	40	Neutral Zone/groundwater mix
	Push	10	tap water
Injection Location:		**INJ-9D and 10D**	
	Total Substrate Volume:	666.5 gallons	
	Total Bioaugmentation volume:	7 liters	
Batch # 1	**Additive**	**Gallons**	**Notes:**
	Make up water	206	Make-up water from INJ-9D, INJ-10D
	SRS-FR	33	
	Neutral Zone	9	
	Push		No push recorded
Batch # 2	**Additive**	**Gallons**	**Notes:**
	Make up water	206	Make-up water from PMW-13D,PMW-14D,PMW-15-D
	SRS-FR	33	
	Neutral Zone	5.5	
	Bioaugmentation	4 Liters	
	Push		No push recorded
Batch # 3	**Additive**	**Gallons**	**Notes:**
	Make up water	141	Make-up water from PMW-13D,PMW14-D,PMW-15D
	SRS-FR	28	
	Neutral Zone	5	
	Bioaugmentation	3 Liters	
	Push	16	tap water (8 gal each into INJ-9D, INJ-10D, PMW-10, PMW-13, PMW-14, PMW-15)
Injection Location:		**INJ-7D**	
	Total Substrate Volume:	58 gallons	
	Total Bioaugmentation volume:	4 liters	
Batch # 1	**Additive**	**Gallons**	**Notes:**
	Make up water	50	Make-up water from INJ-7D
	SRS-FR	4	
	Neutral Zone	4	
	Iron Lactate	2 kg	
	Iron Magnetite	20 lbs	
	Bioaugmentation	4 Liters	
	Push	7	Push water from RMW-1D

Notes: Additional bioaugmentation in PMW-13D (1.1 Liters). Following all injections, separated oils from the top of the selected wells were pumped into disposal tank, followed by a 7 gallons groundwater push (from RMW-1D) into PMW-13D, PMW-14D, PMW-15D, INJ-7D, INJ-9D, INJ-10D, INJ-12D, and INJ-13D.

ATTACHEMENT A
INSPECTION RECORDS

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

Date: 12/14/2012

Checklist Completed By: Daniel Chamberland

Project Number: _____

Property Location: Ekonol/St. Gobain

System Installation Date: _____

The purpose of this form is to document the operation and maintenance of the sub-slab depressurization system to provide assurance that the system is functioning as designed or identify and execute any actions required to achieve the mitigation of subsurface vapor intrusion of volatile organic compounds to indoor air

1. MITIGATION SYSTEM INSPECTION

Occupant Interview

Any concerns identified by the building occupants?	YES	NO	

Comments / Action Items

N/A

Occupant's Initials: DW

External Piping

Vent pipes securely fastened to building	YES	NO	
Are there any visible openings or breaks in the pipe system	YES	NO	
Is the rain cap present and intact at discharge point	YES	NO	N/A
Inspection of the exhaust point verified that no air intakes have been located nearby	YES	NO	
The sealing/caulking around wall penetrations is intact	YES	NO	

Comments / Action Items

N/A

Mitigation Fan

Fan is mounted securely to building (no excessive vibrations during operation)	YES	NO	
Fan cover is installed	YES	NO	
No visible damage to fan or cover	YES	NO	

Comments / Action Items

N/A

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

Internal Piping

Vertical and horizontal pipe runs are secured, including at all penetration points	YES	NO	
The sealing/caulking is intact around the extraction point or points through the basement floor, crawlspace floor, and/or crawlspace/basement wall interface.	YES	NO	
Vibration dampener installed and intact (pertains to fan mount)	YES	NO	N/A
Mitigation system operation placard present and visible/legible	YES	NO	
Contains description of major components, valid contact number and instructions for occupant inquiries and/or system failure	YES	NO	
Mitigation system maintenance tag present and filled out	YES	NO	
Date of last inspection shown on tag: N/A			
U-tube manometer present and intact at each extraction point	YES	NO	

Comments / Action Items

N/A

Electrical

Electrical connections secured	YES	NO	
Junction boxes are closed	YES	NO	
Conduit is supported	YES	NO	
Circuit breakers controlling the mitigation fan and alarm circuits operate and are labeled "Mitigation System"	YES	NO	
Power switch tagged with intact tamper proof seal	YES	NO	
Audible alarm present	YES	NO	
Audible alarm switch in "on" position (light on alarm is green)	YES	NO	

Comments / Action Items

N/A

Water Sumps (skip this section if no sump(s) present)

Sump present	YES	NO	
Number of sumps and locations are all shown on as-built drawing	YES	NO	
Sump pit is sealed to minimize influx of conditioned air	YES	NO	N/A
Penetrations to sump covers to accommodate electrical wiring, water injection pipes or vent pipes are sealed	YES	NO	N/A
Sump pits used as suction pits are identified with a label that reads; "This cover must be properly sealed for effective operation of the mitigation system - Contact Geosyntec Consultants (toll free 1-800-695-4436) for instructions on the correct procedure for replacement and sealing if removal or modification for any reason is performed"	YES	NO	N/A

Comments / Action Items

N/A

OPERATION, MONITORING AND MAINTENANCE CHECKLIST

2. OPERATIONAL CHECKS

Fan is operating

Noise and Vibration within normal range	YES	NO
Alarm sounds when fan is turned off	YES	NO

U-Tube manometer indicating negative sub slab pressure — YES NO

U-Tube Manometer Reading: Location: St.Gobain office Vacuum 0.8 in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

U-Tube Manometer Reading: Location: _____ Vacuum _____ in H_20

Smoke test performed on internal penetrations and pipe joints

Smoke test indicated no leaks	YES	NO	N/A
Smoke test confirms air flow into sump	YES	NO	N/A
Back draft test confirms proper air flow at combustion appliances	YES	NO	N/A
Smoke test indicated no leaks	YES	NO	N/A

3. MAINTENANCE

Fan last replaced on (date): N/A

Fan due to be replaced; N/A

Additional Maintenance Action Items Performed

N/A

4. ADDITIONAL ACTION ITEMS/ COMMENTS/COMPLETION DATES

N/A

5. CERTIFICATION

I certify that the information on this form is true, accurate and complete (all blanks filled in) to the best of my knowledge and ability, and that I have the appropriate training and experience to perform this monitoring/inspection:

Name: Daniel Chamberland Affiliation: Parsons

Signature: Daniel P Chamberland Date (dd/mm/yy): 12/14/12 / 0900 am/pm

EKONOL SITE PAVEMENT INSPECTION FORM
WHEATFIELD, NEW YORK

Date of Inspection: 12/14/2012 **Time: 1000**

Inspector(s) Name/Title: Dan Chamberland/Associate Geologist

Inspection of	Condition Present?		Action Required?		Comments/Location	Correction Date
	Yes	No	Yes	No		
1. Site Pavement						
A. Surface cracks	x				**Cracking in front of Ekonol bay doors, near PMW-7S- major cracks were covered by asphalt patch last June. No immediate action required.**	
B. Pits/divots	x				**Cracking in front of Ekonol bay doors, near PMW-7S- major cracks were covered by asphalt patch last June. No immediate action required.**	
C. Sinking	x				**Cracking in front of Ekonol bay doors, near PMW-7S- major cracks were covered by asphalt patch last June. No immediate action required.**	
2. Well curb boxes						
A. Cracks		x				
B. Loose		x				
C. Well caps missing		x				
D. Settlement		x				

ATTACHMENT B
WATER LEVEL MEASUREMENT, SAMPLING MATRIX AND SAMPLING RECORDS

Ekonol Water Levels
12/3/2012

#	Well ID	DTW (ft btoc)	Time	Comments
1	INJ-01	8.13	1150	
2	INJ-02	8.30	1127	7.85- DTP
3	INJ-03	7.70	1154	7.65- DTP
4	INJ-04	7.97	1135	7.85- DTP
5	INJ-05	8.11	1148	Substrate
6	INJ-06D	7.67	1031	
7	INJ-07D	7.59	1131	
8	INJ-08D	8.03	1025	
9	INJ-09D	8.21	1110	Substrate
10	INJ-10D	7.38	1052	Substrate
11	INJ-11D	10.11	1142	Substrate/Oil
12	INJ-12D	6.34	1147	
13	INJ-13D	8.18	1140	Needs 4" furnco cap
14	MW-1S	7.19	1125	
15	MW-2S	3.18	1030	
16	MW-3S	7.58	1201	No bolts
17	MW-4S	7.74	1132	Missing bolt
18	MW-5S	7.53	1018	
19	MW-6S	7.65	1132	No ID
20	MW-7D	8.23	1139	
21	MW-7S	6.43	1141	
22	MW-8S	6.14	1204	Road box casing broken
23	MW-9S	8.10	1119	Road box casing broken/bent
24	MW-10D	8.07	1116	
25	MW-10S	6.20	1025	
26	MW-11D	10.73	1108	Lock Rusted
27	MW-11S	8.31	1106	
28	MW-12D	8.33	1113	
29	MW-12S	8.01	1135	
30	MW-13D	11.82	1044	Lock Rusted
31	MW-14D	9.78	1200	Lock Rusted
32	MW-15D	9.89	1039	
33	MW-16D	13.69	1048	Lock Rusted
34	MW-17D	9.71	1104	Lock Rusted
35	MW-18D	9.21	1054	Lock Rusted, Pad cracked, needs paint
36	MW-19D	8.23	1037	
37	MW-20D	8.76	1101	
38	MW-21D	8.66	1058	
39	OR-1SI	2.76	1132	
40	OR-2SI	3.28	1134	
41	OR-3SM	2.88	1127	

Ekonol Water Levels
12/3/2012

#	Well ID	DTW (ft btoc)	Time	Comments
42	OR-4SM	3.44	1113	No bolts
43	OR-5SM	2.76	1034	
44	OR-6SM	6.61	1048	
45	OR-7SI	2.81	1039	
46	OR-8SI	6.47	1041	Missing one bolt
47	OR-9SM	9.60	1114	
48	OR-10SM	7.69	1108	
49	OR-11SI	7.70	1057	
50	OR-12SI	7.66	1101	
51	OR-13SM	7.82	1053	
52	OR-14SM	7.75	1048	
53	OR-15SM	6.44	1030	
54	OR-16SI	7.22	1042	
55	OR-17SI	6.36	1032	
56	OR-18SM	6.58	1028	
57	PMW-1D	6.78	1145	Substrate
58	PMW-1S	2.19	1036	
59	PMW-2D	8.25	1130	
60	PMW-2S	6.40	1044	
61	PMW-3D	8.11	1148	
62	PMW-3S	7.02	1050	
63	PMW-4D	8.00	1147	
64	PMW-4S	6.07	1100	
65	PMW-5D	12.30	1118	
66	PMW-5S	3.43	1120	
67	PMW-6D	9.65	1144	
68	PMW-6S	6.06	1112	
69	PMW-7D	8.20	1145	
70	PMW-7S	7.62	1111	
71	PMW-8D	7.88	1150	
72	PMW-8S	6.85	1105	
73	PMW-9D	10.41	1138	Substrate
74	PMW-9S	6.70	1051	
75	PMW-10S	7.08	1044	
76	PMW-10D	7.99	1102	Substrate
77	PMW-11D	8.39	1200	
78	PMW-11S	8.65	1037	
79	PMW-12D	8.40	1150	Substrate
80	PMW-13D	8.44	1107	Substrate
81	PMW-14D	8.03	1056	Substrate
82	PMW-15D	7.91	1054	Substrate

Ekonol Water Levels
12/3/2012

#	Well ID	DTW (ft btoc)	Time	Comments
83	PMW-16D	8.10	1108	Substrate
84	PMW-17D	8.11	1105	Substrate
85	RMW-1D	7.75	1124	
86	RMW-2D	10.09	1115	Substrate
87	RMW-3D	8.30	835	***12/4/12- No DNAPL Measured
88	RMW-4D	7.45	1147	
89	TP-1	6.23	1026	
90	TP-2	6.37	1027	

TABLE 2
SUMMARY OF PROPOSED MONITORING
EKONOL POLYESTER RESINS, WHEATFIELD, NEW YORK

Location	Synoptic Water Level Measurement[g/]	VOCs[a/] (SW8260B)	Methane, Ethane, Ethene (Lab SOP)	Chloride, Nitrate, Sulfate[b/] (E300.1)	Dissolved Inorganics[b/c/] (SW6010B)	Ortho-phosphate[b/] (EPA 365.1)	Sulfide[b/] (MS 4500-S2-F)	Total Organic Carbon (SW9060)	Total Inorganic Carbon (SW9060)	Microbial Population[d/] (Lab SOP)	Acetylene and Hydrogen	Real time Analyses[e/]	Mobile Lab Analysis[f/]
Overburden Bioreactor Monitoring Wells													
OR-3SM	1	1	1	1	1	1	1	1	1			1	1
OR-4SM	1	1	1	1	1	1	1	1	1			1	1
OR-5SM	1	1	1	1	1	1	1	1	1	1	1	1	1
OR-6SM	1	1	1	1	1	1	1	1	1	1	1	1	1
OR-9SM	1	1	1	1	1	1	1	1	1			1	1
OR-10SM	1	1	1	1	1	1	1	1	1			1	1
OR-13SM	1	1	1	1	1	1	1	1	1	1	1	1	1
OR-14SM	1	1	1	1	1	1	1	1	1	1	1	1	1
OR-15SM	1	1	1	1	1	1	1	1	1			1	1
OR-18SM	1	1	1	1	1	1	1	1	1			1	1
PMW-1S	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-2S	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-3S	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-4S	1	1	1	1	1	1	1	1	1			1	1
PMW-5S	1	1	1	1	1	1	1	1	1			1	1
PMW-6S	1	1	1	1	1	1	1	1	1			1	1
PMW-7S	1	1	1	1	1	1	1	1	1			1	1
PMW-8S	1	1	1	1	1	1	1	1	1			1	1
PMW-9S	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-10S	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-11S	1	1	1	1	1	1	1	1	1			1	1
Bedrock Injection/Withdrawal Wells													
INJ-7D	1	1	1	1	1	1	1	1	1	1	1	1	1
INJ-8D	1	1	1	1	1	1	1	1	1			1	1
INJ-9D	1	1	1	1	1	1	1	1	1	1	1	1	1
INJ-10D	1	1	1	1	1	1	1	1	1	1	1	1	1
INJ-11D	1	1	1	1	1	1	1	1	1			1	1
INJ-12D	1	1	1	1	1	1	1	1	1			1	1
INJ-13D	1	1	1	1	1	1	1	1	1			1	1
Bedrock Monitoring Wells													
PMW-9D	1	1	1	1	1	1	1	1	1			1	1
PMW-10D	1	1	1	1	1	1	1	1	1			1	1
PMW-11D	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-12D	1	1	1	1	1	1	1	1	1			1	1
PMW-13D	1	1	1	1	1	1	1	1	1			1	1
PMW-14D	1	1	1	1	1	1	1	1	1			1	1
PMW-15D	1	1	1	1	1	1	1	1	1	1	1	1	1
PMW-16D	1	1	1	1	1	1	1	1	1			1	1
PMW-17D	1	1	1	1	1	1	1	1	1	1	1	1	1
Pilot Test Wells													
PMW-1D	1	1	1	1	1	1	1	1	1			1	1
INJ-01	1	1	1	1	1	1	1	1	1			1	1
PMW-2D	1	1	1	1	1	1	1	1	1	1		1	1
PMW-3D	1	1	1	1	1	1	1	1	1			1	1
PMW-4D	1	1	1	1	1	1	1	1	1			1	1
PMW-6D	1	1	1	1	1	1	1	1	1	1		1	1
RMW-4D	1	1	1	1	1	1	1	1	1			1	1
PMW-7D	1	1	1	1	1	1	1	1	1			1	1
MW-7D	1	1	1	1	1	1	1	1	1			1	1
Site Investigation Wells													
MW-1S	1	1	1	1	1	1	1	1	1			1	1
MW-2S	1	1	1	1	1	1	1	1	1	1		1	1
MW-3S	1	1	1	1	1	1	1	1	1			1	1
MW-4S	1	1	1	1	1	1	1	1	1			1	1
MW-6S	1	1	1									1	1
MW-10S	1	1	1									1	1
MW-11S	1	1	1									1	1
MW-12S	1	1	1									1	1
RMW-2D	1	1	1	1	1	1	1	1	1	1		1	1
RMW-3D	1	1	1	1	1	1	1	1	1			1	1
MW-11D	1	1	1									1	1
MW-17D	1	1	1									1	1
MW-20D	1	1	1									1	1
MW-21D	1	1	1									1	1
Monitoring Subtotal	60	60	60	52	52	52	52	52	52	19	15	60	60
Added for Annual													
RMW-1D	1	1	1	1	1	1	1	1				1	
PMW-5D	1	1	1	1	1	1	1	1				1	
PMW-8D	1	1	1	1	1	1	1	1				1	
MW-14D	1	1	1	1	1	1	1	1				1	
MW-15D	1	1	1	1	1	1	1	1				1	
MW-16D	1	1	1	1	1	1	1	1				1	
MW-18D	1	1	1	1	1	1	1	1				1	
MW-19D	1	1	1	1	1	1	1	1				1	
MW-10D	1	1	1	1	1	1	1	1				1	
MW-12D	1	1	1	1	1	1	1	1				1	
MW-13D	1	1	1	1	1	1	1	1				1	
MW-5S	1	1	1	1	1	1	1	1				1	
MW-9S	1	1	1	1	1	1	1	1				1	
MW-7S	1	1	1	1	1	1	1	1				1	
MW-8S	1	1	1	1	1	1	1	1				1	
INJ-02	1	1	1	1	1	1	1	1				1	
INJ-04	1	1	1	1	1	1	1	1				1	
INJ-05	1	1	1	1	1	1	1	1				1	
ANNUAL SUBTOTAL	18	18	18	18	18	18	18	18	0	0	0	18	0
QA/QC													
Duplicates	4	4	4	4			4						
Matrix Spike	4												
Matrix Spike Duplicate	4												
Trip Blanks	15												
TASK TOTAL PER SAMPLING	105	82	74	74	70	70	74	52	19	15	78	60	

[a/] VOCs = volatile organic compounds, including aromatic and chlorinated aliphatic hydrocarbons. If present, an oil sample will also be collected and analyzed for VOCs.

[b/] All metal and cation samples must be field-filtered and immediately preserved (Al, As, Ca, Fe, K, Mg, Mn, Se, Na)

[c/] Dissolved inorganic compounds will consist of aluminum (Al), arsenic (As), calcium (Ca), iron (Fe), potassium (K), magnesium (Mg), manganese(Mn), selenium (Se), and sodium (Na). Samples will be field filtered.

[d/] Analysis of microbial population composition will include concentration measurements of dehalococcoides (DHC) and dehalobacter (DHB) species in cells per milliliter as well as DHC functional genes

[e/] Well head analyses include dissolved oxygen, oxidation-reduction potential, pH, temperature, electrical conductivity, and visual appearance.

[f/] Mobile lab analyses include carbon dioxide, alkalinity, sulfide, ferrous iron, and manganese.

[g/] For the baseline monitoring round, all Site Water Levels will be recorded

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-3SM_121012 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.96				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/10/12 1013

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1023	3.13	150	0.40	6.70	0.00	13.0	4.11	11.81	2.63	-111	mostly clear, few particles
1033	3.10	150	0.80	6.71	0.00	12.0	4.10	11.53	2.63	-115	same
1043	3.09	150	1.20	6.70	0.00	9.1	4.06	11.74	2.61	-115	same
1053	3.08	150	1.60	6.70	0.00	9.5	4.07	11.76	2.60	-115	same
1058	3.07	150	1.80	6.70	0.00	8.8	4.08	11.51	2.61	-114	same
1103	3.07	150	2.00	6.70	0.00	1.4	4.08	11.29	2.61	-113	same
1108	3.08	150	2.20	6.70	0.00	1.2	4.09	11.17	2.62	-112	same
1113	3.08	150	2.40	6.70	0.00	1.1	4.07	11.51	2.61	-112	same
1118	3.09	150	2.60	6.70	0.00	0.9	4.07	11.48	2.60	-112	same

Sampling Data

Method: Peristaltic Date/Time: 12/10/12 1120 Total Volume of Water purged: 2.8 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.70	Alkalinity (g/g)	2156.00
Spec. Cond.(mS/cm)	4.07	Carbon Dioxide (mg/L)	322
Turbidity (NTU)	0.90	Ferrous Iron (mg/L)	1.10
DO (mg/L)	0.00	Manganese (mg/L)	0.10
Temp.(°C)	11.48	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	-112	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.60		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Collected MS/MSD (VOCS-6) Labeled OR-3SM_121012 MS and OR-3SM_121012 MSD

VOAS Effervescing

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-4SM_121012 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 2.56				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/10/12 1204

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1214	2.84	160	0.42	6.54	0.00	8.60	2.86	11.42	1.83	-82	clear
1224	2.68	160	0.84	6.52	0.00	8.10	2.88	11.62	1.85	-84	same
1234	2.69	160	1.26	6.51	0.00	5.90	2.89	11.98	1.85	-85	same
1239	2.70	160	1.37	6.51	0.00	5.50	2.88	11.91	1.84	-86	same
1244	2.70	160	1.58	6.51	0.00	5.00	2.88	11.90	1.84	-86	same
1249	2.71	160	1.79	6.51	0.00	5.10	2.89	11.90	1.85	-86	same
1254	2.71	160	2.00	6.51	0.00	5.40	2.89	11.91	1.85	-86	same
1259	2.72	160	2.21	6.52	0.00	6.20	2.89	11.90	1.85	-86	same
1304	2.74	160	2.42	6.51	0.00	6.60	2.89	12.15	1.85	-81	same
1309	2.75	160	2.66	6.51	0.00	6.50	2.89	12.24	1.85	-85	same

Sampling Data

Method: Peristaltic Date/Time: 12/10/12 1310 Total Volume of Water purged: 2.9 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.51	Alkalinity (g/g)	2178.00
Spec. Cond.(mS/cm)	2.89	Carbon Dioxide (mg/L)	178.00
Turbidity (NTU)	6.50	Ferrous Iron (mg/L)	1.20
DO (mg/L)	0.00	Manganese (mg/L)	0.60
Temp.(°C)	12.24	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	-85.00	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.85		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: VOAs effervescing

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-5SM_120412 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.3				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/4/12 1135

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1055	2.75	200	0.00	6.77	1.71	29.4	3.18	15.63	2.04	-121	water clear
1100	2.75	200	0.25	6.61	0.00	21.3	3.17	15.53	2.03	-130	same
1105	2.75	200	0.50	6.45	0.00	18.6	3.16	15.47	2.02	-141	same
1110	2.75	200	0.75	6.43	0.00	19.9	3.16	15.54	2.02	-143	same
1115	2.75	200	1.00	6.41	0.00	18.7	3.15	15.62	2.02	-143	same
1120	2.75	200	1.25	6.39	0.00	18.5	3.14	15.67	2.01	-141	same
1125	2.75	200	1.50	6.39	0.00	21.6	3.13	15.68	2.00	-139	same
1130	2.75	200	1.75	6.38	0.00	20.7	3.12	15.69	2.00	-140	same
1135	2.75	200	2.00	6.38	0.00	23.1	3.11	15.69	2.00	-139	same

Sampling Data

Method: Low Flow Date/Time: 12/4/12 1135 Total Volume of Water purged: 4 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.38	Alkalinity (g/g)	1700.00
Spec. Cond.(mS/cm)	3.11	Carbon Dioxide (mg/L)	958
Turbidity (NTU)	23.10	Ferrous Iron (mg/L)	4.00
DO (mg/L)	0.00	Manganese (mg/L)	0.20
Temp.(°C)	15.69	Hydrogen Sulfide (mg/L)	0.70
ORP (mv)	-139	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.00		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1 - Filter	None	Filtered 920 mL
Hydrogen, Acetylene	1 - 20 mL Vial 2 - 40 mL Vial	None NaPO4	

Comments: Microbial - 1st Vial - 620mL, 2nd vial - 380 mL; water slighly yellow in color

Hydrogen - 25 min; resampled sulfide at 1620 - initial sample broke

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-6SM_120412 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 0.9				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/4/12 0900

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
820	7.21	200	0.00	5.79	1.84	28.00	5.57	15.74	3.51	-157	water clear
825	7.51	200	0.25	5.99	0.11	20.60	5.57	15.80	3.51	-183	same
830	7.21	200	0.50	6.25	0.00	16.30	5.55	15.88	3.50	-218	same
835	7.03	200	0.75	6.35	0.00	15.00	5.53	15.90	3.49	-231	same
840	7.03	200	1.00	6.45	0.00	16.50	5.54	15.99	3.49	-237	same
845	7.05	200	1.25	6.46	0.00	15.00	5.54	16.02	3.49	-237	same
850	7.15	200	1.50	6.47	0.00	14.20	5.56	16.04	3.50	-235	same
855	7.20	200	1.75	6.49	0.00	10.60	5.59	16.10	3.51	-233	same
900	7.30	200	2.00	6.50	0.00	9.92	5.57	16.15	3.51	-232	same

Sampling Data

Method: Low Flow Date/Time: 12/4/12 0900 Total Volume of Water purged: 4 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.50	Alkalinity (g/g)	1360.00
Spec. Cond.(mS/cm)	5.57	Carbon Dioxide (mg/L)	2094
Turbidity (NTU)	9.92	Ferrous Iron (mg/L)	2.90
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	16.15	Hydrogen Sulfide (mg/L)	0.30
ORP (mv)	-232	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	3.51		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1 - Filter	None	Filtered 1000mL
Hydrogen, Acetylene	1 - 20 mL Vial 2 - 40 mL Vial	None Na3PO4	

Comments: Microbial - 1 filter - 1000mL; water has slight yellow color and slight sulfur odor; hydrogen - 25 min.

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-9SM_120612 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)?

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/6/2012 13:00:00 PM

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1300	7.35	200	0.00	6.35	0.00	12.91	3.00	12.58	1.94	-304	clear, some solids
1310	7.35	200	0.50	6.42	0.00	7.00	2.61	14.24	1.67	-320	same
1320	7.37	200	1.30	6.43	0.00	5.47	2.61	14.70	1.67	-320	same, H2S odor
1325	7.35	200	1.50	6.42	0.00	4.88	2.60	14.71	1.67	-320	same
1330	7.31	200	1.70	6.41	0.00	4.00	2.60	14.81	1.67	-319	clear, H2S/veg odor
1335	7.40	200	2.00	6.43	0.00	5.70	2.61	15.23	1.67	-321	same
1340	7.44	200	2.30	6.42	0.00	4.50	2.60	15.32	1.66	-321	same
1345	7.39	200	2.70	6.42	0.00	3.51	2.58	15.27	1.63	-321	clear, odor
1350	7.37	200	2.90	6.42	0.00	3.51	2.55	15.28	1.63	-319	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/6/12 1350 Total Volume of Water purged: 2.9 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.42	Alkalinity (g/g)	1420.00
Spec. Cond.(mS/cm)	2.55	Carbon Dioxide (mg/L)	498
Turbidity (NTU)	3.51	Ferrous Iron (mg/L)	0.00
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	15.28	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-319		
TDS (g/L)	1.63		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-10SM_120712 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.84				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/7/12 1009

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1019	7.18	150	0.40	6.39	0.00	20.70	1.03	13.83	0.660	-159	clear w/ black particles
1029	7.25	150	0.80	6.40	0.00	13.30	1.17	13.98	0.743	-179	same
1039	7.26	150	1.20	6.43	0.00	12.15	1.58	13.66	1.01	-184	same
1049	7.28	150	1.60	6.44	0.00	8.68	1.88	13.73	1.20	-187	same
1054	7.30	150	1.80	6.45	0.00	8.29	2.04	14.01	1.31	-189	same
1059	7.31	150	2.00	6.45	0.00	8.87	2.12	14.14	1.35	-191	same
1104	7.36	150	2.20	6.45	0.00	8.36	2.36	14.20	1.51	-194	same
1109	7.37	150	2.40	6.46	0.00	9.16	2.48	13.82	1.59	-195	same
1114	7.38	150	2.60	6.46	0.00	7.13	2.57	13.74	1.65	-197	same
1119	7.38	150	2.80	6.47	0.00	6.95	2.59	13.75	1.66	-197	same
1124	7.39	150	3.00	6.47	0.00	6.38	2.60	13.68	1.67	-198	same

Sampling Data

Method: Peristaltic Date/Time: 12/7/12 1125 Total Volume of Water purged: 4.0 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.47	Alkalinity (g/g)	1826.00
Spec. Cond.(mS/cm)	2.60	Carbon Dioxide (mg/L)	218.00
Turbidity (NTU)	6.38	Ferrous Iron (mg/L)	1.50
DO (mg/L)	0.00	Manganese (mg/L)	0.50
Temp.(°C)	13.68	Hydrogen Sulfide (mg/L)	0.30
ORP (mv)	-198		
TDS (g/L)	1.67		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Collected duplicate OR-100SM_120712 @ 1201

VOCS, MEE, Chloride/Sulfate/Nitrate/Diss. Inorganics, TOC

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-13SM_120412 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.90				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/4/12 1355

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1405	8.15	120	0.31	6.97	0.00	23.20	4.62	17.50	2.96	-104	slightly cloudy
1415	8.18	120	0.62	6.96	0.00	12.23	4.66	17.16	2.98	-104	clearer
1425	8.20	120	0.93	6.96	0.00	11.10	4.61	17.01	2.95	-103	clear w/ yellowish color
1430	8.21	120	1.09	6.95	0.00	10.66	4.58	16.80	2.93	-108	same
1435	8.23	120	1.24	6.94	0.00	10.87	4.58	16.77	2.93	-109	same
1440	8.22	120	1.40	6.94	0.00	10.66	4.55	16.69	2.91	-109	same
1445	8.24	120	1.55	6.94	0.00	10.54	4.51	16.65	2.98	-114	same
1450	8.25	120	1.71	6.93	0.00	10.68	4.49	16.64	2.97	-114	same

Sampling Data

Method: Peristaltic Date/Time: 12/4/12 1455 Total Volume of Water purged: 3.5 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.93	Alkalinity (g/g)	Water Turned
Spec. Cond.(mS/cm)	4.49	Carbon Dioxide (mg/L)	Black When
Turbidity (NTU)	10.68	Ferrous Iron (mg/L)	Exposed To Air,
DO (mg/L)	0.00	Manganese (mg/L)	Couldn't Do Color Test
Temp.(°C)	16.64	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	-114		
TDS (g/L)	2.97		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 filters	none	Filtered 460, 430
Hydrogen, Acetylene	1-20mL vial 2-40 mL vials	none Na_3PO_4	

Comments: Dissolved Hydrogen: Start @ 1344/Stop @ 1614 (120 mL/min)

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-14SM_120512 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.45				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/5/12 0758

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
808	7.69	220	0.50	6.10	0.00	30.90	4.25	14.76	2.72	-200	slightly cloudy
818	7.80	200	1.00	6.12	0.00	11.97	4.24	14.74	2.71	-208	clearer
828	7.89	200	1.50	6.19	0.00	8.15	4.21	14.68	2.69	-233	same
833	7.90	200	1.75	6.12	0.00	7.22	4.19	14.54	2.68	-246	same
838	7.91	200	2.00	6.22	0.00	6.99	4.18	14.62	2.68	-273	same
843	7.98	200	2.27	6.11	0.00	6.17	4.17	14.61	2.67	-302	same
848	8.00	200	2.54	6.23	0.00	6.49	4.16	14.62	2.66	-337	same
853	8.00	200	2.80	6.23	0.00	6.39	4.13	14.89	2.65	-361	same
858	8.01	200	3.10	6.23	0.00	7.01	4.12	14.87	2.63	-392	water turning black
903	8.01	200	3.40	6.24	0.00	6.38	4.12	14.86	2.64	-397	after 2-3 min.
908	8.01	200	3.75	6.24	0.00	6.56	4.12	14.71	2.64	-399	same

Sampling Data

Method: Peristaltic Date/Time: 12/5/12 0910 Total Volume of Water purged: 5.5 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.24	Alkalinity (g/g)	water turned
Spec. Cond.(mS/cm)	4.12	Carbon Dioxide (mg/L)	black - couldn't
Turbidity (NTU)	6.56	Ferrous Iron (mg/L)	get readings
DO (mg/L)	0.00	Manganese (mg/L)	
Temp.(°C)	14.71	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	-399	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.64		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 filters	None	Filtered 400, 280mL
Hydrogen, Acetylene	1-20mL vial 2-40mL vial	Na_3PO_4	

Comments: Collected duplicate OR-140SM_120512 @1201 (VOCS, MEE, Chloride, Sulfates/Nitrate, Diss. Inorganics, TOC)

Dissolved Hydrogen: Start @0941/Stop @ 1001

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-15SM_121112 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 5.48				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/11/12 0955

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
955	5.48	200	0.0	6.32	0.00	28	4.94	10.92	3.15	-158	Yellowish, no odor
1005	5.28	200	0.5	6.62	0.00	35	4.72	12.35	3.02	-179	Yellowish, no odor
1015	5.28	200	1.0	6.80	0.00	21	4.69	11.62	3.00	-186	Yellowish, no odor
1020	5.28	200	1.5	6.81	0.00	19	4.68	11.39	3.00	-187	Yellowish, no odor
1025	5.30	200	2.0	6.82	0.00	21	4.68	11.25	2.99	-186	Yellowish, slight odor
1030	5.31	200	2.2	6.92	0.00	29	4.67	11.21	2.99	-185	Yellowish, slight odor
1035	5.32	200	2.4	6.82	0.00	24	4.66	11.17	2.98	-183	Yellowish, slight odor
1040	5.33	200	2.6	6.86	0.00	23	4.65	11.16	2.97	-184	Yellowish, slight odor
1045	5.35	200	2.8	6.88	0.00	21	4.63	11.15	2.96	-187	Yellowish, slight odor

Sampling Data

Method: Dedicated Tubing Date/Time: 12/11/12 1045 Total Volume of Water purged: 2.8 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.98	Alkalinity (g/g)	3500
Spec. Cond.(mS/cm)	4.63	Carbon Dioxide (mg/L)	460
Turbidity (NTU)	21.00	Ferrous Iron (mg/L)	2.2
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	11.15	Hydrogen Sulfide (mg/L)	0.0
ORP (mv)	-187		
TDS (g/L)	2.96		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: VOAs Effervescing

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: OR-18SM_121112 Well Diameter: 2 Inches

Samplers: C. Moore Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.45				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low flow - peristaltic Date/Time: 12/11/12 1145

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
1150	4.25	200	0.00	7.33	4.55	50.00	1.35	10.44	0.86	-303	clear, veg oil odor
1200	4.40	200	0.50	6.87	0.00	19.00	1.64	10.45	1.05	-313	clear, veg oil odor
1210	4.43	200	1.00	6.88	0.00	23.00	1.72	11.19	1.10	-317	clear, veg oil odor
1220	4.45	200	1.50	6.90	0.00	20.00	1.76	11.84	1.13	-323	clear, light odor
1225	4.45	200	1.70	6.91	0.00	18.00	1.77	11.93	1.13	-322	clear, light odor
1230	4.45	200	1.90	6.93	0.00	7.70	1.77	12.01	1.13	-322	clear, light odor
1235	4.45	200	2.20	6.92	0.00	8.30	1.77	12.03	1.13	-321	clear, light odor
1240	4.47	200	2.50	6.89	0.00	5.50	1.77	12.04	1.13	-319	clear, light odor
1245	4.47	200	2.80	6.89	0.00	7.80	1.78	12.14	1.14	-320	clear, light odor

Sampling Data

Method: Peristaltic Date/Time: 12/11/12 1245 Total Volume of Water purged: 2.8

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.89	Alkalinity (g/g)	880.00
Spec. Cond.(mS/cm)	1.78	Carbon Dioxide (mg/L)	400
Turbidity (NTU)	7.80	Ferrous Iron (mg/L)	0.20
DO (mg/L)	0.00	Manganese (mg/L)	orange
Temp.(°C)	12.14	Hydrogen Sulfide (mg/L)	4.00
ORP (mv)	-320		
TDS (g/L)	1.14		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-1S_121212 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
DTW = 6.62				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low flow Date/Time: 12/12/12 1255

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1255	7.05	200	0.00	6.70	2.86	4.56	3.53	12.67	2.28	-46	Clear, no odor
1305	8.05	200	0.50	6.62	0.00	12.90	3.46	13.35	2.21	-34	Clear, no odor
1315	8.40	200	1.00	6.64	0.00	5.45	3.45	13.50	2.21	-39	Clear, no odor
1325	8.76	200	1.50	6.63	0.00	5.48	3.45	13.50	2.21	-43	Clear, no odor
1330	8.90	200	1.80	6.64	0.00	5.61	3.44	13.50	2.20	-47	Clear, no odor
1335	9.05	200	2.10	6.64	0.00	5.53	3.43	13.50	2.19	-53	Clear, no odor
1340	9.23	200	2.30	6.65	0.00	3.95	3.42	13.53	2.19	-52	Clear, no odor
1345	9.31	200	2.50	6.68	0.00	2.00	3.40	13.56	2.18	-58	clear, v slight odor
1350	9.42	200	2.80	6.69	0.00	1.88	3.38	13.56	2.17	-59	clear, v slight odor
1355	9.58	200	3.10	6.70	0.00	1.74	3.37	13.55	2.16	-59	clear, v slight odor

Sampling Data

Method: Low flow Date/Time: 12/12/12 1355 Total Volume of Water purged: 3.1 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.70	Alkalinity (g/g)	420.00
Spec. Cond.(mS/cm)	3.37	Carbon Dioxide (mg/L)	172
Turbidity (NTU)	1.74	Ferrous Iron (mg/L)	1.20
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	13.55	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	-59	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.16		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-2S_120512 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.22				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/5/12 1050

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1050	3.22	200	0.00	7.47	1.16	35.0	5.52	11.16	3.47	-69	clear, veg oil odor
1100	6.65	100	0.50	7.04	0.00	20.0	5.45	12.51	3.43	-95	same
1110	7.62	75	1.00	6.95	0.00	16.7	5.40	12.02	3.40	-96	same
1120	7.61	75	1.50	6.92	0.00	17.3	5.40	12.05	3.40	-91	same
1130	7.58	75	1.80	6.98	0.00	16.7	5.36	12.33	3.38	-89	same
1140	7.58	75	2.20	6.91	0.00	11.0	5.38	12.42	3.39	-86	same
1150	7.59	75	2.50	6.91	0.00	5.88	5.76	12.66	3.37	-79	same
1200	7.78	75	2.70	6.93	0.00	4.69	5.34	12.68	3.36	-76	same
1210	7.85	75	3.00	6.94	0.00	4.69	5.33	12.89	3.36	-66	same
1220	7.89	75	3.40	6.94	0.00	5.17	5.34	12.83	3.38	-70	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/5/12 1220 Total Volume of Water purged: 3.4 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.44	Alkalinity (g/g)	600.00
Spec. Cond.(mS/cm)	5.34	Carbon Dioxide (mg/L)	536
Turbidity (NTU)	5.17	Ferrous Iron (mg/L)	3.00
DO (mg/L)	0.00	Manganese (mg/L)	dirty orange
Temp.(°C)	12.83	Hydrogen Sulfide (mg/L)	1.50
ORP (mv)	-70	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	3.36		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	filter 1: 1000mL		
Hydrogen, Acetylene			

Comments: Collect sample MW-25_120512 @ 1220

Microbial filter 1: 1000mL

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-3S_121212 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/12/12 1040

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
940	6.00	200	0.00	6.45	5.80	28.1	6.72	12.75	4.23	-48	water clear
945	6.45	200	0.25	6.53	6.65	24.5	6.65	12.40	4.20	-65	water clear
950	7.05	200	0.50	6.64	0.00	26.6	6.47	11.94	4.08	-84	water clear
955	7.40	200	0.75	6.65	0.00	21.9	6.20	11.89	3.92	-75	water clear
1000	7.55	200	1.00	6.63	0.00	19.2	5.90	11.90	3.72	-62	water clear
1005	7.70	200	1.25	6.61	0.00	16.7	5.73	11.94	3.61	-51	water clear
1010	7.88	200	1.50	6.59	0.00	13.2	5.65	12.04	3.56	-51	water clear
1015	8.05	200	1.75	6.58	0.00	12.1	5.60	12.17	3.53	-56	water clear
1020	8.20	200	2.00	6.58	0.00	8.22	5.54	12.24	3.49	-62	water clear
1025	8.38	200	2.25	6.58	0.00	5.25	5.48	12.35	3.46	-66	water clear
1030	8.50	200	2.50	6.59	0.00	3.33	5.44	12.46	3.43	-70	water clear
1035	8.75	200	2.75	6.59	0.00	2.82	5.46	12.61	3.44	-73	water clear
1040	8.90	200	3.00	6.60	0.00	2.73	5.52	12.68	3.47	-75	water clear

Sampling Data

Method: Low Flow Date/Time: 12/12/12 1040 Total Volume of Water purged: 3 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.60	Alkalinity (g/g)	580
Spec. Cond.(mS/cm)	5.52	Carbon Dioxide (mg/L)	190
Turbidity (NTU)	2.73	Ferrous Iron (mg/L)	1.90
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.68	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	-75.00		
TDS (g/L)	3.47		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1-Filter	Filtered	1000 mL
Hydrogen, Acetylene	1-20mL Vial 2-40mL Jars	Triosodium	Phosphate

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-4S_121212 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/12/12 0850

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
750	6.80	200	0.00	5.08	6.04	10.36	5.15	10.73	3.24	-71	water clear
755	7.10	200	0.25	5.82	0.00	6.78	5.13	10.67	3.23	-73	water clear
800	7.40	200	0.50	5.90	0.00	3.24	5.08	10.50	3.20	-79	water clear
805	7.62	200	0.75	6.01	0.00	3.24	5.02	10.30	3.16	-99	water clear
810	7.80	200	1.00	6.09	0.00	2.28	5.05	10.23	3.18	-128	water clear
815	8.00	200	1.25	6.18	0.00	1.99	5.08	10.36	3.20	-146	water clear
820	8.09	200	1.50	6.25	0.00	2.49	5.05	10.54	3.18	-146	water clear
825	8.10	200	1.75	6.28	0.00	2.24	5.03	10.71	3.17	-147	water clear
830	8.12	200	2.00	6.31	0.00	2.12	4.99	11.03	3.18	-150	water clear
835	8.15	200	2.25	6.34	0.00	1.94	4.89	11.08	3.13	-156	water clear
840	8.15	200	2.50	6.36	0.00	1.73	4.83	10.88	3.09	-162	water clear
845	8.30	200	2.75	6.37	0.00	1.87	4.84	11.55	3.10	-170	water clear
850	8.40	200	3.00	6.39	0.00	1.92	4.65	12.35	2.99	-174	water clear

Sampling Data

Method: Low Flow Date/Time: 12/12/12 0850 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.39	Alkalinity (g/g)	460.00
Spec. Cond.(mS/cm)	4.65	Carbon Dioxide (mg/L)	490
Turbidity (NTU)	1.92	Ferrous Iron (mg/L)	0.80
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.35	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-174		
TDS (g/L)	2.99		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-5S_121112 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.3				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/11/12 1455

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1355	6.00	200	0.00	7.06	7.47	32.30	3.84	11.07	2.45	-118	water clear
1400	6.00	200	0.25	6.97	0.00	25.60	3.90	11.30	2.50	-138	water clear
1405	6.00	200	0.50	6.94	2.37	24.50	3.82	11.36	2.44	-141	water clear
1410	6.00	200	0.75	6.93	0.00	19.40	3.70	11.42	2.37	-140	water clear
1415	6.00	200	1.00	6.92	0.00	14.80	3.53	11.39	2.26	-139	water clear
1420	6.00	200	1.25	6.92	0.00	11.50	3.32	11.30	2.12	-139	water clear
1425	6.00	200	1.50	6.92	0.00	10.30	3.24	11.26	2.08	-139	water clear
1430	6.00	200	1.75	6.92	0.00	8.44	3.11	11.21	1.99	-137	water clear
1435	6.00	200	2.00	6.92	0.00	7.23	2.95	11.17	1.89	-136	water clear
1440	6.00	200	2.25	6.91	0.00	6.26	2.81	11.13	1.80	-134	water clear
1445	6.00	200	2.50	6.91	0.00	4.64	2.73	11.10	1.75	-132	water clear
1450	6.00	200	2.75	6.91	0.00	4.19	2.62	11.07	1.68	-130	water clear
1455	6.00	200	3.00	6.91	0.00	3.72	2.54	11.02	1.63	-128	water clear

Sampling Data

Method: Low Flow Date/Time: 12/11/12 1455 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.91	Alkalinity (g/g)	540
Spec. Cond.(mS/cm)	2.54	Carbon Dioxide (mg/L)	196
Turbidity (NTU)	3.72	Ferrous Iron (mg/L)	1.0
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	11.02	Hydrogen Sulfide (mg/L)	0.0
ORP (mv)	-128		
TDS (g/L)	1.63		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8280
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-6S_121112 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.3				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/11/12 1315

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1210	6.45	200	0.00	7.37	1.16	54.1	5.41	13.36	3.41	-187	water clear
1215	7.25	200	0.25	7.26	0.00	20.0	5.34	13.64	3.37	-190	water clear
1220	7.55	200	0.50	7.10	0.00	14.3	5.14	14.07	3.25	-193	water clear
1225	7.85	200	0.75	7.02	0.00	10.2	4.97	14.04	3.18	-192	water clear
1230		*Hosing lost	suction -	replaced							
1235		hosing and	started	required	readings						
1240	7.85	200	1.00	7.01	0.00	24.60	4.93	13.89	3.15	-184	water clear
1245	8.40	200	1.25	6.95	0.00	24.60	4.76	13.86	3.06	-179	water clear
1250	9.00	200	1.50	6.94	0.00	11.20	3.90	13.76	2.50	-180	water clear
1255	9.40	200	1.75	6.93	0.00	12.40	3.80	13.69	2.44	-178	water clear
1300	9.50	200	2.00	6.91	0.00	11.07	3.73	13.59	2.39	-175	water clear
1305	9.55	200	2.25	6.90	0.00	12.0	3.53	13.47	2.26	-172	water clear
1310	9.55	200	2.50	6.90	0.00	12.0	3.25	13.29	2.09	-169	water clear
1315	9.55	200	2.75	6.89	0.00	13.16	3.09	13.13	1.98	-166	water clear

Sampling Data

Method: Low Flow Date/Time: 12/11/12 1315 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.89	Alkalinity (g/g)	460
Spec. Cond.(mS/cm)	3.09	Carbon Dioxide (mg/L)	200
Turbidity (NTU)	13.16	Ferrous Iron (mg/L)	0.20
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	13.13	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	-166		
TDS (g/L)	1.98		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 Filters	Filtered	280 mL 230 mL
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-7S_121212 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/12/12 1450

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1350	6.59	200	0.00	6.63	4.55	72.90	7.92	13.50	4.59	64	water cloudy
1355	7.40	200	0.25	6.61	0.57	41.70	7.92	13.25	4.99	65	water clear
1400	7.45	200	0.50	6.57	0.00	27.60	7.96	13.04	5.01	68	water clear
1405	7.70	200	0.75	6.56	0.00	21.90	7.98	13.07	5.03	71	water clear
1410	7.80	200	1.00	6.56	0.00	17.90	8.00	13.10	5.04	75	water clear
1415	7.98	200	1.25	6.56	0.00	15.30	8.00	13.12	5.04	77	water clear
1420	8.15	200	1.50	6.56	0.00	11.90	8.01	13.21	5.04	80	water clear
1425	8.35	200	1.75	6.56	0.00	11.30	8.02	13.29	5.05	83	water clear
1430	8.55	200	2.00	6.55	0.00	12.70	8.02	13.29	5.05	86	water clear
1435	8.70	200	2.25	6.55	0.00	12.60	8.03	13.28	5.06	89	water clear
1440	8.90	200	2.50	6.54	0.00	13.20	8.06	13.37	5.07	91	water clear
1445	9.10	200	2.75	6.53	0.00	11.80	8.07	13.44	5.08	90	water clear
1450	9.35	200	3.00	6.53	0.00	12.40	8.08	13.36	5.09	90	water clear

Sampling Data

Method: Low Flow Date/Time: 12/12/12 1450 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.53	Alkalinity (g/g)	660.00
Spec. Cond.(mS/cm)	8.08	Carbon Dioxide (mg/L)	426.00
Turbidity (NTU)	12.40	Ferrous Iron (mg/L)	0.50
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	13.36	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	90		
TDS (g/L)	5.09		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-8S_121212 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
DTW < 0.2 DTB = 5.52				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/12/12 1445

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1455	6.91	110	0.29	6.78	0.00	35.0	6.80	12.35	4.28	-95	clear w/ few particles
1505	7.67	110	0.58	6.76	0.00	9.1	7.01	12.41	4.41	-101	fewer particles
1515	8.38	110	0.87	6.77	0.00	12.5	7.01	12.52	4.41	-104	same
1525	9.82	110	1.16	6.84	0.00	3.1	6.15	12.55	3.87	-109	clear
1535	9.84	110	1.45	6.89	0.00	2.9	5.46	12.46	3.43	-111	clear
1545	9.87	110	1.74	6.92	0.26	3.4	5.47	12.07	3.44	-110	clear
1550	9.88	110	1.89	6.90	0.25	3.6	5.59	11.64	3.52	-110	clear
1555	9.88	110	2.03	6.90	0.19	3.3	5.61	11.58	3.53	-110	clear
1600	9.89	110	2.18	6.89	0.10	3.5	5.55	11.42	3.50	-107	clear
1605	9.90	110	2.32	6.87	0.05	2.8	6.02	11.15	3.80	-107	clear
1610	9.91	110	2.47	6.84	0.07	2.9	6.06	11.12	3.84	-108	clear
1615	9.92	110	2.61	6.85	0.04	3.4	6.08	11.38	3.85	-109	clear

Sampling Data

Method: Peristaltic Date/Time: 12/12/12 1620 Total Volume of Water purged: 2.75 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.85	Alkalinity (g/g)	680.00
Spec. Cond.(mS/cm)	6.08	Carbon Dioxide (mg/L)	138
Turbidity (NTU)	3.40	Ferrous Iron (mg/L)	0.00
DO (mg/L)	0.04	Manganese (mg/L)	0.10
Temp.(°C)	11.38	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	-109		
TDS (g/L)	3.85		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-9S_121212 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.1				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/12/12 1300

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1200	7.50	200	0.00	6.94	5.58	>1000	2.96	13.78	1.89	36	water cloudy
1205	7.55	200	0.25	6.88	1.46	787.00	2.95	13.66	1.89	35	water cloudy
1210	7.60	200	0.50	6.73	0.00	14.00	3.00	13.15	1.92	35	water clear
1215	7.60	200	0.75	6.64	0.00	59.70	3.11	12.91	1.58	37	water clear
1220	7.65	200	1.00	6.62	0.00	49.00	3.19	12.99	2.04	38	water clear
1225	7.55	200	1.25	6.60	0.00	37.00	3.25	12.90	2.08	40	water clear
1230	7.58	200	1.50	6.58	0.00	31.20	3.32	12.75	2.12	39	water clear
1235	7.70	200	1.75	6.56	0.00	29.40	3.38	13.09	2.16	36	water clear
1240	7.80	200	2.00	6.55	0.00	25.00	3.40	13.55	2.18	32	water clear
1245	7.90	200	2.25	6.54	0.00	21.30	3.39	13.66	2.17	28	water clear
1250	7.90	200	2.50	6.53	0.00	18.10	3.41	13.76	2.18	21	water clear
1255	7.90	200	2.75	6.53	0.00	13.40	3.44	13.77	2.20	13	water clear
1300	7.90	200	3.00	6.52	0.00	12.20	3.48	13.69	2.22	6	water clear

Sampling Data

Method: Low Flow Date/Time: 12/12/12 1300 Total Volume of Water purged: 3 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.52	Alkalinity (g/g)	620
Spec. Cond.(mS/cm)	3.48	Carbon Dioxide (mg/L)	282
Turbidity (NTU)	12.20	Ferrous Iron (mg/L)	0.8
DO (mg/L)	0.00	Manganese (mg/L)	0.15
Temp.(°C)	13.69	Hydrogen Sulfide (mg/L)	0.0
ORP (mv)	6		
TDS (g/L)	2.22		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1-Filter	none	filtered 1000mL
Hydrogen, Acetylene	1-20mL vial 2-40mL vials	- Na_3PO_4	

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-10S_121112 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 11.5 - 3.92 x 0.16				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/10/12 0945

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
845	0.00	200	0.00	5.51	3.20	5.90	3.13	11.12	2.00	24	water clear
850	3.85	200	0.25	5.73	0.00	3.75	3.09	11.48	1.98	-18	water clear
855	3.85	200	0.50	5.96	0.00	9.60	2.99	12.21	1.92	-57	water clear
900	3.85	200	0.75	6.06	0.00	4.24	2.89	12.55	1.85	-62	water clear
905	3.85	200	1.00	6.16	0.00	3.22	2.77	12.61	1.78	-71	water clear
910	3.85	200	1.25	6.24	0.00	2.62	2.63	12.61	1.69	-79	water clear
915	3.85	200	1.50	6.32	0.00	1.48	2.49	12.67	1.55	-88	water clear
920	3.85	200	1.75	6.39	0.00	1.77	2.39	12.75	1.53	-97	water clear
925	3.85	200	2.00	6.48	0.00	1.62	2.28	12.78	1.46	-108	water clear
930	3.85	200	2.25	6.51	0.00	1.42	2.25	12.74	1.44	-112	water clear
935	3.85	200	2.50	6.55	0.00	1.29	2.19	12.66	1.40	-117	water clear
940	3.85	200	2.75	6.60	0.00	1.36	2.10	12.61	1.35	-125	water clear
945	3.85	200	3.00	6.62	0.00	1.63	2.08	12.62	1.33	-227	water clear

Sampling Data

Method: Low Flow Date/Time: 12/10/12 0945 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.62	Alkalinity (g/g)	600
Spec. Cond.(mS/cm)	2.08	Carbon Dioxide (mg/L)	178
Turbidity (NTU)	1.63	Ferrous Iron (mg/L)	1.2
DO (mg/L)	0.00	Manganese (mg/L)	0.15
Temp.(°C)	12.62	Hydrogen Sulfide (mg/L)	0.7
ORP (mv)	-227		
TDS (g/L)	1.33		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-11S_121012 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.) = 1.1				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/10/12 1125

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1030	6.70	200	0.00	6.67	16.62	25.50	2.72	12.99	1.74	13	water clear
1035	6.68	200	0.25	6.66	4.23	23.30	2.75	12.71	1.76	30	water clear
1040	6.68	200	0.50	6.65	0.00	23.00	2.82	12.42	1.80	51	water clear
1045	6.68	200	0.75	6.67	0.00	16.60	2.85	12.45	1.82	62	water clear
1050	6.60	200	1.00	6.69	0.00	16.40	2.75	12.44	1.76	70	water clear
1055	6.60	200	1.25	6.70	0.00	14.00	2.64	12.29	1.69	77	water clear
1100	6.60	200	1.50	6.72	0.00	11.60	2.53	12.32	1.62	84	water clear
1105	6.60	200	1.75	6.73	0.00	12.08	2.47	12.44	1.58	89	water clear
1110	6.60	200	2.00	6.73	0.00	12.20	2.45	12.60	1.57	92	water clear
1115	6.60	200	2.25	6.74	0.00	9.92	2.46	12.63	1.57	95	water clear
1120	6.60	200	2.50	6.75	0.00	9.89	2.51	12.64	1.61	98	water clear
1125	6.60	200	2.75	6.75	0.00	9.32	2.56	12.70	1.64	99	water clear

Sampling Data

Method: Low Flow Date/Time: 12/10/12 1125 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.75	Alkalinity (g/g)	460.00
Spec. Cond.(mS/cm)	2.56	Carbon Dioxide (mg/L)	112
Turbidity (NTU)	9.32	Ferrous Iron (mg/L)	0.15
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.70	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	99		
TDS (g/L)	1.64		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-12S_121012 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.2				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/10/12 1345

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1245	6.09	200	0.00	7.57	7.53	39.1	0.743	13.87	0.476	55	water clear
1250	6.40	200	0.25	7.76	5.60	33.5	0.702	13.90	0.452	48	water clear
1255	6.75	200	0.50	8.28	1.92	27.6	0.636	13.86	0.409	28	water clear
1300	7.05	200	0.75	8.64	0.43	23.9	0.601	13.78	0.385	15	water clear
1305	7.28	200	1.00	8.88	0.01	23.5	0.586	13.79	0.375	7	water clear
1310	7.38	200	1.25	9.04	0.00	22.2	0.580	13.83	0.371	2	water clear
1315	7.41	200	1.50	9.11	0.00	21.2	0.583	13.85	0.373	0	water clear
1320	7.41	200	1.75	9.14	0.00	25.7	0.604	13.88	0.386	1	water clear
1325	7.41	200	2.00	9.08	0.00	26.8	0.641	13.88	0.409	5	water clear
1330	7.45	200	2.25	8.93	0.00	24.7	0.681	13.83	0.435	3	water clear
1335	7.45	200	2.50	8.68	0.00	25.3	0.801	13.60	0.508	-35	water clear
1340	7.50	200	2.75	8.33	0.00	23.9	1.020	13.31	0.648	-93	water clear
1345	7.50	200	3.00	7.97	0.00	21.6	1.280	13.14	0.806	-124	water clear

Sampling Data

Method: Low Flow Date/Time: 12/10/12 1345 Total Volume of Water purged: 3 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.97	Alkalinity (g/g)	640
Spec. Cond.(mS/cm)	1.28	Carbon Dioxide (mg/L)	188
Turbidity (NTU)	21.60	Ferrous Iron (mg/L)	0.8
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.14	Hydrogen Sulfide (mg/L)	0.7
ORP (mv)	-124		
TDS (g/L)	0.806		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-7D_120712 Well Diameter: 4 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.6				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/7/12 1045

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
945	8.00	200	0.00	6.47	19.62	330	1.66	10.30	1.06	-200	water gray
950	8.00	200	0.25	6.42	8.91	170	1.67	11.42	1.07	-265	water gray
955	8.00	200	0.50	6.34	0.00	290	1.73	12.36	1.10	-287	water slightly gray
1000	8.00	200	0.75	6.30	0.00	650	2.01	12.38	1.27	-284	water cloudy
1005	8.00	200	1.00	6.17	0.00	506	2.45	12.46	1.56	-280	water cloudy
1010	8.00	200	1.25	6.04	0.00	482	2.71	12.52	1.73	-284	water cloudy
1015	8.00	200	1.50	6.01	0.00	562	2.74	12.59	1.75	-277	water cloudy
1020	8.00	200	1.75	5.99	0.00	690	2.76	12.72	1.76	-273	water cloudy
1025	8.00	200	2.00	5.98	0.00	693	2.76	12.73	1.77	-280	water cloudy
1030	8.00	200	2.25	5.97	0.00	692	2.76	12.76	1.77	-283	water cloudy
1035	8.00	200	2.50	5.97	0.00	691	2.76	12.83	1.77	-282	water cloudy
1040	8.00	200	2.75	5.97	0.00	692	2.76	13.04	1.76	-281	water cloudy
1045	8.00	200	3.0	5.96	0.00	691	2.76	13.10	1.77	-281	water cloudy

Sampling Data

Method: Low Flow Date/Time: 12/7/12 1045 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.96	Alkalinity (g/g)	1000.00
Spec. Cond.(mS/cm)	2.76	Carbon Dioxide (mg/L)	650
Turbidity (NTU)	691.00	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	13.10	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-281		
TDS (g/L)	1.77		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Water very cloudy, slight sulfur smell

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-10D_121312 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/13/2012 12:35

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1235	6.85	200	0.0	7.60	2.81	94.0	0.31	13.52	0.200	-226	slightly cloudy, no odor
1245	7.30	200	0.5	7.51	0.00	40.5	0.874	14.47	0.561	-282	clearer
1255	7.35	200	1.0	7.20	0.00	21.3	1.18	14.65	0.757	-290	clear
1305	7.36	200	1.5	7.02	0.00	22.4	1.47	14.70	0.942	-294	clear
1310	7.36	200	1.8	6.98	0.00	13.7	1.50	14.70	0.932	-296	same
1315	7.37	200	2.0	6.92	0.00	8.42	1.55	14.71	0.992	-298	clear
1320	7.37	200	2.2	6.90	0.00	12.6	1.57	14.75	1.00	-300	same
1325	7.37	200	2.4	6.87	0.00	18.9	1.59	14.79	1.02	-303	same
1330	7.37	200	2.7	6.86	0.00	21.3	1.61	14.81	1.04	-305	clear, no odor
1335	7.37	200	3.0	6.85	0.00	32.7	1.63	14.83	1.05	-308	clear

Sampling Data

Method: Dedicated Tubing Date/Time: 12/13/12 1335 Total Volume of Water purged: 7.0 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.85	Alkalinity (g/g)	400
Spec. Cond.(mS/cm)	1.63	Carbon Dioxide (mg/L)	124
Turbidity (NTU)	32.70	Ferrous Iron (mg/L)	0.6
DO (mg/L)	0.00	Manganese (mg/L)	lt yellow
Temp.(°C)	14.83	Hydrogen Sulfide (mg/L)	1.0
ORP (mv)	-308		
TDS (g/L)	1.05		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-11D_120712 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 3.2				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/7/12 0850

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
755	10.5	200	0.00	5.48	11.91	45.00	2.70	10.12	1.73	46	water clear
800	10.5	200	0.25	5.96	5.15	9.40	2.98	10.66	1.89	-54	water clear
805	10.5	200	0.50	6.46	0.00	3.10	3.16	11.51	2.03	-148	water clear
810	10.5	200	0.75	6.54	0.00	1.40	2.81	11.83	1.81	-157	water clear
815	10.5	200	1.00	6.59	0.00	1.20	2.56	11.98	1.64	-166	water clear
820	10.5	200	1.25	6.63	0.00	1.60	2.43	12.05	1.56	-177	water clear
825	10.5	200	1.50	6.66	0.00	0.90	2.38	12.08	1.52	-189	water clear
830	10.5	200	1.75	6.68	0.00	0.65	2.35	12.13	1.50	-202	water clear
835	10.5	200	2.00	6.70	0.00	0.85	2.33	12.17	1.49	-213	water clear
840	10.5	200	2.25	6.70	0.00	0.80	2.32	12.14	1.48	-221	water clear
845	10.5	200	2.50	6.71	0.00	1.80	2.31	12.05	1.48	-229	water clear
850	10.5	200	2.75	6.72	0.00	2.10	2.31	12.00	1.48	-236	water clear

Sampling Data

Method: Low flow Date/Time: 12/7/12 0850 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.72	Alkalinity (g/g)	460
Spec. Cond.(mS/cm)	2.31	Carbon Dioxide (mg/L)	210
Turbidity (NTU)	2.10	Ferrous Iron (mg/L)	.4
DO (mg/L)	0.00	Manganese (mg/L)	0
Temp.(°C)	12.00	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-236		
TDS (g/L)	1.48		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-12D_121312 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Voumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/13/12 0815

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
815	7.70	200	0.0	5.09	2.30	65.90	0.41	12.64	0.265	-4	light cloudy, veg odor
825	7.35	200	0.50	6.00	0.00	28.00	2.59	13.04	1.66	-148	same
835	7.35	200	1.00	6.10	0.00	14.70	2.68	13.29	1.72	-170	same
845	7.35	200	1.50	6.17	0.00	21.20	2.77	13.37	1.77	-200	clear, susp solids, substrates odor
850	7.35	200	1.75	6.20	0.00	18.70	2.74	13.51	1.76	-218	same
855	7.35	200	2.0	6.23	0.00	8.53	2.73	13.63	1.75	-232	same
900	7.35	200	2.2	6.25	0.00	12.80	2.70	13.68	1.73	-241	clear, solids, VO odor
905	7.35	200	2.4	6.27	0.00	17.30	2.68	13.72	1.72	-259	same
910	7.35	200	2.7	6.28	0.00	10.35	2.66	17.81	1.71	-264	same
915	7.35	200	3.0	6.30	0.00	9.78	2.64	13.91	1.64	-288	same
920	7.35	200	3.3	6.33	0.00	12.30	2.63	14.02	1.66	-295	same
925	7.35	200	3.6	6.36	0.00	10.90	2.62	14.13	1.64	-303	clear, slight odor
930	7.35	200	4.0	6.36	0.00	12.80	2.62	14.18	1.67	-305	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/13/12 0945 Total Volume of Water purged: 5.2 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.39	Alkalinity (g/g)	400
Spec. Cond.(mS/cm)	2.55	Carbon Dioxide (mg/L)	156
Turbidity (NTU)	3.92	Ferrous Iron (mg/L)	0.2
DO (mg/L)	0.00	Manganese (mg/L)	lt orange
Temp.(°C)	14.24	Hydrogen Sulfide (mg/L)	4.0
ORP (mv)	-309	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.63		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-12D_121312 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Voumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/13/12 0815

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
935	7.35	200	4.5	6.36	0.00	6.73	2.61	14.21	1.67	-308	clear, slight odor
940	7.35	200	4.9	6.37	0.00	8.83	2.58	14.23	1.64	-308	same
945	7.35	200	5.2	6.39	0.00	3.92	2.55	14.24	1.63	-309	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/13/12 0945 Total Volume of Water purged: 5.2 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.39	Alkalinity (g/g)	400
Spec. Cond.(mS/cm)	2.55	Carbon Dioxide (mg/L)	156
Turbidity (NTU)	3.92	Ferrous Iron (mg/L)	0.2
DO (mg/L)	0.00	Manganese (mg/L)	lt orange
Temp.(°C)	14.24	Hydrogen Sulfide (mg/L)	4.0
ORP (mv)	-309	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.63		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-13D_121212 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/12/12 0840

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
840	10.65	200	0.00	5.91	0.00	50.00	3.50	10.52	2.23	-151	vegetable odor, clear
850	10.87	200	0.50	6.43	0.00	29.10	3.66	11.77	2.34	-267	same
900	10.88	200	1.00	6.43	0.00	33.60	3.11	11.96	1.99	-240	same
910	10.89	200	1.50	6.45	0.00	33.80	3.03	12.05	1.94	-227	clear, odor
915	10.90	200	2.00	6.44	0.00	35.70	3.02	12.09	1.93	-225	same
920	10.90	200	2.30	6.44	0.00	31.20	3.02	12.07	1.93	-225	same
925	10.90	200	2.60	6.50	0.00	30.60	2.88	12.15	1.84	-226	clear, odor
930	10.90	200	2.90	6.51	0.00	33.80	2.90	12.20	1.85	-223	same
935	10.91	200	3.10	6.53	0.00	31.10	2.85	12.21	1.86	-218	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/12/12 0935 Total Volume of Water purged: 3.1 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.53	Alkalinity (g/g)	440
Spec. Cond.(mS/cm)	2.85	Carbon Dioxide (mg/L)	186
Turbidity (NTU)	31.10	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.21	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-218		
TDS (g/L)	1.86		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-14D_121312 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 8.75				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/13/12 1040

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1040	8.75	200	0.00	6.90	6.50	3.92	1.91	12.15	1.22	-265	clear/no odor
1050	8.80	200	0.50	6.68	0.00	3.92	1.91	12.94	1.22	-266	same
1100	8.80	200	0.80	6.64	0.00	7.78	1.91	13.17	1.22	-269	same
1110	8.80	200	1.20	6.66	0.00	2.38	1.90	13.31	1.22	-272	clear/no odor
1115	8.80	200	1.50	6.64	0.00	12.10	1.90	13.35	1.21	-273	same
1120	8.80	200	1.90	6.61	0.00	6.82	1.89	13.37	1.21	-274	same
1125	8.80	200	2.30	6.61	0.00	6.79	1.89	13.41	1.20	-275	same
1130	8.80	200	2.60	6.62	0.00	8.11	1.88	13.54	1.20	-276	same
1135	8.80	200	3.00	6.64	0.00	5.44	1.87	13.57	1.19	-277	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/13/12 1135 Total Volume of Water purged: 3.0 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.64	Alkalinity (g/g)	460.00
Spec. Cond.(mS/cm)	1.87	Carbon Dioxide (mg/L)	156
Turbidity (NTU)	5.44	Ferrous Iron (mg/L)	0.00
DO (mg/L)	0.00	Manganese (mg/L)	yellowish
Temp.(°C)	13.57	Hydrogen Sulfide (mg/L)	0.50
ORP (mv)	-277		
TDS (g/L)	1.19		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-15D_120312 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 3.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/3/12 1415

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1330	9.96	200	0.00	5.45	2.16	21.70	1.12	16.07	0.714	-99	water clear
1335	9.96	200	0.25	5.52	0.68	22.30	1.12	16.11	0.718	-107	water clear
1340	9.96	200	0.50	5.66	0.00	22.00	1.13	16.23	0.722	-122	water clear
1345	9.98	200	0.75	5.79	0.00	15.30	1.13	16.42	0.724	-133	water clear
1350	9.98	200	1.00	5.87	0.00	12.30	1.15	16.58	0.733	-139	water clear
1355	9.99	200	1.25	5.93	0.00	10.60	1.17	16.66	0.747	-142	water clear
1400	9.99	200	1.50	5.97	0.00	7.84	1.17	16.70	0.749	-143	water clear
1405	9.99	200	1.75	6.02	0.00	6.54	1.17	16.75	0.746	-146	water clear
1410	10.00	200	2.00	6.06	0.00	4.79	1.17	16.77	0.746	-148	water clear
1415	10.00	200	2.25	6.08	0.00	4.12	1.19	16.77	0.758	-150	water clear

Sampling Data

Method: Low Flow Date/Time: 12/3/12 1415 Total Volume of Water purged: 2.5

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.08	Alkalinity (g/g)	220.00
Spec. Cond.(mS/cm)	1.19	Carbon Dioxide (mg/L)	140.00
Turbidity (NTU)	4.12	Ferrous Iron (mg/L)	0.00
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	16.77	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-150	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	0.758		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-16D_121112 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volmes (gal/ft.): 11.91				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/11/12 1400

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1400	11.81	200	0.00	7.02	0.00	15.0	4.26	10.90	2.73	-334	clear, moderate odor
1410	12.13	200	0.35	7.01	0.00	6.8	4.30	11.07	2.75	-345	clear, moderate odor
1420	12.15	200	0.70	7.10	0.00	4.6	2.87	11.24	1.83	-332	clear, moderate odor
1430	12.15	200	1.00	7.12	0.00	4.5	2.63	11.30	1.68	-323	clear, odor
1435	12.15	200	1.30	7.13	0.00	7.3	2.60	11.37	1.67	-321	clear, odor
1440	12.15	200	1.50	7.14	0.00	8.9	2.58	11.42	1.65	-320	clear, odor
1445	12.17	200	1.80	7.13	0.00	12.1	2.58	11.46	1.64	-320	clear, odor
1450	12.19	200	2.00	7.13	0.00	9.4	2.57	11.50	1.64	-320	clear, odor
1455	12.19	200	2.30	7.13	0.00	5.0	2.56	11.53	1.64	-318	clear, odor
1500	12.21	200	2.60	7.13	0.00	6.1	2.55	11.56	1.63	-316	clear, odor

Sampling Data

Method: Low flow Date/Time: 12/11/12 1500 Total Volume of Water purged: 2.6 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.13	Alkalinity (g/g)	480
Spec. Cond.(mS/cm)	2.55	Carbon Dioxide (mg/L)	112
Turbidity (NTU)	6.10	Ferrous Iron (mg/L)	0.60
DO (mg/L)	0.00	Manganese (mg/L)	yellow
Temp.(°C)	11.56	Hydrogen Sulfide (mg/L)	1.50
ORP (mv)	-316		
TDS (g/L)	1.63		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-17D_121012 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.) = 4.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/10/12 1530

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1430	8.00	200	0.00	7.85	0.41	16.70	1.39	12.53	0.891	-93	water clear
1435	8.00	200	0.25	7.63	0.00	9.18	1.63	12.28	1.03	-135	water clear
1440	8.00	200	0.50	7.42	0.00	2.52	1.94	12.06	1.24	-161	water clear
1445	8.00	200	0.75	7.29	0.00	2.30	2.12	12.03	1.35	-161	water clear
1450	8.00	200	1.00	7.17	0.00	1.22	2.28	12.31	1.46	-157	water clear
1455	8.00	200	1.25	7.11	0.00	1.63	2.35	12.60	1.51	-155	water clear
1500	8.00	200	1.50	7.06	0.00	1.73	2.38	12.81	1.52	-153	water clear
1505	8.00	200	1.75	7.03	0.00	1.23	2.38	12.84	1.53	-152	water clear
1510	8.00	200	2.00	7.01	0.00	1.26	2.38	12.85	1.52	-152	water clear
1515	8.00	200	2.25	7.00	0.00	1.06	2.38	12.85	1.53	-152	water clear
1520	8.00	200	2.50	6.99	0.00	1.31	2.39	12.86	1.53	-152	water clear
1525	8.00	200	2.75	6.98	0.00	1.10	2.38	12.87	1.53	-152	water clear
1530	8.00	200	3.00	6.97	0.00	1.50	2.39	12.88	1.53	-152	water clear

Sampling Data

Method: Low Flow Date/Time: 12/10/12 1530 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.97	Alkalinity (g/g)	660
Spec. Cond.(mS/cm)	2.39	Carbon Dioxide (mg/L)	186
Turbidity (NTU)	1.50	Ferrous Iron (mg/L)	2.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.88	Hydrogen Sulfide (mg/L)	2.00
ORP (mv)	-152		
TDS (g/L)	1.53		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-18D_120312 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
DTW = 9.25				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low flow -Peristaltic Date/Time: 10/3/2012 13:25

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1335	9.30	200	0.53	7.09	0.43	2.04	2.44	12.10	1.56	-101	clear
1345	9.32	200	1.06	7.33	0.00	1.46	2.42	12.41	1.55	-111	clear
1350	9.33	200	1.32	7.42	0.00	1.12	2.41	12.54	1.54	-117	clear
1355	9.34	200	1.58	7.45	0.00	1.10	2.40	12.66	1.53	-119	clear
1400	9.35	200	1.75	7.48	0.00	1.14	2.39	12.77	1.53	-123	clear
1405	9.36	200	2.00	7.52	0.00	1.16	2.39	13.04	1.53	-132	clear
1410	9.36	200	2.30	7.52	0.00	1.10	2.40	13.12	1.54	-130	clear

Sampling Data

Method: Low Flow - Peristaltic Date/Time: 12/3/2012 14:15 Total Volume of Water purged: 2.5 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.52	Alkalinity (g/g)	242
Spec. Cond.(mS/cm)	2.40	Carbon Dioxide (mg/L)	148
Turbidity (NTU)	1.10	Ferrous Iron (mg/L)	0
DO (mg/L)	0.00	Manganese (mg/L)	0
Temp.(°C)	13.12	Hydrogen Sulfide (mg/L)	4
ORP (mv)	-130	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.54		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-19D_120312 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 8.25				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/3/12 1320

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1320	8.25	200	0.00	8.30	9.43	over max	6.15	13.74	3.82	-73	milky brown
1330	8.45	200	0.50	6.84	0.00	500	5.81	16.08	3.66	-85	cloudy
1340	8.47	200	1.00	6.77	0.00	75	5.77	16.28	3.64	-91	cloudy
1345	8.45	200	1.25	6.75	0.00	61	5.76	16.23	3.62	-92	cloudy, no odor
1350	8.43	200	1.40	6.71	0.00	56	5.71	16.21	3.60	-93	cloudy, no odor
1355	8.44	200	1.85	6.71	0.00	over max	5.70	16.20	3.59	-93	cloudy, no odor
1400	8.44	200	2.10	6.72	0.00	750	5.70	16.21	3.59	-93	cloudy
1405	8.44	200	2.30	6.71	0.00	800	5.70	16.21	3.59	-93	cloudy
1410	8.44	200	2.50	6.71	0.00	over max	5.70	16.22	3.59	-93	cloudy
1415	8.41	200	2.65	6.70	0.00	780	5.72	16.31	3.60	-93	cloudy
1420	8.46	200	2.80	6.70	0.00	340	5.73	16.40	3.61	-92	cloudy
1425	8.48	200	2.90	6.71	0.00	210	5.73	16.39	3.61	-93	cloudy
1430	8.46	200	3.00	6.72	0.00	160	5.73	16.38	3.61	-93	nearly clear

Sampling Data

Method: Dedicated Tubing Date/Time: 12/3/12 1455 Total Volume of Water purged: 4.1 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.69	Alkalinity (g/g)	540.00
Spec. Cond.(mS/cm)	5.73	Carbon Dioxide (mg/L)	512
Turbidity (NTU)	50.00	Ferrous Iron (mg/L)	2.60
DO (mg/L)	0.00	Manganese (mg/L)	milky yellow color
Temp.(°C)	16.45	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	-91		
TDS (g/L)	3.61		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-19D_120312 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 8.25				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/3/12 1320

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1435	8.46	200	3.20	6.73	0.00	130	5.73	16.38	3.61	-93	nearly clear
1440	8.47	200	3.50	6.73	0.00	90	5.73	16.42	3.61	-93	clear
1445	8.47	200	3.70	6.69	0.00	70	5.73	16.41	3.61	-91	clear
1450	8.47	200	3.90	6.68	0.00	55	5.73	16.43	3.61	-91	clear
1455	8.48	200	4.10	6.69	0.00	50	5.73	16.45	3.61	-91	clear

Sampling Data

Method: Dedicated Tubing Date/Time: 12/3/12 1455 Total Volume of Water purged: 4.1 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.69	Alkalinity (g/g)	540.00
Spec. Cond.(mS/cm)	5.73	Carbon Dioxide (mg/L)	512
Turbidity (NTU)	50.00	Ferrous Iron (mg/L)	2.00
DO (mg/L)	0.00	Manganese (mg/L)	milky yellow color
Temp.(°C)	16.45	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	-91		
TDS (g/L)	3.61		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Nam: *Ekonol Facility* Well ID: MW-20D_121112 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 3.5				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/11/12 0905

Time	DTW	ump Rat	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
805	7.70	200	0.00	5.95	0.16	3.57	1.77	13.14	1.13	-150	water clear
810	7.58	200	0.25	6.20	0.00	1.78	1.73	13.27	1.11	-194	water clear
815	7.58	200	0.50	6.53	0.00	1.26	1.70	13.42	1.09	-258	water clear
820	7.58	200	0.75	6.66	0.00	1.54	1.70	13.82	1.09	-290	water clear
825	7.58	200	1.00	6.74	0.00	1.30	1.69	14.04	1.08	-313	water clear
830	7.58	200	1.25	6.79	0.00	1.01	1.69	14.24	1.08	-330	water clear
835	7.58	200	1.50	6.82	0.00	1.25	1.68	14.41	1.08	-338	water clear
840	7.58	200	1.75	6.83	0.00	1.32	1.68	14.43	1.08	-343	water clear
845	7.58	200	2.00	6.85	0.00	1.65	1.68	14.46	1.08	-347	water clear
850	7.58	200	2.25	6.86	0.00	1.42	1.68	14.55	1.07	-350	water clear
855	7.58	200	2.50	6.87	0.00	1.11	1.68	14.50	1.08	-352	water clear
900	7.58	200	2.75	6.87	0.00	1.02	1.69	14.55	1.08	-353	water clear
905	7.58	200	3.00	6.88	0.00	1.04	1.68	14.60	1.08	-354	water clear

Sampling Data

Method: Low Flow Date/Time: 12/11/12 0905 Total Volume of Water purged: 3 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.88	Alkalinity (g/g)	880.00
pec. Cond.(mS/cm	1.68	Carbon Dioxide (mg/L)	314
Turbidity (NTU)	1.04	Ferrous Iron (mg/L	0.20
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	15	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-354	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.08		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: MW-21D_121112 Well Diameter: 4 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? N

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 15.3				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/11/12 1045

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
945	7.08	200	0.00	7.50	3.40	8.41	0.873	11.95	0.559	-281	water clear
950	7.08	200	0.25	7.60	0.00	8.55	0.872	12.01	0.558	-288	water clear
955	7.08	200	0.50	7.73	0.00	8.63	0.872	11.96	0.558	-290	water clear
1000	7.08	200	0.75	7.92	0.00	8.67	0.901	12.30	0.576	-295	water clear
1005	7.08	200	1.00	8.01	0.00	9.22	0.973	12.90	0.621	-301	water clear
1010	7.08	200	1.25	8.03	0.00	8.75	1.04	13.12	0.662	-302	water clear
1015	7.08	200	1.50	8.01	0.00	8.98	1.09	12.98	0.695	-300	water clear
1020	7.08	200	1.75	7.92	0.00	8.54	1.16	12.74	0.742	-300	water clear
1025	7.08	200	2.00	7.78	0.00	8.02	1.24	12.52	0.792	-301	water clear
1030	7.08	200	2.25	7.68	0.00	7.44	1.28	12.53	0.819	-302	water clear
1035	7.08	200	2.50	7.59	0.00	6.90	1.36	12.69	0.863	-306	water clear
1040	7.08	200	2.75	7.47	0.00	6.79	1.51	12.88	0.960	-312	water clear
1045	7.08	200	3.00	7.36	0.00	5.88	1.57	12.89	1.010	-317	water clear

Sampling Data

Method: Low Flow Date/Time: 12/11/12 1045 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.36	Alkalinity (g/g)	500.00
Spec. Cond.(mS/cm)	1.57	Carbon Dioxide (mg/L)	272
Turbidity (NTU)	5.88	Ferrous Iron (mg/L)	0.50
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.89	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-317		
TDS (g/L)	1.01		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 Filters	Filtered	280 mL 230 mL
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-1S_120512 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 1.4				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/5/12 0955

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
855	3.03	200	0.50	6.37	0.14	12.40	2.58	12.61	1.65	-104	water clear
900	3.05	200	0.75	6.43	0.00	9.99	2.60	12.87	1.66	-110	water clear
905	3.05	200	0.85	6.56	0.00	8.37	2.58	13.23	1.65	-125	water clear
910	3.05	200	1.00	6.70	0.00	7.39	2.51	13.51	1.61	-146	water clear
915	3.05	200	1.25	6.82	0.00	4.56	2.44	13.66	1.56	-162	water clear
920	3.10	200	1.50	6.90	0.00	4.49	2.36	13.82	1.51	-175	water clear
925	3.10	200	1.75	7.01	0.00	3.17	2.29	14.14	1.47	-193	water clear
930	3.12	200	2.00	7.03	0.00	2.56	2.28	14.23	1.46	-199	water clear
935	3.12	200	2.25	7.07	0.00	2.92	2.27	14.41	1.45	-208	water clear
940	3.12	200	2.50	7.11	0.00	2.79	2.25	14.48	1.44	-213	water clear
945	3.15	200	2.75	7.15	0.00	2.37	2.24	14.49	1.43	-218	water clear
950	3.15	200	3.00	7.20	0.00	3.56	2.23	14.46	1.43	-224	water clear
955	3.15	200	3.25	7.23	0.00	5.59	2.22	14.46	1.42	-228	water clear

Sampling Data

Method: LowFlow Date/Time: 12/5/12 0955 Total Volume of Water purged: 4.0 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.23	Alkalinity (g/g)	300.00
Spec. Cond.(mS/cm)	2.22	Carbon Dioxide (mg/L)	98
Turbidity (NTU)	5.59	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	14.46	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-228		
TDS (g/L)	1.42		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Microbial - 1 vial - 1000mL

Hydrogen - 20 min

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-2S_120412 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 1.2				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/4/12 1455

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1455	4.38	200	0.00	6.70	4.31	152	1.73	15.55	1.11	-183	water cloudy
1500	5.11	200	0.25	6.68	2.03	129	1.76	15.48	1.12	-189	water cloudy
1505	5.50	200	0.50	6.45	0.00	125	1.82	15.36	1.17	-203	water cloudy
1510	6.10	200	0.75	7.19	0.00	120	2.17	16.12	1.39	-187	water cloudy
1515	6.25	200	1.00	7.08	0.00	60	2.21	16.09	1.41	-189	water clear
1520	6.40	200	1.25	6.86	0.00	45	2.28	16.02	1.46	-193	water clear
1525	6.46	200	1.50	6.75	0.00	27	2.49	15.98	1.59	-159	water clear
1530	6.46	200	1.75	6.64	0.00	18	2.77	16.04	1.77	-211	water clear
1535	5.94	200	2.00	6.63	0.00	15	2.78	16.04	1.78	-213	water clear
1540	5.50	200	2.25	6.60	0.00	26	2.64	16.03	1.69	-218	water clear
1545	5.40	200	2.50	6.59	0.00	27	2.59	15.49	1.66	-218	water clear
1550	5.12	200	2.75	6.58	0.00	29	2.50	15.91	1.60	-218	water clear
1555	5.30	200	3.00	6.58	0.00	40	2.37	15.85	1.53	-215	water clear

Sampling Data

Method: Low Flow Date/Time: 12/4/12 1555 Total Volume of Water purged: 3.0 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.58	Alkalinity (g/g)	980.00
Spec. Cond.(mS/cm)	2.37	Carbon Dioxide (mg/L)	462
Turbidity (NTU)	40.00	Ferrous Iron (mg/L)	2.20
DO (mg/L)	0.00	Manganese (mg/L)	0.30
Temp.(°C)	15.85	Hydrogen Sulfide (mg/L)	0.50
ORP (mv)	-215		
TDS (g/L)	1.53		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 filters	1 700mL 2 300mL	
Hydrogen, Acetylene			

Comments: 12/5/12 - DTW = 3'. Sample Diss. Hydrogen on 12/5/12 @ 0825

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-3S_120512 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 0.8				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/5/12 1355

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1255	7.15	200	0.00	6.45	29.22	45.0	5.59	11.06	3.52	-218	water clear
1300	7.65	200	0.25	6.36	12.02	25.0	5.58	11.41	3.52	-225	water clear
1305	7.85	150	0.50	6.21	0.00	18.0	5.50	11.80	3.47	-235	water clear
1310	7.95	150	0.75	6.17	0.00	17.0	5.43	11.76	3.42	-236	water clear
1315	8.05	150	1.00	6.15	0.00	12.0	5.39	11.84	3.40	-236	water clear
1320	8.10	150	1.25	6.14	0.00	13.0	5.32	11.94	3.36	-237	water clear
1325	8.20	150	1.50	6.14	0.00	11.0	5.24	11.97	3.30	-238	water clear
1330	8.30	150	1.75	6.13	0.00	9.6	5.16	11.91	3.25	-238	water clear
1335	8.35	150	2.00	6.11	0.00	8.0	5.05	11.74	3.18	-238	water clear
1340	8.40	150	2.25	6.11	0.00	7.4	5.01	11.87	3.16	-238	water clear
1345	8.42	150	2.50	6.10	0.00	10.0	4.97	12.13	3.18	-238	water clear
1350	8.45	150	2.75	6.09	0.00	9.7	4.98	12.16	3.13	-238	water clear
1355	8.45	150	3.00	6.08	0.00	7.0	4.99	12.15	3.07	-238	water clear

Sampling Data

Method: Low Flow Date/Time: 12/5/12 1355 Total Volume of Water purged: 3 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.08	Alkalinity (g/g)	940.00
Spec. Cond.(mS/cm)	4.99	Carbon Dioxide (mg/L)	548
Turbidity (NTU)	70.00	Ferrous Iron (mg/L)	2.40
DO (mg/L)	0.00	Manganese (mg/L)	0.40
Temp.(°C)	12.15	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	-238		
TDS (g/L)	3.07		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Microbial - 1st Vial - 660mL 2nd Vial - 340mL
Hydrogen - 25 min

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-4S_121112 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.) 4.84				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/11/12 1009

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1019	5.59	130	0.33	6.60	0.28	2.5	7.02	11.98	4.42	79	clear
1029	6.88	130	0.66	6.59	0.00	1.9	7.12	12.11	4.49	21	same
1039	7.29	130	0.99	6.59	0.00	1.2	7.12	12.29	4.48	-19	same
1049	7.53	130	1.32	6.60	0.00	1.1	7.11	12.50	4.48	-39	same
1054	7.54	130	1.48	6.62	0.00	1.0	6.92	12.57	4.36	-40	same
1059	7.51	130	1.65	6.64	0.00	0.8	6.65	12.43	4.19	-42	same
1104	7.55	130	1.81	6.65	0.00	0.7	6.63	12.14	4.18	-43	same
1109	7.56	130	1.98	6.65	0.00	0.6	6.63	12.12	4.18	-44	same
1114	7.56	130	2.14	6.66	0.00	0.5	6.77	11.90	4.26	-45	same
1119	7.57	130	2.31	6.66	0.00	0.3	6.88	11.79	4.34	-45	same
1124	7.60	130	2.47	6.65	0.00	0.4	6.89	11.72	4.36	-46	same
1129	7.61	130	2.64	6.65	0.00	0.5	6.90	11.74	4.37	-47	same

Sampling Data

Method: Peristaltic Date/Time: 12/11/12 1130 Total Volume of Water purged: 2.8 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.65	Alkalinity (g/g)	480
Spec. Cond.(mS/cm)	6.90	Carbon Dioxide (mg/L)	134
Turbidity (NTU)	0.50	Ferrous Iron (mg/L)	1.1
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	11.74	Hydrogen Sulfide (mg/L)	0.0
ORP (mv)	-47		
TDS (g/L)	4.37		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-5S_121112 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing volumes (gal/ft.): 3.20				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/11/12 0804

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
814	4.43	160	0.42	6.49	3.80	220	0.929	9.35	0.604	183	cloudy
824	5.84	160	0.84	6.72	3.76	80	0.765	9.78	0.492	194	slightly clearer
834	5.96	120	1.17	6.72	2.72	65	1.08	9.78	0.695	200	same
844	5.96	120	1.50	6.74	1.77	38	1.45	9.03	0.924	171	same
854	6.04	120	1.88	6.69	1.10	30	2.33	8.67	1.49	136	same
859	6.07	120	2.03	6.70	0.53	27	2.60	8.61	1.66	96	same
904	6.09	120	2.19	6.68	0.65	23	2.60	9.08	1.66	78	clearer
909	6.11	120	2.34	6.69	0.66	22	2.59	8.82	1.66	90	same
914	6.12	120	2.50	6.70	0.64	22	2.60	8.75	1.66	86	same
919	6.14	120	2.65	6.70	0.62	21	2.62	8.67	1.67	88	same

Sampling Data

Method: Peristaltic Date/Time: 12/11/12 0920 Total Volume of Water purged: 2.75 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.70	Alkalinity (g/g)	420
Spec. Cond.(mS/cm)	2.62	Carbon Dioxide (mg/L)	66
Turbidity (NTU)	21.00	Ferrous Iron (mg/L)	0.2
DO (mg/L)	0.62	Manganese (mg/L)	0.0
Temp.(°C)	8.67	Hydrogen Sulfide (mg/L)	0.0
ORP (mv)	88		
TDS (g/L)	1.67		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-6S_121012 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)?

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 5.46				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/10/12 1357

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1407	7.55	150	0.42	6.56	0.00	7.8	2.63	12.40	1.69	-73	clear
1417	7.51	120	0.74	6.55	0.00	8.0	2.70	11.49	1.73	-71	same
1427	7.48	120	1.05	6.55	0.00	7.4	2.69	11.36	1.72	-71	same
1437	7.46	120	1.37	6.53	0.00	5.7	2.75	10.80	1.76	-69	same
1442	7.44	120	1.52	6.52	0.00	3.6	2.72	10.54	1.74	-68	same
1447	7.43	120	1.68	6.51	0.00	3.6	2.85	10.08	1.83	-66	same
1452	7.43	120	1.83	6.49	0.00	3.4	2.90	10.10	1.86	-67	same
1457	7.43	120	1.99	6.50	0.00	3.3	2.87	10.09	1.84	-67	same
1502	7.42	120	2.14	6.49	0.00	2.7	2.93	9.88	1.88	-66	same
1507	7.42	120	2.30	6.48	0.00	3.2	2.96	10.21	1.89	-67	same
1512	7.45	120	2.45	6.49	0.00	3.1	2.97	10.39	1.90	-68	same
1517	7.46	120	2.61	6.49	0.00	3.0	2.98	10.46	1.91	-68	same

Sampling Data

Method: Peristaltic Date/Time: 12/10/12 1520 Total Volume of Water purged: 2.8 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.49	Alkalinity (g/g)	1740
Spec. Cond.(mS/cm)	2.98	Carbon Dioxide (mg/L)	284
Turbidity (NTU)	3.00	Ferrous Iron (mg/L)	1.20
DO (mg/L)	0.00	Manganese (mg/L)	0.50
Temp.(°C)	10.46	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	-68	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.91		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: VOAs effervescing

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-7S_120612 Well Diameter: 2 Inches

Samplers: R. Becken Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 5.81				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low flow -peristaltic Date/Time: 9/26/12 0731

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
1140	6.80	90	0.5	6.50	3.85	28.20	4.76	9.54	3.04	-216	clear
1150	7.20	90	1.0	6.50	0.00	21.3	4.43	10.44	2.85	-214	no odor
1200	7.57	90	1.6	6.47	0.00	18.9	3.71	11.26	2.36	-204	
1210	7.88	90	2.0	6.50	0.00	22.90	2.68	11.62	1.70	-191	
1220	8.11	90	3.0	6.50	0.32	18.40	1.99	11.71	1.27	-185	
1230	8.40	90	4.0	6.46	0.62	15.40	2.05	11.82	1.31	-181	
1240	8.70	90	5.5	6.45	0.00	11.50	2.20	11.76	1.41	-177	
1250	8.97	90	6.1	6.45	0.00	10.90	2.59	11.61	1.66	-176	
1300	9.23	90	6.6	6.46	0.00	9.47	2.92	11.65	1.86	-176	
1310	9.60	90	7.9	6.47	0.00	9.31	2.92	12.14	2.11	-177	
1320	9.95	90	9.0	6.46	0.00	7.42	2.92	12.17	2.15	-180	
1330	10.15	90	10.5	6.47	0.00	6.35	2.92	12.38	2.16	-182	

Sampling Data

Method: Date/Time: 12/6/12 1335 Total Volume of Water purged: 2.6 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.47	Alkalinity (g/g)	480
Spec. Cond.(mS/cm)	2.92	Carbon Dioxide (mg/L)	318
Turbidity (NTU)	6.35	Ferrous Iron (mg/L)	.5
DO (mg/L)	0.00	Manganese (mg/L)	0
Temp.(°C)	12.38	Hydrogen Sulfide (mg/L)	0
ORP (mv)	-182		
TDS (g/L)	2.16		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-8S_120612 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.) = 7.17				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/6/12 1412

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1422	7.89	100	0.26	6.68	0.00	5.99	3.74	13.81	2.39	-223	clear w/ few black particles
1432	8.23	100	0.52	6.68	0.00	3.79	3.25	13.53	2.08	-224	same
1442	8.30	100	0.78	6.66	0.00	3.68	3.18	13.47	2.04	-217	same
1452	8.59	100	1.04	6.65	0.00	2.54	3.33	12.87	2.14	-217	same
1502	8.65	100	1.30	6.63	0.00	2.09	3.59	12.83	2.30	-223	same
1512	8.82	100	1.56	6.63	0.00	2.71	3.75	12.59	2.40	-240	same
1517	8.97	100	1.69	6.62	0.00	2.91	3.86	12.66	2.48	-248	same
1522	9.21	100	1.82	6.62	0.00	3.09	3.90	12.69	2.50	-251	same
1527	9.22	100	1.95	6.61	0.00	2.99	3.91	12.55	2.50	-254	same
1532	9.24	100	2.08	6.60	0.00	3.02	3.96	12.41	2.53	-264	same
1537	9.25	100	2.21	6.59	0.00	3.60	3.95	12.39	2.53	-271	same
1542	9.26	100	2.34	6.57	0.00	3.98	3.95	12.38	2.55	-281	same
1547	9.26	100	2.47	6.57	0.00	3.54	3.93	12.34	2.52	-283	same
1552	9.27	100	2.6	6.56	0.00	3.28	3.92	12.29	2.51	-288	same

Sampling Data

Method: Peristaltic Date/Time: 12/6/12 1555 Total Volume of Water purged: 2.9 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.56	Alkalinity (g/g)	1034
Spec. Cond.(mS/cm)	3.92	Carbon Dioxide (mg/L)	210
Turbidity (NTU)	3.28	Ferrous Iron (mg/L)	1.2
DO (mg/L)	0.00	Manganese (mg/L)	0.1
Temp.(°C)	12.29	Hydrogen Sulfide (mg/L)	3.0
ORP (mv)	-288		
TDS (g/L)	2.51		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-9S_120412 Well Diameter: 2" PVC Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
7.62				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low flow - Peristaltic Date/Time: 12/4/12 1100

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1110	7.93	120	0.31	7.09	2.92	3.22	5.17	16.44	3.26	141	Clear
1120	8.00	120	0.62	7.07	2.48	2.44	5.19	16.43	3.27	156	Clear
1125	8.00	120	0.77	7.07	2.47	1.89	5.19	16.47	3.27	162	Clear
1130	7.98	120	0.93	7.07	2.40	1.32	5.19	16.50	3.27	162	Clear
1135	7.99	120	1.08	7.07	2.38	1.28	5.19	16.45	3.27	156	Clear
1140	7.99	120	1.24	7.07	2.26	1.07	5.19	16.44	3.27	146	Clear
1145	8.00	120	1.39	7.07	2.17	0.93	5.20	16.49	3.27	149	Clear
1150	8.05	120	1.55	7.07	2.21	1.02	5.19	16.53	3.27	171	Clear
1155	8.07	120	1.70	7.07	2.25	0.99	5.20	16.54	3.27	177	Clear
1200	8.11	120	1.86	7.07	2.20	0.90	5.21	16.49	3.28	177	Clear

Sampling Data

Method: Peristaltic Date/Time: 12/04/12 1205 Total Volume of Water purged: ~3.5 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.07	Alkalinity (g/g)	858.00
Spec. Cond.(mS/cm)	5.21	Carbon Dioxide (mg/L)	170
Turbidity (NTU)	0.90	Ferrous Iron (mg/L)	0.20
DO (mg/L)	2.20	Manganese (mg/L)	0.00
Temp.(°C)	16.49	Hydrogen Sulfide (mg/L)	0.00
ORP (mv)	177.00		
TDS (g/L)	3.28		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1 Filter	None	filtered: 1000mL
Hydrogen, Acetylene	1-20mL vial 2-40mL vials	None Trisodium	Phospate

Comments: dissolved hydrogen: start@1232/ stop@1302 (120mL/min)

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-10S_120412 Well Diameter: 2 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
7.03 Casing Voumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/4/12 0812

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
817	7.68	120	0.16	6.77	8.13	2.33	4.90	14.74	3.08	206	clear
822	7.70	120	0.31	6.98	4.52	1.18	4.93	14.95	3.16	197	clear
827	7.81	120	0.47	7.07	4.08	1.19	4.94	15.07	3.16	197	clear
832	8.00	120	0.62	7.09	3.93	1.05	4.94	15.19	3.16	200	clear
837	8.14	120	0.78	7.10	3.84	0.86	4.95	15.26	3.16	201	clear
842	8.32	120	0.93	7.10	3.66	0.89	4.95	15.33	3.17	202	clear
847	8.54	120	1.08	7.12	3.49	0.92	4.95	15.44	3.17	203	clear
852	8.60	120	1.23	7.13	3.30	1.94	4.93	15.47	3.16	204	clear
857	8.66	120	1.38	7.14	3.26	1.28	4.92	15.48	3.15	207	clear
902	8.69	120	1.53	7.14	3.23	1.24	4.91	15.51	3.14	206	clear
907	8.73	120	1.68	7.15	3.21	1.21	4.90	15.57	3.16	206	clear

Sampling Data

Method: Peristaltic Date/Time: 12/4/12 0910 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	7.15	Alkalinity (g/g)	616.0
Spec. Cond.(mS/cm)	4.90	Carbon Dioxide (mg/L)	176
Turbidity (NTU)	1.21	Ferrous Iron (mg/L)	0.00
DO (mg/L)	3.21	Manganese (mg/L)	0.00
Temp.(°C)	15.57	Hydrogen Sulfide (mg/L)	0.10
ORP (mv)	206	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	3.16		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1 filter	-	Filtered 1000mL
Hydrogen, Acetylene	1 - 20mL Vial 2 - 40mL Vials	- Trisodium Phosphate	

Comments: Dissolved Hydrogen: Start @ 0947/Stop @ 1017 (120 mL/min)

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-11S_120612 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 0.8				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/6/12 1300

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1205	6.40	150	0.00	6.37	3.61	20.0	4.43	13.39	2.84	101	water clear
1210	7.35	150	0.25	6.46	1.90	13.0	4.43	13.48	2.84	106	water clear
1215	7.70	150	0.50	6.54	0.02	13.0	4.42	13.84	2.83	115	water clear
1220	7.80	150	0.75	6.56	0.00	10.0	4.36	14.38	2.79	118	water clear
1225	7.90	150	1.00	6.57	0.00	13.0	4.31	14.66	2.76	119	water clear
1230	8.00	150	1.25	6.58	0.00	8.7	4.29	14.78	2.75	121	water clear
1235	8.15	150	1.50	6.59	0.00	4.1	4.26	14.90	2.73	123	water clear
1240	8.30	150	1.75	6.62	0.00	2.8	4.24	14.90	2.71	120	water clear
1245	8.40	150	2.00	6.63	0.00	2.7	4.25	14.88	2.72	118	water clear
1250	8.50	150	2.25	6.65	0.00	2.1	4.26	14.91	2.72	117	water clear
1255	8.60	150	2.50	6.66	0.00	3.3	4.26	14.98	2.72	118	water clear
1300	8.70	150	2.75	6.67	0.00	1.2	4.24	18.09	2.72	118	water clear

Sampling Data

Method: Low Flow Date/Time: 12/6/12 1300 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.67	Alkalinity (g/g)	700.00
Spec. Cond.(mS/cm)	4.24	Carbon Dioxide (mg/L)	330
Turbidity (NTU)	1.20	Ferrous Iron (mg/L)	0.80
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	15.09	Hydrogen Sulfide (mg/L)	0.80
ORP (mv)	118		
TDS (g/L)	2.72		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-1D_120612 Well Diameter: 4 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
10.3 Casing Volumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/6/12 1100

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
930	7.40	150	0.00	5.49	12.59	750	3.56	9.93	2.28	-61	water gray
935	7.80	150	1.25	5.71	7.09	340	3.54	10.44	2.27	-65	water gray
940	8.10	150	0.50	5.74	0.96	230	3.47	11.43	2.23	-75	water gray
945	8.30	150	0.75	5.76	0.06	210	3.39	12.09	2.18	-83	water gray
950	8.60	150	1.00	5.77	0.00	260	3.33	12.38	2.14	-90	water gray
955	8.80	150	1.25	5.77	0.00	320	3.28	12.29	2.10	-97	water gray
1000	9.00	150	1.50	5.77	0.00	400	3.25	11.77	2.08	-103	water gray
1005	9.10	150	1.75	5.77	0.00	380	3.27	11.44	2.09	-107	water gray
1010	9.20	150	2.00	5.78	0.00	450	3.28	11.51	2.10	-111	water gray
1015	9.30	150	2.25	5.78	0.00	550	3.27	11.77	2.09	-114	water gray
1020	9.50	150	2.50	5.78	0.00	700	3.35	11.87	2.09	-119	water gray
1025	9.60	150	2.75	5.77	0.00	950	3.23	12.02	2.07	-126	water gray
1030	9.80	150	3.00	5.77	0.00	950	3.22	12.18	2.06	-130	water gray

Sampling Data

Method: Low Flow Date/Time: 12/6/12 1100 Total Volume of Water purged: 4.75 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.75	Alkalinity (g/g)	1200
Spec. Cond.(mS/cm)	3.23	Carbon Dioxide (mg/L)	-
Turbidity (NTU)	overrange	Ferrous Iron (mg/L)	2.6
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.84	Hydrogen Sulfide (mg/L)	1.0
ORP (mv)	-145		
TDS (g/L)	2.11		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Well contains substrate - water gray - black

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-1D_120612 Well Diameter: 4 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
10.3 Casing Volumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/6/12 1100

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1035	10.00	150	3.50	5.77	0.00	1100.00	3.21	12.39	2.05	-135	water gray
1040	10.10	150	3.75	5.77	0.00	overrange	3.18	12.68	2.03	-138	water gray
1045	10.15	150	4.00	5.76	0.00	overrange	3.15	12.79	2.02	-142	water gray
1050	10.20	150	4.25	5.75	0.00	overrange	3.13	13.02	2.00	-145	water gray
1055	10.30	150	4.50	5.79	0.00	overrange	3.22	13.71	2.05	-149	water gray
1100	10.40	150	4.75	5.75	0.00	overrange	3.23	13.84	2.11	-145	water gray

Sampling Data

Method: Low Flow Date/Time: 12/6/12 1100 Total Volume of Water purged: 4.75 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.75	Alkalinity (g/g)	1200
Spec. Cond.(mS/cm)	3.23	Carbon Dioxide (mg/L)	-
Turbidity (NTU)	0.12	Ferrous Iron (mg/L)	2.6
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.84	Hydrogen Sulfide (mg/L)	1.0
ORP (mv)	-145		
TDS (g/L)	2.11		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Well contains substrte - water gray - black

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-2D_120612 Well Diameter: 2 Inches

Samplers: R. Becken Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 8.41				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Date/Time: 12/6/12 0745

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
805	9.50	65	1.00	6.12	0.00	2.40	2.87	8.17	1.84	-323	clear
815	10.05	65	1.75	6.12	0.00	2.20	2.85	7.72	1.82	-326	vegetable oil
825	10.70	65	2.10	6.12	0.00	2.00	2.86	7.35	1.83	-325	odor
835	11.52	65	2.25	6.08	0.00	5.02	2.87	8.31	1.83	-330	
845	12.40	65	3.50	6.12	0.00	5.22	2.87	9.21	1.84	-335	
855	13.03	65	4.10	6.18	0.00	5.17	2.88	9.52	1.84	-339	
905	13.89	65	4.60	6.22	0.00	5.07	2.82	9.98	1.80	-343	slightly cloudy
915	14.48	65	5.50	6.30	0.00	5.46	2.80	10.08	1.79	-348	
925	15.35	65	6.80	6.40	0.00	5.81	2.87	10.59	1.83	-362	
935	15.84	65	7.70	6.42	0.00	6.12	2.87	11.04	1.85	-362	
945	16.34	65	8.20	6.40	0.00	6.08	2.87	11.13	1.85	-360	
955	17.18	65	9.00	6.32	0.00	6.10	2.87	11.64	1.85	-358	
1005	17.44	65	10.50	6.30	0.00	5.90	2.87	11.90	1.85	-357	

Sampling Data

Method: Date/Time: 12/6/12 1010 Total Volume of Water purged: 2.6

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.30	Alkalinity (g/g)	760
Spec. Cond.(mS/cm)	2.87	Carbon Dioxide (mg/L)	464
Turbidity (NTU)	5.90	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	orange
Temp.(°C)	11.90	Hydrogen Sulfide (mg/L)	5+
ORP (mv)	-357		
TDS (g/L)	1.85		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	Filter 1: 550mL Filter 2: 250mL	None	filtered
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-3D_120512 Well Diameter: 2 Inches

Samplers: R. Becken Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 8.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Date/Time: 12/5/12 0920

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
922	8.99	100	~300 ml	6.61	0.00	105.0	2.72	11.90	1.74	-344	clear
928	9.01	100	~1	6.68	0.00	110.0	2.72	11.18	1.74	-342	clear/slight sheen
938	9.20	100	1.25	6.71	0.00	92.9	2.69	10.56	1.72	-342	
948	9.57	100	~2	6.73	0.00	86.6	2.71	10.06	1.73	-342	vegetable oil
958	9.71	100	2.20	6.70	0.00	13.0	2.71	9.85	1.74	-338	odor
1008	9.73	100	2.40	6.58	0.00	11.0	2.71	9.69	1.74	-334	
1018	9.74	100	1 gal	6.65	0.00	7.1	2.72	9.23	1.74	-329	
1028	9.80	100	4.00	6.63	0.00	7.6	2.74	9.54	1.75	-319	
1038	9.83	100	4.25	6.59	0.00	5.1	2.75	9.60	1.76	-328	
1048	9.89	100	5.00	6.50	0.00	7.3	2.75	9.41	1.76	-328	
1058	9.90	100	5.50	5.95	0.00	9.3	2.76	9.19	1.76	-326	
1108	9.90	100	6.00	6.48	0.00	14.0	2.76	8.94	1.77	-319	
1118	9.90	100	6.30	6.46	0.00	12.0	2.75	8.51	1.76	-311	

Sampling Data

Method: Date/Time: 12/5/12 1200 Total Volume of Water purged: 2.6

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.36	Alkalinity (g/g)	1500.00
Spec. Cond.(mS/cm)	2.82	Carbon Dioxide (mg/L)	884
Turbidity (NTU)	15.00	Ferrous Iron (mg/L)	0.20
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	8.83	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-315		
TDS (g/L)	1.81		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-3D_120512 Well Diameter: 2 Inches

Samplers: R. Becken Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 8.0				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Date/Time: 12/5/12 0920

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
1128	9.90	100	7.0	6.44	0.00	13.0	2.79	8.61	1.79	-316	
1138	9.90	100	7.8	6.38	0.00	16.0	2.82	8.51	1.80	-318	
1148	9.92	100	8.5	6.36	0.00	16.0	2.82	8.79	1.81	-319	
1158	9.93	100	2.6 gal	6.36	0.00	15.0	2.82	8.83	1.81	-315	

Sampling Data

Method: Date/Time: 12/5/12 1200 Total Volume of Water purged: 2.6

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.36	Alkalinity (g/g)	1500.00
Spec. Cond.(mS/cm)	2.82	Carbon Dioxide (mg/L)	884
Turbidity (NTU)	15.00	Ferrous Iron (mg/L)	0.20
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	8.83	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-315	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.81		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-4D_120512 Well Diameter: 2 Inches

Samplers: R. Becken Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 8.45				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Date/Time: 12/5/12 1340

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
1350	8.75	140	~1	7.16	0.00	48.0	3.14	11.10	2.01	-308	clear
1400	8.75	140	~1.75	7.04	0.00	24.0	3.35	10.61	2.14	-301	vegetable oil
1410	8.75	140	~2.2	6.90	0.00	21.8	3.50	10.73	2.24	-300	odor
1415	8.75	140	3.50	6.87	0.00	19.2	3.60	10.77	2.30	-296	
1420	8.75	140	4.20	6.32	0.00	16.5	3.64	10.91	2.33	-295	
1425	8.75	140	4.75	6.82	0.00	15.9	3.66	11.01	2.34	-294	
1430	8.75	140	5.30	6.78	0.00	16.2	3.69	10.95	2.37	-293	
1435	8.75	140	6.00	6.77	0.00	14.4	3.74	10.88	2.39	-293	
1440	8.75	140	6.75	6.74	0.00	16.5	3.75	10.93	2.40	-292	
1445	8.76	140	7.20	6.71	0.00	17.6	3.80	10.95	2.43	-292	
1450	8.76	140	7.80	6.70	0.00	19.6	3.88	10.93	2.45	-292	
1500	8.76	140	8.60	6.70	0.00	20.8	3.88	10.94	2.46	-292	
1505	8.77	140	9.10	6.69	0.00	22.4	3.88	10.91	2.48	-291	

Sampling Data

Method: Date/Time: 12/5/12 1525 Total Volume of Water purged: 2.6 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.67	Alkalinity (g/g)	480.00
Spec. Cond.(mS/cm)	3.38	Carbon Dioxide (mg/L)	950
Turbidity (NTU)	24.00	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	10.82	Hydrogen Sulfide (mg/L)	1.00
ORP (mv)	-291		
TDS (g/L)	2.50		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-4D_120512 Well Diameter: 2 Inches

Samplers: R. Becken Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 8.45				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Date/Time: 12/5/12 1340

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	L		mg/L	NTU	mS/cm	°C	g/L	mv	
1510	8.77	140	10.00	6.68	0.00	23.0	3.88	10.88	2.49	-291	
1520	8.77	140	2.6 gal	6.67	0.00	24.0	3.88	10.82	2.50	-291	

Sampling Data

Method: Date/Time: 12/5/12 1525 Total Volume of Water purged: 2.6 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.67	Alkalinity (g/g)	480.00
Spec. Cond.(mS/cm)	3.88	Carbon Dioxide (mg/L)	950
Turbidity (NTU)	24.00	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	10.82	Hydrogen Sulfide (mg/L)	1.00
ORP (mv)	-291		
TDS (g/L)	2.50		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-5D_121312 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 2.7				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/13/12 0905

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
805	8.70	200	0.00	4.87	36.50	>1000	3.03	6.96	1.94	-42	water white
810	9.25	200	0.25	4.99	13.84	>1000	3.47	6.94	2.20	-68	water white
815	9.60	200	0.50	5.18	0.00	>1000	4.12	6.97	2.63	-142	water white
820	9.60	200	0.75	5.26	0.00	>1000	4.15	7.08	2.65	-224	water white
825	9.70	200	1.00	5.28	0.00	>1000	4.11	7.22	2.63	-285	water white
830	9.80	200	1.25	5.30	0.00	>1000	4.09	7.41	2.62	-314	water white
835	10.00	200	1.50	5.32	0.00	>1000	4.13	7.83	2.64	-326	water white
840	10.18	200	1.75	5.35	0.00	>1000	4.19	8.30	2.68	-333	water white
845	10.30	200	2.00	5.38	0.00	>1000	4.20	8.97	2.69	-337	water white
850	10.40	200	2.25	5.39	0.00	>1000	4.20	9.60	2.69	-339	water white
855	10.50	200	2.50	5.41	0.00	>1000	4.21	10.16	2.70	-340	water white
900	10.50	200	2.75	5.43	0.00	>1000	4.25	10.64	2.72	-341	water white
905	10.60	200	3.00	5.44	0.00	>1000	4.30	10.77	2.75	-342	water white

Sampling Data

Method: Low Flow Date/Time: 12/13/12 0905 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.44	Alkalinity (g/g)	--
Spec. Cond.(mS/cm)	4.30	Carbon Dioxide (mg/L)	--
Turbidity (NTU)	>1000	Ferrous Iron (mg/L)	--
DO (mg/L)	0.00	Manganese (mg/L)	--
Temp.(°C)	10.77	Hydrogen Sulfide (mg/L)	2.0
ORP (mv)	-342		
TDS (g/L)	2.75		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: - water contains substrate

- water too white and cloudy for Hach tests

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-6D_120512 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.50				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/5/12 0810

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
810	7.50	200	0.00	6.59	5.51	26.0	3.61	12.10	2.30	-282	clear susp solids, strong odor
820	10.44	200	0.50	6.82	0.00	19.0	3.64	12.25	2.33	-292	same
830	11.70	100	0.75	6.83	0.00	12.0	3.66	12.15	2.34	-291	clear, strong odor
835	12.65	100	1.00	6.84	0.00	11.0	3.64	12.25	2.32	-291	same
840	13.75	100	1.20	6.84	0.00	10.0	3.61	12.53	2.31	-291	same
845	15.18	100	1.40	6.85	0.00	9.5	3.52	12.71	2.26	-292	same
850	16.80	100	1.60	6.87	0.00	18.0	3.45	12.97	2.21	-294	clear, few solids
900	18.25	200	2.00	6.88	0.00	17.0	3.23	13.32	2.06	-295	same
905	19.30	200	2.30	6.90	0.00	27.0	3.13	13.36	2.00	-295	same
910	21.60	200	2.50	6.90	0.00	31.0	3.09	14.60	1.99	-293	same
915	Dry										

Sampling Data

Method: Dedicated Tubing Date/Time: 12/6/12 0800 Total Volume of Water purged: 2.56

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.90	Alkalinity (g/g)	960.00
Spec. Cond.(mS/cm)	3.09	Carbon Dioxide (mg/L)	434
Turbidity (NTU)	31.00	Ferrous Iron (mg/L)	0.60
DO (mg/L)	0.00	Manganese (mg/L)	orange
Temp.(°C)	14.60	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-293	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.99		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	Filger 1: 500mL Filter 2: 460mL		
Hydrogen, Acetylene			

Comments: Collect sample PMW-6D_120612

Microbial census: Filter 1: 500mL, Filter 2: 460mL, well ran dry, collected sample the day after

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-7D_121012 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.65				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Date/Time: 12/10/12 1035

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	Gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1035	6.68	200	0.00	6.45	0.00	91.8	3.88	13.84	2.50	-293	clear, slight odor
1045	7.23	200	0.50	6.64	0.00	221	4.05	14.41	2.60	-348	clear
1055	7.24	200	1.00	6.25	0.00	55	3.83	14.07	2.45	-343	clear, slight odor
1100	7.25	200	1.30	6.20	0.00	55	3.77	14.28	2.10	-342	same
1105	7.24	200	1.50	6.18	0.00	60	3.80	14.21	2.43	-343	clear, suspended substrate
1110	7.23	200	1.80	6.12	0.00	65	3.84	14.19	2.46	-344	same
1115	7.28	200	2.00	6.06	0.00	75	3.93	14.40	2.49	-346	same
1120	7.30	200	2.20	5.97	0.00	90	3.93	14.47	2.55	-347	clear, slight odor, susp solids
1125	7.30	200	2.35	5.98	0.00	85	3.97	14.47	2.52	-344	same
1130	7.31	200	2.50	5.99	0.00	80	3.95	14.48	2.53	-344	same
1135	7.32	200	2.60	5.99	0.00	80	3.95	14.59	2.53	-344	same
1140	7.33	200	3.00	5.98	0.00	80	3.96	14.56	2.54	-345	clear, suspended solids, slight odo
1145	7.33	200	3.20	5.95	0.00	80	3.98	14.53	2.55	-344	same

Sampling Data

Method: dedicated Tubing Date/Time: 12/10/12 1143 Total Volume of Water purged: 3.2

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.95	Alkalinity (g/g)	1140.00
Spec. Cond.(mS/cm)	3.98	Carbon Dioxide (mg/L)	700
Turbidity (NTU)	80.00	Ferrous Iron (mg/L)	0.20
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	14.53	Hydrogen Sulfide (mg/L)	4.00
ORP (mv)	-344	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.55		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-8D_121312 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 2.7				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/13/12 1105

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1005	7.55	200	0.00	6.30	14.21	78.5	3.70	12.85	2.37	-363	water cloudy
1010	7.55	200	0.25	6.32	7.54	34.0	3.70	12.86	2.37	-372	water cloudy
1015	7.55	200	0.50	6.32	0.10	35.5	3.72	12.85	2.38	-384	water cloudy
1020	7.55	200	0.75	6.29	0.00	29.2	3.82	13.00	2.44	-387	water cloudy
1025	7.60	200	1.00	6.25	0.00	35.3	3.93	13.23	2.51	-386	water clear
1030	7.60	200	1.25	6.22	0.00	30.8	4.08	13.22	2.61	-386	water clear
1035	7.60	200	1.50	6.19	0.00	30.9	4.17	13.19	2.67	-384	water clear
1040	7.65	200	1.75	6.17	0.00	29.4	4.27	13.28	2.73	-382	water clear
1045	7.65	200	2.00	6.16	0.00	26.5	4.36	13.54	2.79	-382	water clear
1050	7.70	200	2.25	6.13	0.00	26.6	4.39	13.75	2.81	-381	water clear
1055	7.80	200	2.50	6.11	0.00	26.2	4.43	13.91	2.84	-380	water clear
1100	7.80	200	2.75	6.09	0.00	25.8	4.48	14.19	2.86	-380	water clear
1105	7.80	200	3.00	6.06	0.00	27.3	4.49	14.31	2.88	-378	water clear

Sampling Data

Method: Low Flow Date/Time: 12/13/12 1105 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.06	Alkalinity (g/g)	1440
Spec. Cond.(mS/cm)	4.49	Carbon Dioxide (mg/L)	842
Turbidity (NTU)	27.30	Ferrous Iron (mg/L)	0.1
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	14.31	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-378		
TDS (g/L)	2.88		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-9D_120712 Well Diameter: 4 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)?

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.55				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/7/12 0820

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
820	7.55	200	0.0	5.60	0.08	>1000	4.20	10.88	2.69	-153	heavy veg oil
830	8.45	200	0.5	5.77	0.00	>1000	4.55	11.00	2.91	-238	same
840	8.90	200	1.0	5.77	0.00	>1000	4.52	11.64	2.89	-255	same
850	9.10	200	1.4	5.76	0.00	>1000	4.36	13.03	2.80	-275	med veg oil
900	9.40	200	1.8	5.83	0.00	>1000	4.41	14.17	2.82	-295	same
905	9.40	200	2.0	5.83	0.00	>1000	4.40	14.30	2.82	-299	same
910	9.40	200	2.2	5.83	0.00	>1000	4.40	14.42	2.82	-303	heavy veg oil
915	9.45	200	2.5	5.85	0.00	>1000	4.43	14.46	2.84	-305	same
920	9.48	200	2.8	5.85	0.00	>1000	4.47	14.48	2.86	-309	same
925	9.49	200	3.1	5.86	0.00	>1000	4.51	14.31	2.89	-310	same
930	9.50	200	3.4	5.89	0.00	>1000	4.56	14.27	2.92	-311	heavy beg oil
935	9.47	200	3.8	5.90	0.00	>1000	4.58	14.25	2.93	-312	same
940	9.48	200	4.2	5.91	0.00	>1000	4.59	14.23	2.93	-314	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/7/2012 9:40 Total Volume of Water purged: 4.2

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.91	Alkalinity (g/g)	Too dark
Spec. Cond.(mS/cm)	4.59	Carbon Dioxide (mg/L)	to see
Turbidity (NTU)	>1000	Ferrous Iron (mg/L)	
DO (mg/L)	0.00	Manganese (mg/L)	
Temp.(°C)	14.23	Hydrogen Sulfide (mg/L)	5+
ORP (mv)	-314		
TDS (g/L)	2.93		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-10D_121212 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.39				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/12/12 1008

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1018	6.81	200	0.52	5.75	1.44	400	3.36	12.49	2.16	-108	cloudy gray w/ black particles
1028	7.17	200	1.04	5.74	0.40	450	3.49	12.23	2.23	-111	same
1038	7.20	200	1.56	5.74	0.00	260	3.22	12.60	2.06	-121	same
1043	7.21	200	1.82	5.74	0.00	230	3.06	12.96	1.96	-126	slightly clearer w/ particles
1048	7.22	200	2.08	5.75	0.00	200	2.97	13.02	1.90	-129	same
1053	7.22	200	2.34	5.75	0.00	240	2.84	12.97	1.81	-130	same
1058	7.24	200	2.60	5.76	0.00	250	2.77	12.64	1.77	-143	same
1103	7.27	200	2.86	5.79	0.00	236	2.71	12.73	1.74	-266	same
1108	7.29	200	3.12	5.79	0.00	230	2.71	12.76	1.73	-268	same
1113	7.30	200	3.38	5.79	0.00	232	2.71	12.70	1.73	-268	same

Sampling Data

Method: Peristaltic Date/Time: 12/12/12 1115 Total Volume of Water purged: 3.75 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.79	Alkalinity (g/g)	560
Spec. Cond.(mS/cm)	2.71	Carbon Dioxide (mg/L)	264
Turbidity (NTU)	232.0	Ferrous Iron (mg/L)	0.7
DO (mg/L)	0.00	Manganese (mg/L)	0
Temp.(°C)	12.70	Hydrogen Sulfide (mg/L)	0.5
ORP (mv)	-268		
TDS (g/L)	1.73		

* NOTE * HACH test kits are only required for MNA analysis wells.

(VOAS Effervescing)

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Installed new tubing down to fracture.

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-11D_120612 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.76				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/6/12 1045

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1055	7.84	150	0.4	6.16	0.00	800	1.88	12.72	1.66	-275	cloudy gray
1105	7.88	150	0.8	6.11	0.00	796	1.69	13.18	1.08	-308	same
1115	7.81	150	1.2	6.11	0.00	434	1.69	13.51	1.07	-307	same
1120	7.81	150	1.4	6.21	0.00	316	1.62	13.49	1.04	-310	same
1125	7.81	150	1.6	6.21	0.00	308	1.62	13.38	1.04	-311	same w/ black particles
1130	7.81	150	1.8	6.24	0.00	114	1.61	13.56	1.03	-312	slightly cloudy w/ particles
1135	7.81	150	2.0	6.25	0.00	96.2	1.61	13.48	1.03	-313	same
1140	7.81	150	2.2	6.29	0.00	52.9	1.59	13.46	1.02	-314	same
1145	7.81	150	2.4	6.29	0.00	53.7	1.59	13.44	1.02	-315	same
1150	7.81	150	2.6	6.32	0.00	55.1	1.59	14.16	1.02	-319	same
1155	7.80	150	2.8	6.32	0.00	56	1.58	14.08	1.01	-321	same
1200	7.80	150	3.0	6.30	0.00	56.5	1.57	14.10	1.01	-321	same

Sampling Data

Method: Peristaltic Date/Time: 12/6/12 1205 Total Volume of Water purged: 5.75 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.30	Alkalinity (g/g)	528.00
Spec. Cond.(mS/cm)	1.57	Carbon Dioxide (mg/L)	122.00
Turbidity (NTU)	56.50	Ferrous Iron (mg/L)	0.10
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	14.10	Hydrogen Sulfide (mg/L)	1.00
ORP (mv)	-321		
TDS (g/L)	1.01		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 - Filters	None	Filtered 250mL
Hydrogen, Acetylene	1 - 20mL Vial 2 - 40mL Vials	None Na_3PO_4	

Comments: Dissolved Hydrogen start @ 1227/Stop @ 1247 (150 mL/min)

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-12D_121012 Well Diameter: 4" steel Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): TD = 23.27				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Peristaltic - low flow Date/Time: 12/10/12 1450

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1450	6.30	200	0.00	5.89	3.06	OR	2.93	11.51	1.86	-203	Milky, Heavy veg oil
1500	7.04	200	0.70	5.31	0.00	OR	2.77	13.52	1.77	-232	milky gray, heavy veg oil
1510	7.10	200	1.30	5.26	0.00	OR	2.72	13.86	1.74	-237	milky gray, heavy veg oil
1515	7.10	200	1.70	5.24	0.00	OR	2.71	13.80	1.74	-239	milky gray, heavy veg oil
1520	7.08	200	2.00	5.23	0.00	OR	2.72	13.43	1.74	-238	milky gray, odor, veg oil
1525	7.10	200	2.30	5.21	0.00	OR	2.73	13.38	1.75	-238	milky gray, odor, veg oil
1530	7.09	200	2.60	5.20	0.00	OR	2.75	13.33	1.76	-238	milky gray, odor, veg oil
1535	7.08	200	2.90	5.19	0.00	OR	2.75	13.31	1.76	-237	milky gray, odor, veg oil
1540	7.08	200	3.30	5.18	0.00	OR	2.75	13.30	1.76	-237	milky gray, odor, veg oil

Sampling Data

Method: Peristatic - low flow Date/Time: 12/10/12 1540 Total Volume of Water purged: 3.3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.18	Alkalinity (g/g)	Too
Spec. Cond.(mS/cm)	2.75	Carbon Dioxide (mg/L)	Dark
Turbidity (NTU)	Overrange	Ferrous Iron (mg/L)	For
DO (mg/L)	0.00	Manganese (mg/L)	Tests
Temp.(°C)	13.30	Hydrogen Sulfide (mg/L)	5+
ORP (mv)	-237		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-13D_121212 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.42				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/12/12 0804

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	Gal		mg/L	NTU	mS/cm	°C	g/L	mv	
814	7.33	225	0.59	5.43	0.38	170	3.47	9.61	2.23	-56	slightly cloudy w/ black particles
824	8.19	225	1.18	5.46	0.00	150	3.49	10.80	2.24	-69	same - turned black after 1 min.
829	8.86	225	1.48	5.47	0.00	270	3.32	11.64	2.13	-74	same
834	8.88	225	1.77	5.49	0.00	190	3.32	11.57	2.13	-77	same
839	8.85	225	2.07	5.50	0.00	210	3.33	11.47	2.13	-81	same
844	8.80	225	2.36	5.50	0.00	180	3.33	11.52	2.13	-86	same
849	8.79	225	2.66	5.51	0.00	196	3.33	11.67	2.13	-91	same
854	8.77	225	2.95	5.61	0.00	189	3.32	11.95	2.12	-122	same
859	8.76	225	3.25	5.68	0.00	178	3.31	12.09	2.12	-142	same
904	8.75	225	3.54	5.74	0.00	129	3.30	12.30	2.11	-169	same
909	8.75	225	3.84	5.74	0.00	125	3.25	12.99	2.07	190	same
914	8.75	225	4.23	5.78	0.00	123	3.26	12.87	2.09	-196	same
919	8.73	225	4.53	5.78	0.00	120	3.26	12.69	2.09	-199	same

Sampling Data

Method: Peristaltic Date/Time: 12/12/12 0920 Total Volume of Water purged: 4.7 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.78	Alkalinity (g/g)	water turned
Spec. Cond.(mS/cm)	3.26	Carbon Dioxide (mg/L)	black - could not
Turbidity (NTU)	120	Ferrous Iron (mg/L)	run HACH test
DO (mg/L)	0.00	Manganese (mg/L)	analysis
Temp.(°C)	12.69	Hydrogen Sulfide (mg/L)	1.00
ORP (mv)	-199	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.09		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Installed new tubing down to fracture.

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-14D_121112 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Voumes (gal/ft.): 6.48				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/11/12 1442

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1452	6.52	225	0.59	5.93	0.00	over range	3.27	11.80	2.09	-221	cloudy, dark gray
1502	6.53	225	1.19	5.91	0.00	140	3.71	12.12	2.37	-256	slightly cloudy w/ particles
1507	6.54	225	1.48	5.90	0.00	110	3.82	12.19	2.45	-321	same - turning black
1512	6.54	225	1.78	5.91	0.00	65	3.86	12.12	2.47	-342	within 1 min.
1517	6.55	225	2.07	5.91	0.00	45	3.83	12.06	2.45	-349	same
1522	6.57	225	2.37	5.91	0.00	49	3.82	12.06	2.45	-347	same
1537	6.58	225	2.66	5.90	0.00	47	3.76	12.24	2.41	-354	same
1532	6.58	225	2.96	5.90	0.00	45	3.77	12.29	2.41	-355	same

Sampling Data

Method: Peristaltic Date/Time: 12/11/12 1535 Total Volume of Water purged: 3.25 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.90	Alkalinity (g/g)	water turned black
Spec. Cond.(mS/cm)	3.77	Carbon Dioxide (mg/L)	could not run
Turbidity (NTU)	45.00	Ferrous Iron (mg/L)	HACH kit
DO (mg/L)	0.00	Manganese (mg/L)	analysis
Temp.(°C)	12.29	Hydrogen Sulfide (mg/L)	1.00
ORP (mv)	-355	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.41		

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SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			
Total Meters	1 - 500 mL Plastic (unfiltered)	HN03	Unfiltered

Comments: Collected duplicate - PMW-140D_121112 @ 1201

(VOCS-3, MEE-2, C/N/S-2, Diss. Inorganics-1, TOC-2)

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-15D_120412 Well Diameter: 4 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.79				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/4/12 1305

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1305	7.79	200	0.00	7.06	0.00	750	1.54	17.53	0.983	-311	gray, solids, strong odor
1315	8.00	200	0.50	6.68	0.00	550	1.52	17.19	0.974	-346	same
1325	8.00	200	1.00	6.63	0.00	450	1.52	16.95	0.973	-352	same
1330	7.98	200	1.30	6.61	0.00	330	1.53	16.90	0.977	-353	same
1335	7.97	200	1.70	6.65	0.00	300	1.53	16.89	0.978	-355	grayish, solids, odor
1340	7.95	200	2.00	6.69	0.00	240	1.53	16.88	0.979	-357	same
1345	7.94	200	2.50	6.41	0.00	118	1.91	16.71	1.08	-349	gray, strong odor
1350	7.93	200	3.00	6.33	0.00	32.0	2.27	16.63	1.46	-343	gray-clear, few solids
1355	7.92	200	3.30	6.26	0.00	19.0	2.52	16.49	1.62	-348	same
1400	7.92	200	3.60	6.20	0.00	18.0	2.60	16.44	1.66	-345	same
1405	7.93	200	4.00	6.24	0.00	18.0	2.56	16.42	1.64	-348	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/4/12 1405 Total Volume of Water purged: 4.06

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.24	Alkalinity (g/g)	1080.00
Spec. Cond.(mS/cm)	2.56	Carbon Dioxide (mg/L)	270.00
Turbidity (NTU)	18.00	Ferrous Iron (mg/L)	0.20
DO (mg/L)	0.00	Manganese (mg/L)	whitish orange
Temp.(°C)	16.42	Hydrogen Sulfide (mg/L)	5.00
ORP (mv)	-348	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.64		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	Filter 1: 420 Filter 2: 420		
Hydrogen, Acetylene			

Comments: Collect sample PMW-15D, 120412 @1405

Miscrobial filter 1: 420mL, Filter 2: 420mL

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-16D_121112 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.42				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/11/12 1243

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1253	6.45	200	0.52	6.21	0.00	>1000	2.11	13.84	1.35	-191	cloudy black
1303	6.46	200	1.04	6.10	0.00	110	3.43	14.00	2.20	-263	clearer w/ particles
1313	6.46	200	1.56	6.11	0.00	80	3.35	13.97	2.14	-289	same
1318	6.46	200	1.82	6.13	0.00	50	3.16	13.83	2.03	-295	same
1323	6.47	200	2.08	6.13	0.00	50	3.14	13.85	2.01	-296	same
1328	6.47	200	2.34	6.13	0.00	36	3.10	13.24	1.98	-297	same
1333	6.48	200	2.60	6.14	0.00	35	3.07	13.28	1.97	-297	same
1338	6.48	200	2.86	6.14	0.00	35	3.06	13.13	1.95	-297	same

Sampling Data

Method: Peristaltic Date/Time: 12/11/12 1340 Total Volume of Water purged: 3.1 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.14	Alkalinity (g/g)	700
Spec. Cond.(mS/cm)	3.06	Carbon Dioxide (mg/L)	834
Turbidity (NTU)	35.00	Ferrous Iron (mg/L)	0.2
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.13	Hydrogen Sulfide (mg/L)	1.0
ORP (mv)	-297	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.95		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Installed new tubing down to fracture.

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: PMW-17D_120412 Well Diameter: 4 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.98				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/4/12 0825

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
825	7.98	200	0.00	5.98	0.00	> 1000	2.45	15.76	1.560	-287	milky gray, substrate odor
835	8.10	200	0.50	6.18	0.00	500	2.29	16.16	1.47	-334	same
845	8.02	200	1.00	6.21	0.00	230	2.26	16.21	1.45	-343	grayish susp solids, strong odor
850	8.02	200	1.50	6.20	0.00	200	2.26	16.26	1.45	-345	same
855	8.02	200	2.00	6.20	0.00	180	2.26	16.31	1.45	-347	same
900	8.02	200	2.40	6.21	0.00	170	2.25	16.34	1.44	-350	grayish, susp solids, strong odor
905	8.04	200	2.60	6.23	0.00	160	2.23	16.40	1.43	-353	same
910	8.04	200	3.00	6.25	0.00	160	2.21	16.46	1.42	-356	same
915	8.04	200	3.30	6.21	0.00	140	2.20	16.48	1.41	-355	clear/gray susp solids
920	8.05	200	3.60	6.18	0.00	130	2.20	16.50	1.41	-353	same
930	8.05	200	4.0	6.19	0.00	95	2.18	16.60	1.40	-358	gray, substrate odor
935	8.05	200	4.3	6.20	0.00	85	2.17	16.65	1.39	-357	same
940	8.05	200	4.5	6.22	0.00	75	2.17	16.72	1.39	-357	grayish, odor

Sampling Data

Method: Dedicated tubing Date/Time: 12/4/12 0940 Total Volume of Water purged: 4.56

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.22	Alkalinity (g/g)	water too
Spec. Cond.(mS/cm)	2.17	Carbon Dioxide (mg/L)	dark for
Turbidity (NTU)	75.00	Ferrous Iron (mg/L)	visual
DO (mg/L)	0.00	Manganese (mg/L)	analysis
Temp.(°C)	16.72	Hydrogen Sulfide (mg/L)	5+
ORP (mv)	-357		
TDS (g/L)	1.39		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	Filter 1: 1230mL Filter 2: 195mL		
Hydrogen, Acetylene	2 VOAS 1 Vial	NaPo4	

Comments: Collected sample PMW-17_12/04/12@0940

Microbial filter 1: 2330mL Filter 2: 195mL. Water turned black in mason jar, Unable to do Hach kits.

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: RMW-1D_121212 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.)				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Geopump Date/Time: 12/12/12 1055

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	mL/min	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1055	6.50	200	0.00	6.62	5.93	76.40	1.94	10.32	1.21	-111	clear, slight odor
1105	6.55	200	0.80	6.67	0.00	86.20	1.84	12.85	1.18	-134	same
1115	6.55	200	1.60	6.68	0.00	65.10	1.83	12.97	1.17	-131	same
1125	6.55	200	2.10	6.68	0.00	105.00	1.82	13.09	1.16	-124	clear, odor
1130	6.55	200	2.50	6.68	0.00	101.00	1.82	13.18	1.16	-121	same
1135	6.55	200	2.80	6.68	0.00	92.00	1.81	13.26	1.16	-118	same
1140	6.55	200	3.10	6.67	0.00	49.30	1.81	13.33	1.16	-117	same
1145	6.55	200	3.30	6.66	0.00	11.40	1.80	13.46	1.15	-115	same
1150	6.55	200	3.70	6.67	0.00	12.20	1.80	13.43	1.15	-113	same
1155	6.55	200	4.10	6.67	0.00	9.81	1.80	13.40	1.15	-111	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/12/12 1155 Total Volume of Water purged: 4.1 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.67	Alkalinity (g/g)	360
Spec. Cond.(mS/cm)	1.80	Carbon Dioxide (mg/L)	92
Turbidity (NTU)	9.81	Ferrous Iron (mg/L)	0.6
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.40	Hydrogen Sulfide (mg/L)	0.5
ORP (mv)	-111	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.15		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: RMW-2D_120412 Well Diameter: 2 Inches

Samplers: R. Piurek Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): DTW = 7.35				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/4/12 1300

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1320	7.35	200	0.00	6.34	1.14	>1000	2.91	16.81	1.90	-224	white substrate
1330	8.72	200	0.50	6.02	0.00	>1000	3.47	16.63	2.22	-318	cloudy white/gray
1340	8.78	200	1.00	6.13	0.00	>1000	3.49	16.55	2.23	-313	cloudy white/gray
1350	8.82	200	1.50	6.14	0.00	>1000	3.48	16.50	2.23	-307	cloudy gray
1400	8.85	200	1.80	6.15	0.00	>1000	3.59	16.46	2.30	-308	cloudy gray
1410	8.90	200	2.50	6.17	0.00	>1000	3.66	16.44	2.35	-318	cloudy gray
1415	8.90	200	2.70	6.19	0.00	>1000	3.72	16.43	2.38	-320	cloudy gray
1420	8.90	200	3.00	6.25	0.00	>1000	3.74	16.43	2.39	-327	cloudy gray

Sampling Data

Method: Low Flow Date/Time: 12/4/12 1425 Total Volume of Water purged: ~3.0 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.25	Alkalinity (g/g)	Too Dark
Spec. Cond.(mS/cm)	3.74	Carbon Dioxide (mg/L)	For Analysis
Turbidity (NTU)	>1000	Ferrous Iron (mg/L)	
DO (mg/L)	0.00	Manganese (mg/L)	
Temp.(°C)	16.43	Hydrogen Sulfide (mg/L)	4.00
ORP (mv)	-327	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.39		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 Filters	1st - 44mL 2nd - 48mL	
Hydrogen, Acetylene			

Comments: MS/MSD Collected for VOC's (RMW-2D_120412MS & RMW-2D_120412 MSD)

Substrate in purge water

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: RMW-3D_120612 Well Diameter: 2 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 3.2				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/6/12 1510

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1410	7.70	150	0.00	6.50	15.87	>1000	3.08	14.86	1.97	-244	water cloudy white
1415	7.80	150	0.25	6.65	7.48	>1000	2.81	14.62	1.81	-261	water cloudy white
1420	7.80	150	0.50	6.73	0.00	>1000	2.17	14.24	1.41	-292	water cloudy white
1425	7.80	150	0.75	6.69	0.00	1000	1.71	14.10	1.10	-297	water cloudy white
1430	7.80	150	1.00	6.74	0.00	600	1.62	14.12	1.04	-298	water cloudy white
1435	7.80	150	1.25	6.79	0.00	400	1.58	14.10	1.01	-299	water cloudy white
1440	7.80	150	1.50	6.83	0.00	290	1.57	14.03	1.01	-300	water cloudy white
1445	7.80	150	1.75	6.86	0.00	170	1.57	13.94	1.00	-301	water slightly cloudy
1450	7.80	150	2.00	6.88	0.00	120	1.57	13.81	1.00	-301	water slightly cloudy
1455	7.80	150	2.25	6.89	0.00	95	1.57	13.71	1.00	-301	water slightly cloudy
1500	7.80	150	2.50	6.90	0.00	70	1.57	13.62	1.00	-301	water slightly cloudy
1505	7.80	150	2.75	6.91	0.00	60	1.57	13.52	1.00	-301	water clearer
1510	7.80	150	3.00	6.91	0.00	50	1.57	13.45	1.00	-301	water clearer

Sampling Data

Method: Low Flow Date/Time: 12/6/12 1510 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.91	Alkalinity (g/g)	660
Spec. Cond.(mS/cm)	1.57	Carbon Dioxide (mg/L)	222
Turbidity (NTU)	50.00	Ferrous Iron (mg/L)	0.5
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.45	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-301		
TDS (g/L)	1.00		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: RMW-4D_121012 Well Diameter: 2 Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.00				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: ow Flow - dedicated Tubir Date/Time: 12/10/2012 12:40

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1240	7.00	200	0.00	6.38	0.12	109	2.40	11.67	1.54	-112	clear, slight odor
1250	8.48	200	0.50	6.56	0.00	106	2.56	13.76	1.63	-369	same
1300	9.10	200	1.00	6.12	0.00	11	2.42	14.11	1.55	-364	clear, slight odor
1310	9.18	200	1.50	5.94	0.00	48	2.88	14.21	1.85	-353	same
1315	9.19	200	2.00	5.92	0.00	60	3.02	14.17	1.94	-350	same
1320	9.19	200	2.20	5.92	0.00	70	3.11	14.17	1.99	-348	same
1325	9.20	200	2.40	5.90	0.00	70	3.14	14.14	1.99	-347	clear, slight odor
1330	9.20	200	2.70	5.86	0.00	65	3.28	14.14	2.10	-345	cloudy, slight odor
1335	9.20	200	2.90	5.85	0.00	65	3.33	14.20	2.13	-344	same
1340	9.20	200	3.20	5.85	0.00	70	3.36	14.15	2.16	-343	same

Sampling Data

Method: Low Flow Date/Time: 12/10/12 1340 Total Volume of Water purged:

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.85	Alkalinity (g/g)	1400
Spec. Cond.(mS/cm)	3.36	Carbon Dioxide (mg/L)	832
Turbidity (NTU)	70.00	Ferrous Iron (mg/L)	0.40
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	14.15	Hydrogen Sulfide (mg/L)	2.00
ORP (mv)	-343		
TDS (g/L)	2.16		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-7D_120612 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 7.82				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/6/12 0810

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
820	8.07	150	0.40	6.26	0.00	800.0	4.91	11.06	3.13	-235	cloudy dk gray
830	8.09	150	0.80	6.29	0.00	687.0	3.00	11.62	1.92	-279	black
840	8.10	150	1.20	6.28	0.00	626.0	2.78	11.97	1.80	-283	black
845	8.11	150	1.40	6.28	0.00	167.0	2.69	12.26	1.72	-287	clearer w/ black particles
850	8.12	150	1.60	6.28	0.00	14.3	2.67	12.54	1.71	-276	clear w/ particles
855	8.12	150	1.80	6.28	0.00	16.8	2.60	13.70	1.66	-278	water turns black
900	8.14	150	2.00	6.28	0.00	16.5	2.60	13.59	1.67	-278	within 30 secs
905	8.14	150	2.40	6.28	0.00	16.0	2.63	12.92	1.69	275	same
910	8.15	150	2.60	6.27	0.00	16.1	2.64	12.83	1.69	-271	same
915	8.16	150	2.80	6.27	0.00	16.4	2.66	12.88	1.70	-268	same

Sampling Data

Method: Peristaltic Date/Time: 12/6/12 0920 Total Volume of Water purged: 5.25 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.27	Alkalinity (g/g)	572.00
Spec. Cond.(mS/cm)	2.66	Carbon Dioxide (mg/L)	268
Turbidity (NTU)	16.40	Ferrous Iron (mg/L)	1.50
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	12.88	Hydrogen Sulfide (mg/L)	0.50
ORP (mv)	-268	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	1.70		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 Filters	None	Filtered 150/155 mL
Hydrogen, Acetylene			

Comments: Collected duplicate sample. INJ-70D_120612 @ 1201 (VOCS, MEE, Chloride/Nitrate/Sulfate, TOC, Diss. Inorganics)

Dissolved Hydrogen: Start @0947/Stop @1012 (150mL/min)

New tubing installed down to fracture

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-8D_120712 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.81				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/7/12 0752

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
802	8.14	150	0.40	6.13	0.04	983	0.324	13.61	0.210	-189	cloudy gray
812	8.14	150	0.80	6.34	0.00	854	0.338	15.06	0.220	-226	same
822	8.14	150	1.20	6.35	0.00	421	0.408	15.26	0.265	-239	same
832	8.16	150	1.60	6.28	0.00	329	0.570	15.29	0.362	-230	not as cloudy
837	8.16	150	1.80	6.16	0.00	298	0.682	15.28	0.437	-219	same
842	8.17	150	2.00	6.15	0.00	276	0.739	15.06	0.473	-227	same
847	8.23	150	2.20	6.15	0.00	277	0.756	15.06	0.483	-232	same
852	8.20	150	2.40	6.17	0.00	248	0.774	15.00	0.495	-247	same
857	8.21	150	2.60	6.19	0.00	236	0.780	15.01	0.500	-255	same
902	8.22	150	2.80	6.20	0.00	233	0.782	15.03	0.501	-258	same
907	8.23	150	3.00	6.21	0.00	231	0.784	15.04	0.502	-260	same

Sampling Data

Method: Peristaltic Date/Time: 12/7/12 0910 Total Volume of Water purged: 4.5 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.21	Alkalinity (g/g)	220.00
Spec. Cond.(mS/cm)	0.784	Carbon Dioxide (mg/L)	214
Turbidity (NTU)	231	Ferrous Iron (mg/L)	1.30
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	15.04	Hydrogen Sulfide (mg/L)	2.00
ORP (mv)	-260		
TDS (g/L)	0.502		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Collected MS/MSD (VOCS-6) labeled INJ-8D_120712 MS and INJ-8D_120712 MSD

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-9D_120512 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
7.61 to substrate				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/5/12 1046

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1056	7.65	225	0.55	6.15	0.00	>1000	0.44	13.37	0.251	-148	grey - cloudy
1106	7.90	225	1.10	5.97	0.00	>1000	1.72	12.97	1.09	-175	same
1116	8.00	200	1.60	5.87	0.00	>1000	2.40	12.70	1.53	-207	same
1121	8.05	200	1.86	5.89	0.00	4083	2.53	12.65	1.62	-212	same
1126	8.05	200	2.12	5.87	0.00	3057	2.78	12.39	1.78	-221	same
1131	8.09	200	2.38	5.88	0.00	2846	2.84	12.40	1.82	-224	same
1136	8.10	200	2.64	5.91	0.00	2643	2.86	12.52	1.83	-228	same
1141	8.14	200	2.90	5.91	0.00	2590	2.90	12.36	1.86	-230	same
1146	8.16	200	3.16	5.90	0.00	1842	2.95	12.02	1.89	-236	same
1151	8.16	200	3.42	5.90	0.00	1783	2.96	11.97	1.89	-238	same
1156	8.18	200	3.68	5.91	0.00	1601	2.95	12.19	1.89	-240	same
1201	8.20	200	3.94	5.92	0.00	1578	2.94	12.25	1.88	-241	same
1206	8.21	200	4.20	5.91	0.00	1630	2.95	12.26	1.89	-242	same

Sampling Data

Method: Peristaltic Date/Time: 12/5/12 1210 Total Volume of Water purged: 6.0 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.91	Alkalinity (g/g)	Water Turned
Spec. Cond.(mS/cm)	2.950	Carbon Dioxide (mg/L)	Dark Grey
Turbidity (NTU)	1630.00	Ferrous Iron (mg/L)	Couldn't See
DO (mg/L)	0.00	Manganese (mg/L)	Color Change
Temp.(°C)	12.26	Hydrogen Sulfide (mg/L)	.5
ORP (mv)	-242		
TDS (g/L)	1.89		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2 Filters	None	Filtered 150/140 mL
Hydrogen, Acetylene	1 - 20mL vial 2 - 40mL vials	None Na_3PO_4	

Comments: VOAS Effervescing; Dissolved Hydrogen: Start @ 1230/Stop @ 1250 (200mL/min)

Installed new tubing down to fracture

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-10D_120512 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft): 7.63				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/5/12 1416

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1426	8.00	250	0.60	6.64	0.00	over range	0.56	14.35	0.357	-141	cloudy grey
1436	7.89	200	1.05	6.39	0.00	1318.0	1.17	14.11	0.748	-293	same
1446	7.88	200	1.50	6.45	0.00	604.0	1.27	13.90	0.813	-344	same
1451	7.90	200	1.76	6.45	0.00	162.0	1.44	13.94	0.923	-354	same
1456	7.92	200	2.02	6.46	0.00	86.3	1.49	13.82	0.960	-353	clearer
1501	7.93	200	2.30	6.48	0.00	11.70	1.52	13.79	0.972	-352	clearer - water turns black
1506	7.94	200	2.56	6.48	0.00	11.6	1.32	13.69	0.982	-352	after 1-2 min.
1511	7.91	200	2.82	6.47	0.00	13.51	1.55	13.55	0.991	-352	same
1516	7.92	200	3.08	6.50	0.00	12.96	1.55	13.57	0.991	-353	same
1521	7.95	200	3.34	6.51	0.00	12.89	1.54	13.63	0.988	-353	same

Sampling Data

Method: Peristaltic Date/Time: 12/5/12 1525 Total Volume of Water purged: 5.5 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.51	Alkalinity (g/g)	748
Spec. Cond.(mS/cm)	1.54	Carbon Dioxide (mg/L)	404
Turbidity (NTU)	12.89	Ferrous Iron (mg/L)	.3
DO (mg/L)	0.00	Manganese (mg/L)	0
Temp.(°C)	13.63	Hydrogen Sulfide (mg/L)	2
ORP (mv)	-353		
TDS (g/L)	0.988		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	2-filters	None	Filtered 150/mL
Hydrogen, Acetylene	1 - 20mL Vial 2 - 40mL Vials	None Na_3PO_4	

Comments: VOAs Effervescing

Dissolved hydrogen: start @ 1553/Stop @ 1613 (200 mL/min)

New tubing installed down to fracture

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-11D_121212 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.47				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/12/12 1244

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1254	6.55	200	0.52	6.09	0.00	over range	4.54	13.06	2.91	-149	cloudy black
1304	6.61	200	1.04	6.07	0.00	500	4.57	13.24	2.92	-156	same
1314	6.70	200	1.56	6.05	0.00	over range	4.60	13.22	2.94	-158	same
1319	6.73	200	1.82	6.04	0.00	over range	4.61	13.31	2.95	-161	same
1324	6.75	200	2.08	6.04	0.00	665	4.54	13.29	2.91	-161	cloudy gray
1329	6.76	200	2.34	6.05	0.00	620	4.42	13.23	2.82	-162	same
1334	6.77	200	2.60	6.08	0.00	595	4.17	13.14	2.67	-164	same
1339	6.78	200	2.86	6.10	0.00	190	3.53	13.45	2.26	-245	same - slightly clearer
1344	6.80	200	3.12	6.16	0.00	60	3.44	13.55	2.19	-360	clearer but turns
1349	6.81	200	3.38	6.18	0.00	61	3.41	13.66	2.18	-359	black after ~ 1 min
1354	6.82	200	3.64	6.18	0.00	63	3.40	13.67	2.18	-362	same

Sampling Data

Method: Peristaltic Date/Time: 12/12/12 1355 Total Volume of Water purged: 4.0 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.18	Alkalinity (g/g)	water turned black -
Spec. Cond.(mS/cm)	3.40	Carbon Dioxide (mg/L)	could not run
Turbidity (NTU)	63.00	Ferrous Iron (mg/L)	HACH kit
DO (mg/L)	0.00	Manganese (mg/L)	analysis
Temp.(°C)	13.67	Hydrogen Sulfide (mg/L)	2.00
ORP (mv)	-362	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.18		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census	1 Filter = 1000mL		
hydrogen Acetylene			

Comments: Collected MS/MSD (VOCS-6)

Labeled INJ-11D_121212 MS

INJ-11D_121212 MSD

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-12D_121312 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 8.61				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Peristaltic Date/Time: 12/13/13 1011

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1021	8.59	200	0.52	5.85	0.00	80.7	3.80	12.88	2.43	-311	slightly cloudy
1031	8.57	200	1.04	5.88	0.00	64.8	3.71	13.62	2.38	-368	same - turns black after 1 min
1036	8.54	200	1.30	5.88	0.00	59.1	3.75	13.69	2.40	-379	same
1041	8.53	200	1.56	5.88	0.00	58.0	3.75	13.78	2.40	-383	same
1046	8.51	200	1.82	5.89	0.00	53.5	3.78	13.91	2.42	-383	same
1051	8.51	200	2.08	5.89	0.00	51.4	3.80	14.02	2.44	-376	same
1056	8.51	200	2.34	5.89	0.00	51.4	3.82	14.16	2.44	-380	same
1101	8.52	200	2.60	5.89	0.00	51.2	3.83	14.22	2.45	-377	same

Sampling Data

Method: Peristaltic Date/Time: 12/13/12 1105 Total Volume of Water purged: 2.8 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.89	Alkalinity (g/g)	water turned
Spec. Cond.(mS/cm)	3.83	Carbon Dioxide (mg/L)	black - could
Turbidity (NTU)	51.20	Ferrous Iron (mg/L)	not run HACH kit
DO (mg/L)	0.00	Manganese (mg/L)	analysis
Temp.(°C)	14.22	Hydrogen Sulfide (mg/L)	2.00
ORP (mv)	-377		
TDS (g/L)	2.45		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-13D_121312 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 6.82				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/13/12 0800

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
810	7.28	200	0.52	6.65	0.00	500	0.96	12.60	0.618	-154	cloudy gray w particles
820	7.46	200	1.04	6.63	0.00	520	1.11	12.52	0.703	-162	same - turned black after 1 min
830	7.47	200	1.56	6.37	0.00	320	2.20	12.41	1.40	-158	same
835	7.51	200	1.82	6.21	0.00	130	3.10	12.72	2.00	-162	slightly clearer w/ particles
840	7.59	200	2.08	6.13	0.00	180	3.07	12.97	1.97	-164	same
845	7.66	200	2.34	6.13	0.00	150	2.81	13.05	1.80	-172	same
850	7.71	200	2.60	6.12	0.00	60	2.80	13.07	1.79	-183	same
855	7.79	200	2.86	6.09	0.00	50	2.89	13.20	1.85	-211	fewer particles
900	7.82	200	3.12	6.06	0.00	60	2.95	13.19	1.88	-225	same
905	7.83	200	3.38	6.06	0.00	59	3.04	13.24	1.95	-266	same
910	7.83	200	3.64	6.03	0.00	58	3.25	13.32	2.08	-320	same
915	7.83	200	3.90	6.03	0.00	56	3.27	13.38	2.09	-322	same
920	7.83	200	4.16	6.02	0.00	55	3.28	13.35	2.10	-326	same

Sampling Data

Method: Peristaltic Date/Time: 12/13/12 0925 Total Volume of Water purged: 4.3 gal.

Field Parameters

HORRIBA		HACH TEST KITS	
pH	6.02	Alkalinity (g/g)	water turned black -
Spec. Cond.(mS/cm)	3.28	Carbon Dioxide (mg/L)	could not run
Turbidity (NTU)	55.00	Ferrous Iron (mg/L)	HACH test
DO (mg/L)	0.00	Manganese (mg/L)	kits
Temp.(°C)	13.35	Hydrogen Sulfide (mg/L)	0.50
ORP (mv)	-326	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.10		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-01_121012 Well Diameter: _____ Inches

Samplers: D. Chamberland Monitored Natural Attenuation Sample Set (Y/N)? _____

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.):				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: low flow-geopump Date/Time: 12/10/12 0815

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	Gal		mg/L	NTU	mS/cm	°C	g/L	mv	
815	6.90	200	0.0	5.42	0.00	300	4.86	13.45	3.12	-208	gray light product
825	7.10	200	0.5	5.46	0.00	290	3.83	13.07	2.42	-293	same
835	7.00	200	1.0	5.53	0.00	>1000	4.55	13.65	2.91	-316	milky, strong odor
845	7.04	200	1.6	5.55	0.00	>1000	4.40	14.16	2.81	-347	same
850	7.01	200	1.9	5.56	0.00	>1000	4.40	14.33	2.81	-347	same
855	6.98	200	2.2	5.57	0.00	>1000	4.39	14.62	2.81	-347	same
900	6.95	200	2.5	5.58	0.00	>1000	4.36	14.33	2.79	-350	same
905	6.95	200	2.8	5.58	0.00	>1000	4.34	14.22	2.76	-352	milky, strong odor, VO
910	6.96	200	3.1	5.58	0.00	>1000	4.31	14.23	2.75	-358	same
915	6.96	200	3.4	5.59	0.00	>1000	4.30	14.20	2.75	-367	same
920	6.96	200	3.7	5.60	0.00	>1000	4.29	14.15	2.74	-364	same
925	6.95	200	4.0	5.62	0.00	>1000	4.28	14.05	2.73	-371	muddy, strong odor, VO
930	6.96	200	4.2	5.62	0.00	>1000	4.27	14.00	2.72	-369	same

Sampling Data

Method: Dedicated Tubing Date/Time: 12/10/12 0930 Total Volume of Water purged: 4.2

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.62	Alkalinity (g/g)	1400.00
Spec. Cond.(mS/cm)	4.27	Carbon Dioxide (mg/L)	1100
Turbidity (NTU)	>1000	Ferrous Iron (mg/L)	0.60
DO (mg/L)	0.00	Manganese (mg/L)	0.00
Temp.(°C)	14.00	Hydrogen Sulfide (mg/L)	3.50
ORP (mv)	-369		
TDS (g/L)	2.72		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: _____

PARSONS

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-02_121312 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 7.86				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/13/12 1212

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1222	7.93	180	0.49	5.60	0.00	884	2.82	14.47	1.80	-154	cloudy gray
1232	8.41	180	0.98	5.59	0.00	937	2.78	14.83	1.78	-162	same
1242	8.52	180	1.47	5.59	0.00	708	2.76	15.03	1.77	-168	same
1247	8.54	180	1.71	5.58	0.00	681	2.74	15.30	1.75	-181	same
1252	8.55	180	1.96	5.57	0.00	649	2.75	15.38	1.76	-188	same
1257	8.56	180	2.20	5.57	0.00	614	2.77	15.46	1.77	-197	same
1302	8.56	180	2.45	5.57	0.00	596	2.79	15.52	1.79	-210	same
1307	8.57	180	2.69	5.56	0.00	578	2.81	15.55	1.80	-221	same
1312	8.57	180	2.94	5.56	0.00	581	2.82	15.53	1.80	-222	same
1317	8.58	180	3.18	5.56	0.00	583	2.82	15.56	1.80	-225	same

Sampling Data

Method: Peristaltic Date/Time: 12/13/12 1320 Total Volume of Water purged: 3.3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.56	Alkalinity (g/g)	water
Spec. Cond.(mS/cm)	2.82	Carbon Dioxide (mg/L)	turned
Turbidity (NTU)	583.00	Ferrous Iron (mg/L)	black
DO (mg/L)	0.00	Manganese (mg/L)	
Temp.(°C)	15.56	Hydrogen Sulfide (mg/L)	0.5
ORP (mv)	-225		
TDS (g/L)	1.80		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments:

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-04_121312 Well Diameter: 4 Inches

Samplers: C. Huey Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing volumes (gal/ft.): 7.88				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow - Peristaltic Date/Time: 12/13/12 1444

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal.		mg/L	NTU	mS/cm	°C	g/L	mv	
1458	8.11	200	0.52	5.80	0.00	987	3.72	14.19	2.38	-268	cloudy gray - turning to black
1508	8.15	200	1.04	5.84	0.00	1018	3.70	14.25	2.37	-277	same
1518	8.15	200	1.56	5.88	0.00	1076	3.68	14.26	2.36	-292	same
1523	8.16	200	1.82	5.91	0.00	1087	3.66	14.14	2.34	-299	same
1528	8.16	200	2.08	5.93	0.00	966	3.64	14.01	2.33	-299	same
1533	8.17	200	2.34	5.94	0.00	950	3.64	14.00	2.33	-299	same
1538	8.18	200	2.60	5.95	0.00	945	3.62	13.74	2.32	-299	same
1543	8.18	200	2.86	5.96	0.00	950	3.61	13.71	2.31	-298	same
1548	8.19	200	3.12	5.97	0.00	955	3.61	13.69	2.31	-298	same

Sampling Data

Method: Peristaltic Date/Time: 12/13/12 1550 Total Volume of Water purged: 3.3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.97	Alkalinity (g/g)	1040
Spec. Cond.(mS/cm)	3.61	Carbon Dioxide (mg/L)	728
Turbidity (NTU)	955	Ferrous Iron (mg/L)	0.0
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	13.69	Hydrogen Sulfide (mg/L)	1.0
ORP (mv)	-298	* NOTE * HACH test kits are only required for MNA analysis wells.	
TDS (g/L)	2.31		

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: Replaced tubing in well, down to fracture.

Water was turbid throughout. Cloudy light gray, water turning black in bucket.

LOW FLOW WELL SAMPLING RECORD

Site Name: *Ekonol Facility* Well ID: INJ-05_121312 Well Diameter: 4 Inches

Samplers: A. Menges Monitored Natural Attenuation Sample Set (Y/N)? Y

Purging Data

WATER VOLUME CALCULATION				
= (Total Depth of Well - Depth To Water) x Casing Volume per Foot				
Casing Volumes (gal/ft.): 10.2				
1-inch=0.041	1.5-inch=0.092	2-inch=0.16	3-inch=0.36	
4-inch=0.64	6-inch=1.4	8-inch=2.5	10-inch=4	

Method: Low Flow Date/Time: 12/13/12 1325

Time	DTW	Pump Rate	Vol.	pH	DO	Turbidity	Spec. Cond.	Temp.	TDS	ORP	Comments
24 hr.	ft.	ml/min.	gal		mg/L	NTU	mS/cm	°C	g/L	mv	
1225	7.20	200	0.00	5.52	20.85	>1000	3.13	14.48	2.00	-465	water black
1230	7.40	200	0.25	5.29	8.10	>1000	2.91	14.66	1.87	-466	water black
1235	7.60	200	0.50	5.08	0.00	>1000	2.78	14.91	1.78	-460	water black
1240	7.70	200	0.75	5.07	0.00	>1000	2.97	14.97	1.89	-459	water black
1245	7.70	200	1.00	5.18	0.00	>1000	3.30	14.96	2.10	-466	water black
1250	7.70	200	1.25	5.28	0.00	>1000	3.69	14.97	2.36	-463	water gray
1255	7.70	200	1.50	5.32	0.00	>1000	3.81	14.97	2.44	-456	water gray
1300	7.70	200	1.75	5.35	0.00	>1000	3.86	15.00	2.47	-449	water gray
1305	7.70	200	2.00	5.37	0.00	>1000	3.88	14.93	2.48	-434	water gray
1310	7.65	200	2.25	5.39	0.00	>1000	3.91	14.78	2.50	-415	water light gray
1315	7.65	200	2.50	5.40	0.00	>1000	3.95	14.64	2.55	-397	water black
1320	7.65	200	2.75	5.41	0.00	>1000	4.03	14.62	2.58	-387	water black
1325	7.65	200	3.00	5.42	0.00	>1000	4.05	14.69	2.59	-379	water black

Sampling Data

Method: Low Flow Date/Time: 12/13/12 1325 Total Volume of Water purged: 3 gal

Field Parameters

HORRIBA		HACH TEST KITS	
pH	5.42	Alkalinity (g/g)	2800
Spec. Cond.(mS/cm)	4.05	Carbon Dioxide (mg/L)	--
Turbidity (NTU)	>1000	Ferrous Iron (mg/L)	0.4
DO (mg/L)	0.00	Manganese (mg/L)	0.0
Temp.(°C)	14.69	Hydrogen Sulfide (mg/L)	5.0+
ORP (mv)	-379		
TDS (g/L)	2.59		

* NOTE * HACH test kits are only required for MNA analysis wells.

SAMPLE SET			
Parameter	**Bottle**	**Pres.**	**Method**
Select VOCs	3-40mL glass vial	HCl	EPA 8260
MEE	2-40mL glass vial	HCl	Lab SOP
Choride / Nitrate / Sulfate	2-40mL glass vial (Field filtered)	None	lab specified
Dissolved Inorganics	1-250mL plastic (Field filtered)	HNO3	SW6010B
Ortho-Phosphate	1-250mL plastic (Field filtered)	None	EPA 365.1
Sulfide	1-250mL glass (Field filtered)	NaOH/Zn Acetate	MS-4500-S2-F
Total Organic Carbon	2-40mL amber glass vial	H3PO4	SW9060
Total Inorganic Carbon	1-120 mL glass amber	None	SW9060
Microbial Census			
Hydrogen, Acetylene			

Comments: - water gray

- water too cloudy for CO_2 Hach test

ATTACHEMENT C
DATA USABILITY REPORT

DATA USABILITY SUMMARY REPORT

EKONOL FACILITY

Prepared For:

Atlantic Richfield Company

4850 East 49th Street
MBC 3-147
Cuyahoga Heights, Ohio 44125

Prepared By:

PARSONS

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FEBRUARY 2013

SECTION 1

DATA USABILITY SUMMARY

Groundwater samples were collected for the 4th Quarter Monitoring from the Ekonol Facility site in Wheatfield, New York from November 1, 2012 through December 13, 2012. Analytical results from these samples were reviewed by Parsons for usability with respect to the following requirements:

- Work Plan,
- NYSDEC Analytical Services Protocol (ASP), and
- USEPA Region II Standard Operating Procedures (SOPs).

The analytical laboratories for this project were Lancaster Laboratories, Inc. (LLI), Microseeps, Inc. (Microseeps), and Microbial Insights (MI). LLI is approved to conduct project analyses through the New York State Department of Health (NYSDOH) Environmental Laboratory Approval Program (ELAP).

1.1 LABORATORY DATA PACKAGES

The laboratory data package turnaround time, defined as the time from sample receipt by the laboratory to receipt of the analytical data packages by Parsons, was 27-43 days for the Ekonol samples. Comments on specific quality control (QC) and other requirements are discussed in detail in the attached data validation report.

1.2 SAMPLING AND CHAIN-OF-CUSTODY

The samples were collected, shipped under a COC record, and received at the laboratory within one day of sampling. All samples were received intact and in good condition at the laboratories. It was noted that volatile samples OR-3SM, OR-13SM, OR-14SM, OR-15SM, PMW-5D, PMW-7D, PMW-9D, PMW-10D, PMW-13D, PMW-14D, PMW-140D, RMW-4D, INJ-02, INJ-04, INJ-05, INJ-9D, INJ-12D, and INJ-13D were received and analyzed at LLI with a pH of 3-7 which exceeds the pH<2 preservation requirement.

1.3 LABORATORY ANALYTICAL METHODS

The groundwater samples collected from the Ekonol site were analyzed for certain volatile organic compounds (VOCs) including methane, ethane, and ethene; metals; chloride; nitrate; orthophosphate; sulfate; sulfide; total organic carbon (TOC); total inorganic carbon (TIC); total carbon; hydrogen; acetylene; and/or dechlorinating bacteria and functional genes. Summaries of issues concerning these laboratory analyses are presented in Subsections 1.3.1 through 1.3.3. The data qualifications resulting from the data review and statements on the laboratory analytical precision, accuracy, representativeness, completeness, and comparability (PARCC) are discussed

for each analytical method in Section 2. The laboratory data were reviewed and may be qualified with the following validation flags:

"U" - not detected at the value given,

"UJ" - estimated and not detected at the value given,

"J" - estimated at the value given,

"N" - presumptive evidence at the value given, and

"R" - unusable value.

The validated laboratory data were tabulated and are presented in Attachment A.

1.3.1 Volatile Organic Analysis Including Methane, Ethane, and Ethene

The groundwater samples collected from the Ekonol site were analyzed for certain VOCs using the USEPA SW-846 8260B analytical method. In addition, certain groundwater samples were analyzed for methane, ethane, and ethene using the modified USEPA approved RSK-175 analytical method. Certain reported results for these samples were considered estimated based upon holding times, surrogate recoveries, matrix spike/matrix spike duplicate (MS/MSD) recoveries, laboratory control sample recoveries, instrument calibrations, and field duplicate precision. The reported VOC and methane, ethane, and ethene analytical results were 100% complete (i.e., usable) based upon the groundwater data presented by LLI. PARCC requirements were met.

1.3.2 Metals Analysis

Certain groundwater samples collected from the Ekonol site were analyzed for dissolved metals using the USEPA SW-846 6010B analytical method. Certain reported results for the metals samples were considered estimated based upon matrix spike/matrix spike duplicate (MS/MSD) recoveries and serial dilutions. The reported metals analytical results were 100% complete (i.e., usable) based upon the groundwater data presented by LLI. PARCC requirements were met.

1.3.3 Other Parameters

The groundwater samples collected from the Ekonol site were analyzed for chloride, nitrate, and sulfate using the USEPA 300.0 analytical method; sulfide using the SM20 4500 analytical method; orthophosphate using the USEPA 365.3; TOC, TIC, and total carbon using the SM20 5310C analytical method; hydrogen and acetylene using the Microseeps SOP AM20GAX; and/or dechlorinating bacteria and functional genes using the MI SOP. Custody documentation, holding times, laboratory blanks, matrix spike/matrix spike duplicate, laboratory duplicate precision, laboratory control samples, instrument calibrations, quantitation limits, sample result identification, and field duplicate precision were reviewed for compliance. The reported results for these samples did not require qualification resulting from data validation with the exception of the following:

- Positive orthophosphate results for those samples collected on 12/5/12 were considered estimated, possibly biased high, and qualified "J" based upon exceedances of MS/MSD recoveries (130%R/127%R; QC limit 89-112%R);

- Total carbon results for those samples collected on 12/6/12 were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ" based upon a low matrix spike recovery for total carbon (60%R; QC limit 72-132%R); and

- Chloride results for those samples collected on 12/10/12 were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ" based upon a low matrix spike recovery for chloride (85%R; QC limit 90-110%R).

The reported analytical results for these parameters were 100% complete (i.e., usable) based upon the groundwater data presented by LLI, Microseeps, and MI. PARCC requirements were met overall.

SECTION 2

DATA VALIDATION REPORT

2.1 4TH QUARTER MONITORING EVENT

Data review has been completed for data packages generated by LLI containing groundwater samples collected from the Ekonol Facility site during the 4th Quarter Monitoring event. All of these samples were shipped under a COC record and received intact by the analytical laboratory. Analytical results from the project samples were submitted by LLI within the following sample delivery groups (SDGs): BPW30, BPW32, BPW38, BPW39, BPW40, BPW41, BPW42, BPW43, BPW44, BPW45, and BPW46. Data validation was performed for all samples in accordance with the most current editions of the USEPA Region II SOPs and the NYSDEC ASP for organic and inorganic data review. This data validation and usability report is presented by analysis type. The validated laboratory data are tabulated and presented in Attachment A.

2.1.1 Volatiles Including Methane, Ethane, and Ethene (MEE)

The following items were reviewed for compliancy in the volatile analysis:

- Custody documentation
- Holding times
- Surrogate recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) precision and accuracy
- Laboratory control sample (LCS) recoveries
- Laboratory method blank and trip blank contamination
- Instrument performance
- Initial and continuing calibrations
- Internal standard responses
- Field duplicate precision
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of holding times, surrogate recoveries, MS/MSD precision and accuracy, LCS recoveries, initial and continuing calibrations, internal standard responses, and field duplicate precision as discussed below.

Holding Times

All holding times for volatile analysis were within the 14-day requirement for preserved samples. However, it was noted that samples OR-3SM and INJ-04 which were analyzed at a pH of 6 and 7, respectively, exceeded the 7-day analytical holding time requirement for unpreserved samples by two and seven days, respectively. Therefore, VOC results for these samples were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ".

Surrogate Recoveries

All sample surrogate recoveries were considered acceptable and within QC limits with the exception of the low propene surrogate recovery (QC limit 42-131%R) in the MEE samples OR-14SM (37%R) and INJ-13D (41%R). Therefore, the MEE results for these samples were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ".

MS/MSD Precision and Accuracy

All MS/MSD precision (relative percent difference; RPD) and accuracy (percent recovery; %R) measurements were considered acceptable and within QC limits for designated spiked project samples with the exception of the high MS/MSD accuracy results for ethene (224%R/228%R; QC limit 35-162%R) during the spiked analyses of sample OR-3SM; and the low MS/MSD accuracy results for ethene (-16%R/4%R; QC limit 35-162%R) during the spiked analyses of sample PMW-5D. The positive ethene result for parent sample OR-3SM was considered estimated, possibly biased high, and qualified "J". The ethene result for parent sample PMW-5D was considered estimated, possibly biased low, and qualified "J".

LCS Recoveries

All LCS recoveries were considered acceptable and within QC limits with the exception of the high LCS recovery for 1,1-dichloroethene (QC limit 76-124%R) associated with samples collected on 12/12/12 except PMW-13D, -10D, RMW-1D, MW-9S, -7S, and -8S. Therefore, the positive 1,1-dichloroethene results were considered estimated, possibly biased high, and qualified "J" for the affected samples.

Initial and Continuing Calibrations

All initial calibration compounds had relative response factors (RRFs) greater than 0.05 and maximum percent relative standard deviations (%RSDs) of 20% with the exception of chloroethane (22%RSD) in the initial calibration associated with samples collected on 12/7/12, 12/10/12, 12/12/12; and methane (33.4%RSD) in the initial calibration associated with samples collected on 12/11/12. Therefore, the results for these compounds were considered estimated with positive results qualified "J" and nondetected results qualified "UJ" for the affected samples.

All continuing calibration compounds had relative response factors (RRFs) greater than 0.05 and percent differences (%Ds) within ±20% with the exception of 1,1,1-trichloroethane (-25%D) in the continuing calibration associated with samples collected on 12/3/12 except MW-18D; tetrachloroethene (22%D) in the continuing calibration associated with samples collected on 12/10/12 except PMW-12D, -DL, and MW-17DDL; and 1,1-dichloroethane (-21%D) and 1,1,1-trichloroethane (-24%D) in the continuing calibration associated with samples MW-14D, -10D, -10DDL, PMW-5D, -5DDL, INJ-13D, -13DDL, -12D, and -12DDL. Therefore, the results for these compounds were considered estimated with positive results qualified "J" and nondetected results qualified "UJ" for the affected samples.

Internal Standard Responses

All internal standard (IS) responses and retention times were within specified QC ranges based on associated calibration standards (i.e., sample's area count within -50% to +100% and retention times within ±0.5 minutes of the standard) with the exception of the low response for the IS tert-butyl alcohol-d10 in sample INJ-8D. Validation qualification of this sample was not required since there were no target compounds associated with this IS.

Field Duplicate Precision

All field duplicate precision results were considered acceptable with the exception of the ethene precision (62%RPD) for the field duplicate pair OR-10SM and OR-100SM. Therefore, the ethene results for these samples were considered estimated and qualified "J".

Usability

All volatile groundwater sample results including methane, ethane, and ethene were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The volatile groundwater presented were 100% (i.e., usable). The validated volatile laboratory data are tabulated and presented in Attachment A.

It was also noted that many samples were diluted and reanalyzed due to the exceedance in instrument calibration ranges for cis-1,2-dichloroethene, total 1,2-dichloroethene, trichloroethene, 1,1,1-trichloroethane, vinyl chloride, methane, and/or ethene. Therefore, the diluted result for these compounds was reported for these samples in the validated laboratory data table in Attachment A.

2.1.2 Dissolved Metals

The following items were reviewed for compliancy in the metals analysis:

- Custody documentation
- Holding times
- Initial and continuing calibration, and preparation blank contamination
- Initial and continuing calibration verifications
- Interference check sample recoveries
- Matrix spike recoveries
- Laboratory duplicate precision
- Field duplicate precision
- Laboratory control sample recoveries
- Serial dilutions
- Sample result verification and identification
- Quantitation limits
- Data completeness

These items were considered compliant and acceptable in accordance with the validation protocols with the exception of instrument calibrations, matrix spike recoveries, and serial dilutions as discussed below.

Instrument Calibrations

All initial and continuing calibration verifications were analyzed at the appropriate frequency with recoveries within QC limits. All instrument calibration reference standards were analyzed at the appropriate frequency with recoveries within the 50-150%R QC limit with the exception of the high standard recovery for dissolved arsenic (157.3%R) associated with sample MW-7D. Validation qualification of this sample was not required since arsenic was not detected.

Matrix Spike Recoveries

All matrix spike recoveries were considered acceptable and within the 75-125%R acceptance limit with the exception of the low dissolved selenium recoveries (66%R, 64%R, 67%R, 68%R, 70%R, 71%R) associated with samples collected on 12/6/12, 12/12/12, and 12/13/12. Therefore, the dissolved selenium results were considered estimated, possibly biased low, with positive results qualified "J" and nondetected results qualified "UJ" for the affected samples.

Serial Dilutions

All serial dilution results were considered acceptable and less than the 10%D criteria for all analytes with the exception of the serial dilutions for dissolved potassium (11%D) associated with samples collected on 12/11/12 and 12/12/12. Therefore, the positive dissolved potassium results were considered estimated and qualified "J" for the affected samples.

Usability

All metals sample results were considered usable following data validation.

Summary

The quality assurance objectives for measurement data included considerations for precision, accuracy, representativeness, completeness, and comparability. The metals data presented by LLI were 100% complete (i.e., usable). The validated groundwater laboratory data are tabulated and presented in Attachment A.

ATTACHMENT A

VALIDATED LABORATORY DATA

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	INJ-01 INJ-01_121012 6889512 LLI BPW43 WATER 12/10/2012 9:30 2/11/2013	INJ-02 INJ-02_121312 6894966 LLI BPW46 WATER 12/13/2012 13:20 2/11/2013	INJ-04 INJ-04_121312 6894969 LLI BPW46 WATER 12/13/2012 15:50 2/11/2013	INJ-05 INJ-05_121312 6894967 LLI BPW46 WATER 12/13/2012 13:25 2/11/2013	INJ-7D INJ-7D_110112 6846043 LLI BPW30 WATER 11/1/2012 10:15 2/11/2013	INJ-7D INJ-7D_120612 6886534/012JL-17/25/26 LLI/MI/MICROSEEPS BPW41/012JL/7520 WATER 12/6/2012 0:00 2/11/2013	Dup of INJ-7D_120612 INJ-7D INJ-70D_120612 6886533 LLI BPW41 WATER 12/6/2012 12:01 2/11/2013	INJ-8D INJ-8D_120712 6887766 LLI BPW42 WATER 12/7/2012 9:10 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	86 J	95 J	120 J	80 U	500	250 J	230 J	190
75-34-3	1,1-DICHLOROETHANE	ug/l	100 U	230 J	100 J	100 U	100 U	73 J	100 U	28 J
75-35-4	1,1-DICHLOROETHENE	ug/l	90 J	430 J	80 UJ	80 U	210 J	100 J	100 J	19 J
75-00-3	CHLOROETHANE	ug/l	100 UJ	100 U	100 UJ	100 U	100 U	50 U	100 U	10 UJ
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	100000	54000	77000 J	92000	61000	72000	75000	9500
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	140 J	93 J	170 J	230 J	2400	1200	1200	8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	100 J	2700	80 UJ	80 U	110 J	96 J	84 J	27 J
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	3600	3600	3300 J	17000	350000	330000	330000	27 J
75-01-4	VINYL CHLORIDE	ug/l	2800	8800	780 J	1100	200 J	270	260 J	180
74-85-1	ETHENE	ug/l	310	110	340	180		23	18	12
74-84-0	ETHANE	ug/l	28	17	13	22		9.8	8.8	5.6
74-82-8	METHANE	ug/l	1800	1500	3500	2500		150	140	7300
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.0743 U	0.0915 J	0.0743 U		0.351	0.312	0.0743 U
7440-38-2	ARSENIC	mg/l	0.0068 U	0.0068 U	0.0068 U	0.0068 U		0.0068 U	0.0068 U	0.0068 U
7440-70-2	CALCIUM	mg/l	693	328	458	519		465	456	84.7
7439-89-6	IRON	mg/l	0.812	425	0.923	0.539		45.7	44.3	4.83
7439-95-4	MAGNESIUM	mg/l	236	55	265	249		92	90.3	45.9
7439-96-5	MANGANESE	mg/l	0.876	2.33	0.724	0.703		1.05	1.03	0.844
9/7/7440	POTASSIUM	mg/l	10.3	7.39	10.8	9.69		5.69	5.56	9.89
7782-49-2	SELENIUM	mg/l	0.0075 U	0.0623 J	0.0075 UJ	0.0075 UJ		0.0075 UJ	0.0075 UJ	0.0075 U
7440-23-5	SODIUM	mg/l	285	259	233	248		156	152	67
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	312 J	210	299	275		186	166	53.6
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.25 U	0.25 U	0.25 U		0.25 U	0.25 U	0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.68 J	0.03 U	0.6 U	0.3 U		0.072 J		0.03 U
14808-79-8	SULFATE (AS SO4)	mg/l	498	8.4	680	373		92.3	92.4	1.6 J
18496-25-8	SULFIDE	mg/l	170	9.5	176	273		1.5		12.1
7440-44-0	TOTAL CARBON	mg/l	1960				173	1210 J		382
TOC	TOTAL ORGANIC CARBON	mg/l	1640	1940	782	1250	70.8	941	924	299
TIC	TOTAL INORGANIC CARBON	mg/l	321				102	269		83.1
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL						10.9		
DHBt	DHBt	cells/mL						10.5		
DHC	DHC	cells/mL						30000		
TCE	TCE	cells/mL						56500		
VCR	VCR	cells/mL						10800		
	OTHER									
74-86-2	Acetylene	ug/l						7.2		
1333-74-0	Hydrogen	nM						170		

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	INJ-9D INJ-9D_110112 6846042 LLI BPW30 WATER 11/1/2012 9:40 2/11/2013	INJ-9D INJ-9D_120512 6884467/012JL-12/21/22 LLI/MI/MICROSEEPS BPW40/012JL/7520 WATER 12/5/2012 0:00 2/11/2013	INJ-10D INJ-10D_110112 6846045 LLI BPW30 WATER 11/1/2012 12:55 2/11/2013	INJ-10D INJ-10D_120512 6884472/012JL-15/29/30 LLI/MI/MICROSEEPS BPW40/012JL/7520 WATER 12/5/2012 0:00 2/11/2013	INJ-11D INJ-11D_110112 6846044 LLI BPW30 WATER 11/1/2012 11:50 2/11/2013	INJ-11D INJ-11D_121212 6893324 LLI BPW45 WATER 12/12/2012 13:55 2/11/2013	INJ-12D INJ-12D_110112 6846048 LLI BPW30 WATER 11/1/2012 15:15 2/11/2013	INJ-12D INJ-12D_121312 6894963 LLI BPW46 WATER 12/13/2012 11:05 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l		190		590		170 J		160 UJ
75-34-3	1,1-DICHLOROETHANE	ug/l		80 J		86		100 U		200 UJ
75-35-4	1,1-DICHLOROETHENE	ug/l		43 J		19 J		140 J		160 U
75-00-3	CHLOROETHANE	ug/l		20 U		5 U		100 UJ		200 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l		90000		8000		83000		120000
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l		270		11 J		590		220 J
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l		51 J		16 J		250 J		160 U
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l		29000		220		200000		14000
75-01-4	VINYL CHLORIDE	ug/l		340		220		2700		710 J
74-85-1	ETHENE	ug/l		27		6.3		460		55
74-84-0	ETHANE	ug/l		13		2 J		83		15
74-82-8	METHANE	ug/l		140		170		2700		390
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l		0.092 J		0.0743 U		0.0743 U		0.0743 U
7440-38-2	ARSENIC	mg/l		0.0082 J		0.0068 U		0.0094 J		0.0068 U
7440-70-2	CALCIUM	mg/l		501		194		353		732
7439-89-6	IRON	mg/l		23.6		0.0585 J		4.67		8.7
7439-95-4	MAGNESIUM	mg/l		67.4		65.9		171		132
7439-96-5	MANGANESE	mg/l		1.1		0.146		0.675		0.82
9/7/7440	POTASSIUM	mg/l		6.74		3.13		8.35 J		7.37
7782-49-2	SELENIUM	mg/l		0.0083 J		0.0075 U		0.0078 J		0.0075 UJ
7440-23-5	SODIUM	mg/l		182		75.1		263		236
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l		146		101		344		243
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l		0.25 U		0.25 U		0.25 U		0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l		1.6 J		0.6 U		0.51		0.67 J
14808-79-8	SULFATE (AS SO4)	mg/l		21.9		53.6		337		86.5
18496-25-8	SULFIDE	mg/l		21.5		162		49.1		76.8
7440-44-0	TOTAL CARBON	mg/l	204	1660	19.6	290	63.1	928	23.6	1900
TOC	TOTAL ORGANIC CARBON	mg/l	51.5	1320	17.3	152	7.9	652	4.8	1420
TIC	TOTAL INORGANIC CARBON	mg/l	152	337	2.3	137	55.2	276	18.7	477
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL		276		79.2				
DHBt	DHBt	cells/mL		106		36.4				
DHC	DHC	cells/mL		26800		288				
TCE	TCE	cells/mL		52900		262				
VCR	VCR	cells/mL		11700		91.1				
	OTHER									
74-86-2	Acetylene	ug/l		6.3		0.5 U				
1333-74-0	Hydrogen	nM		130		31				

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	INJ-13D INJ-13D_110112 6846046 LLI BPW30 WATER 11/1/2012 13:40 2/11/2013	INJ-13D INJ-13D_121312 6894961 LLI BPW46 WATER 12/13/2012 9:25 2/11/2013	MW-1S MW-1S_121212 6893327 LLI BPW45 WATER 12/12/2012 13:55 2/11/2013	MW-2S MW-2S_120512 6884468/012JL-13 LLI/MI BPW40/012JL WATER 12/5/2012 0:00 2/11/2013	MW-3S MW-3S_121212 6893320 LLI BPW45 WATER 12/12/2012 10:40 2/11/2013	MW-4S MW-4S_121212 6893317 LLI BPW45 WATER 12/12/2012 8:50 2/11/2013	MW-5S MW-5S_121112 6891597 LLI BPW44 WATER 12/11/2012 14:55 2/11/2013	MW-6S MW-6S_121112 6891595 LLI BPW44 WATER 12/11/2012 13:15 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l		160 UJ	0.8 U	80 U	0.8 U	0.8 U	0.8 U	0.8 U
75-34-3	1,1-DICHLOROETHANE	ug/l		200 UJ	1 U	100 U	1 U	1.3 J	1 U	2.8 J
75-35-4	1,1-DICHLOROETHENE	ug/l		160 U	2.1 J	620	0.8 U	1.1 J	0.8 U	0.8 U
75-00-3	CHLOROETHANE	ug/l		200 U	1 UJ	100 U	1 UJ	1 UJ	1 U	1 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l		130000	170	230000	0.8 U	330	2 J	29
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l		160 U	0.8 U	80 U	0.8 U	0.8 U	0.8 U	0.8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l		320 J	7.2	1700	0.8 U	8.9	0.8 U	0.8 U
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l		9800	17	760	1 U	8	1 U	1 U
75-01-4	VINYL CHLORIDE	ug/l		1600	15	27000	1 U	260	33	110
74-85-1	ETHENE	ug/l		130 J	1.2 J	280	1 U	110	1.1 J	3.3 J
74-84-0	ETHANE	ug/l		34 J	1 U	55	1 U	15	1.8 J	24
74-82-8	METHANE	ug/l		1200	37	1800	140	1400	20 J	75 J
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l		0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U	
7440-38-2	ARSENIC	mg/l		0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U	
7440-70-2	CALCIUM	mg/l		651	289	403	169	272	247	
7439-89-6	IRON	mg/l		4.78	2.55	1.87	1.98	0.617	0.549	
7439-95-4	MAGNESIUM	mg/l		104	365	249	149	404	140	
7439-96-5	MANGANESE	mg/l		0.755	0.348	2.11	0.225	0.549	0.155	
9/7/7440	POTASSIUM	mg/l		7.68	3.95 J	3.24	8.26 J	5.11 J	2.67 J	
7782-49-2	SELENIUM	mg/l		0.0075 UJ	0.0075 UJ	0.0075 U	0.0075 UJ	0.0075 UJ	0.0075 U	
7440-23-5	SODIUM	mg/l		225	78.1	367	914	135	88.7	
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l		265	61.7	989	2010	147	200	
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l		0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l		0.75 J	0.03 U	0.03 U	0.03 U	0.03 U	0.031 J	
14808-79-8	SULFATE (AS SO4)	mg/l		57.2	2130	1130	662	2200	945	
18496-25-8	SULFIDE	mg/l		64.4	0.054 U	0.054 U	0.054 U	12.1	0.054 U	
7440-44-0	TOTAL CARBON	mg/l	39.4	1880	70.9	159	89.4	160		
TOC	TOTAL ORGANIC CARBON	mg/l	7.7	1420	1.1	5	8.4	2.5 U	1.8	
TIC	TOTAL INORGANIC CARBON	mg/l	31.6	463	69.8	154	81	160		
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL				19000				
DHBt	DHBt	cells/mL				2.8 J				
DHC	DHC	cells/mL				24900				
TCE	TCE	cells/mL				29				
VCR	VCR	cells/mL				29.2				
	OTHER									
74-86-2	Acetylene	ug/l								
1333-74-0	Hydrogen	nM								

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	MW-7D MW-7D_120712 6887770 LLI BPW42 WATER 12/7/2012 10:45 2/11/2013	MW-7S MW-7S_121212 6893328 LLI BPW45 WATER 12/12/2012 14:50 2/11/2013	MW-8S MW-8S_121212 6893329 LLI BPW45 WATER 12/12/2012 16:20 2/11/2013	MW-9S MW-9S_121212 6893323 LLI BPW45 WATER 12/12/2012 13:00 2/11/2013	MW-10D MW-10D_121312 6894968 LLI BPW46 WATER 12/13/2012 13:55 2/11/2013	MW-10S MW-10S_121012 6889511 LLI BPW43 WATER 12/10/2012 9:45 2/11/2013	MW-11D MW-11D_120712 6887765 LLI BPW42 WATER 12/7/2012 8:50 2/11/2013	MW-11S MW-11S_121012 6889513 LLI BPW43 WATER 12/10/2012 9:10 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	260 J	0.8 U	0.8 U	0.8 U	250 J	0.8 U	270	3.5 J
75-34-3	1,1-DICHLOROETHANE	ug/l	520	1 U	1 U	3.6 J	15 J	1 U	26	13
75-35-4	1,1-DICHLOROETHENE	ug/l	80 U	0.8 U	0.8 U	2.6 J	10	0.8 U	3.7 J	1.5 J
75-00-3	CHLOROETHANE	ug/l	100 UJ	1 UJ	1 UJ	1 UJ	2 U	1 UJ	1 UJ	1 UJ
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	110000	0.8 U	2.1 J	740	810	300	120	150
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	80 U	0.8 U	0.8 U	0.8 U	1.6 U	0.8 UJ	0.8 U	0.8 UJ
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	110 J	0.8 U	0.8 U	4.9 J	2.6 J	12	0.8 U	7.8
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	100 U	1 U	1.5 J	1 U	4.9 J	3.2 J	7.2	110
75-01-4	VINYL CHLORIDE	ug/l	930	1 U	1 U	320	160	280	47	54
74-85-1	ETHENE	ug/l	250	1 U	1 U	20	3.8 J	380	1.3 J	18
74-84-0	ETHANE	ug/l	22	1 U	1 U	1 U	4.7 J	6.5	81	1 U
74-82-8	METHANE	ug/l	2800	3 U	3 U	40	78	350	350	87
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.0743 U	0.0743 U	0.122 J	0.127 J			
7440-38-2	ARSENIC	mg/l	0.0068 U	0.0068 U	0.0068 U	0.0068 U	0.0068 U			
7440-70-2	CALCIUM	mg/l	291	833	364	293	242			
7439-89-6	IRON	mg/l	0.292	0.239	0.0333 U	0.752	0.716			
7439-95-4	MAGNESIUM	mg/l	153	516	515	346	68.9			
7439-96-5	MANGANESE	mg/l	0.921	0.312	0.367	0.398	0.125			
9/7/7440	POTASSIUM	mg/l	9.54	5.5 J	6.79 J	3.99 J	3.28			
7782-49-2	SELENIUM	mg/l	0.0075 U	0.0075 UJ	0.0075 UJ	0.0075 UJ	0.0075 UJ			
7440-23-5	SODIUM	mg/l	201	272	552	151	67.2			
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	202	1800	827	183	118			
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.55	0.53	0.25 U	0.25 U			
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.6 U	0.03 U	0.03 U	0.03 U	0.03 U			
14808-79-8	SULFATE (AS SO4)	mg/l	7.5	2070	2450	1990	627			
18496-25-8	SULFIDE	mg/l	302	0.054 U	0.054 U	0.054 U	4.7			
7440-44-0	TOTAL CARBON	mg/l	1220							
TOC	TOTAL ORGANIC CARBON	mg/l	935	2	5.6	4.6	13.3			
TIC	TOTAL INORGANIC CARBON	mg/l	282							
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL								
DHBt	DHBt	cells/mL								
DHC	DHC	cells/mL								
TCE	TCE	cells/mL								
VCR	VCR	cells/mL								
	OTHER									
74-86-2	Acetylene	ug/l								
1333-74-0	Hydrogen	nM								

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	MW-12D MW-12D_121312 6894962 LLI BPW46 WATER 12/13/2012 9:45 2/11/2013	MW-12S MW-12S_121012 6889519 LLI BPW43 WATER 12/10/2012 13:45 2/11/2013	MW-13D MW-13D_121212 6893319 LLI BPW45 WATER 12/12/2012 9:35 2/11/2013	MW-14D MW-14D_121312 6894965 LLI BPW46 WATER 12/13/2012 11:35 2/11/2013	MW-15D MW-15D_120312 6880762 LLI BPW38 WATER 12/3/2012 14:15 2/11/2013	MW-16D MW-16D_121112 6891598 LLI BPW44 WATER 12/11/2012 15:00 2/11/2013	MW-17D MW-17D_121012 6889522 LLI BPW43 WATER 12/10/2012 15:30 2/11/2013	MW-18D MW-18D_120312 6880763 LLI BPW38 WATER 12/3/2012 14:15 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	0.8 U	74	0.8 U	0.8 UJ	53 J	2.5 J	330	0.8 U
75-34-3	1,1-DICHLOROETHANE	ug/l	1 U	53	11	1 UJ	37	11	35	1 U
75-35-4	1,1-DICHLOROETHENE	ug/l	0.8 U	5.5	1.6 J	0.8 U	6.6	1.6 J	4.6 J	0.8 U
75-00-3	CHLOROETHANE	ug/l	1 U	1.3 J	1 UJ	1 U	1 U	1 U	1 UJ	1 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	0.8 U	1100	230	0.8 U	940	290	170	0.8 U
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	0.8 U	0.8 UJ	0.8 U	0.8 U	0.8 U	0.8 U	0.8 UJ	0.8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	0.8 U	14	2.7 J	0.8 U	6.2	1.1 J	1.1 J	0.8 U
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	1 U	740	1.1 J	1 U	10	1.5 J	5.9	1 U
75-01-4	VINYL CHLORIDE	ug/l	1 U	280	120	1 U	360	130	79	1 U
74-85-1	ETHENE	ug/l	1.2 J	320	13	1 U	2.9 J	10	1.6 J	1 U
74-84-0	ETHANE	ug/l	26	18	16	12	1 U	9.9	6.7	1.5 J
74-82-8	METHANE	ug/l	130	3200	40	51	20	72 J	61	43
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U		0.0743 U	0.0743 U	0.114 J	0.0743 U		0.0743 U
7440-38-2	ARSENIC	mg/l	0.0068 U		0.0068 U	0.0068 U	0.0068 U	0.0068 U		0.0068 U
7440-70-2	CALCIUM	mg/l	512		287	247	160	314		406
7439-89-6	IRON	mg/l	0.0333 U		0.158 J	0.0333 U	0.184 J	0.327		0.0333 U
7439-95-4	MAGNESIUM	mg/l	104		154	102	73.9	140		170
7439-96-5	MANGANESE	mg/l	0.0444		0.081	0.195	0.103	0.0682		0.136
9/7/7440	POTASSIUM	mg/l	2.96		3.26 J	2.95	3.86	4.34 J		3.11
7782-49-2	SELENIUM	mg/l	0.0075 UJ		0.0075 UJ	0.0075 UJ	0.0075 U	0.0075 U		0.0075 U
7440-23-5	SODIUM	mg/l	51.3		111	74.3	54.1	108		95.6
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	127		198	111	68.4	244		143
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U		0.25 U	2.5	0.25 U	0.25 U		0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.3 U		0.03 U	0.03 U	0.03 U	0.031 J		0.034 J
14808-79-8	SULFATE (AS SO4)	mg/l	1330		1070	764	499	1040		1310
18496-25-8	SULFIDE	mg/l	28.8		2.8	2.2	2.4	1.6		3.6
7440-44-0	TOTAL CARBON	mg/l								
TOC	TOTAL ORGANIC CARBON	mg/l	0.5 U		2	1.6	2.7	2.5		3.6
TIC	TOTAL INORGANIC CARBON	mg/l								
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL								
DHBt	DHBt	cells/mL								
DHC	DHC	cells/mL								
TCE	TCE	cells/mL								
VCR	VCR	cells/mL								
	OTHER									
74-86-2	Acetylene	ug/l								
1333-74-0	Hydrogen	nM								

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	MW-19D MW-19D_120312 6880764 LLI BPW38 WATER 12/3/2012 14:55 2/11/2013	MW-20D MW-20D_121112 6891589 LLI BPW44 WATER 12/11/2012 9:05 2/11/2013	MW-21D MW-21D_121112 6891591 LLI BPW44 WATER 12/11/2012 10:45 2/11/2013	OR-3SM OR-3SM_121012 6889514 LLI BPW43 WATER 12/10/2012 11:20 2/11/2013	OR-4SM OR-4SM_121012 6889518 LLI BPW43 WATER 12/10/2012 13:10 2/11/2013	OR-5SM OR-5SM_120412_1135 6882499/012JL-4/07/08 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 11:35 2/11/2013	OR-5SM OR-5SM_120412_1620 6882506 LLI BPW39 WATER 12/4/2012 16:20 2/11/2013	OR-6SM OR-6SM_120412 6882496/012JL-1/01/02 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 0:00 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	0.8 UJ	7700	240	0.8 UJ	0.8 U	0.8 U		0.8 U
75-34-3	1,1-DICHLOROETHANE	ug/l	1 U	410	35	1 UJ	1 U	1.2 J		1 U
75-35-4	1,1-DICHLOROETHENE	ug/l	0.8 U	240	12	0.8 UJ	0.8 U	0.8 U		0.8 U
75-00-3	CHLOROETHANE	ug/l	1 U	10 U	2 U	1 UJ	1 UJ	1 U		2.7 J
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	26	2800	2200	0.8 UJ	0.8 U	2.6 J		81
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	0.8 U	9.5 J	1.6 U	0.8 UJ	0.8 UJ	0.8 U		0.8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	0.8 U	9.5 J	7.3 J	0.8 UJ	1.5 J	0.8 U		13
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	1 U	100	3.1 J	1 UJ	1 U	1 U		1 U
75-01-4	VINYL CHLORIDE	ug/l	1.9 J	120	1000	1 UJ	1 U	13		74
74-85-1	ETHENE	ug/l	1 U	2.9 J	12	1.2 J	1 U	20		20
74-84-0	ETHANE	ug/l	1.9 J	1 U	3.8 J	99	2.6 J	190		71
74-82-8	METHANE	ug/l	27	33 J	46 J	15000	3500	15000		13000
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	1.67			0.128 J	0.0993 J	0.107 J		0.0743 U
7440-38-2	ARSENIC	mg/l	0.0068 U			0.0304	0.0083 J	0.0093 J		0.0171 J
7440-70-2	CALCIUM	mg/l	575			453	397	315		743
7439-89-6	IRON	mg/l	4.15			42.7	42	6.52		38
7439-95-4	MAGNESIUM	mg/l	608			156	96.9	81.6		175
7439-96-5	MANGANESE	mg/l	0.202			2.88	6.49	1.78		7.57
9/7/7440	POTASSIUM	mg/l	5.96			41.7	37.4	18.6		77.2
7782-49-2	SELENIUM	mg/l	0.0075 U			0.0075 U	0.0077 J	0.0075 U		0.0075 U
7440-23-5	SODIUM	mg/l	154			214	108	318		383
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	273			377 J	165 J	492		868
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U			0.25 U	0.25 U	0.25 U		0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.03 U			0.03 U	0.03 U	0.03 U		0.03 U
14808-79-8	SULFATE (AS SO4)	mg/l	3020			1.7 J	1.8 J	1.9 J		53.6
18496-25-8	SULFIDE	mg/l	0.054 U			0.17	0.16 J		1.2	1.4
7440-44-0	TOTAL CARBON	mg/l				742	459	374		612
TOC	TOTAL ORGANIC CARBON	mg/l	7.9			171	68.3	32.5		91
TIC	TOTAL INORGANIC CARBON	mg/l				571	390	341		521
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL						295		1040
DHBt	DHBt	cells/mL						45.5		480
DHC	DHC	cells/mL						6100		29400
TCE	TCE	cells/mL						358		448
VCR	VCR	cells/mL						139		3020
	OTHER									
74-86-2	Acetylene	ug/l						0.5 U		0.5 U
1333-74-0	Hydrogen	nM						0.6 U		0.69

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	OR-9SM OR-9SM_120612 6886539 LLI BPW41 WATER 12/6/2012 13:50 2/11/2013	OR-10SM OR-10SM_120712 6887771 LLI BPW42 WATER 12/7/2012 11:25 2/11/2013	Dup of OR-10SM_120712 OR-10SM OR-100SM_120712 6887772 LLI BPW42 WATER 12/7/2012 12:01 2/11/2013	OR-13SM OR-13SM_120412 6882505/012JL-8/13/14 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 0:00 2/11/2013	OR-14SM OR-14SM_120512 6884464/012JL-11/19/20 LLI/MI/MICROSEEPS BPW40/012JL/7520 WATER 12/5/2012 0:00 2/11/2013	Dup of OR-14SM_120512 OR-14SM OR-140SM_120512 6884465 LLI BPW40 WATER 12/5/2012 12:01 2/11/2013	OR-15SM OR-15SM_121112 6891592 LLI BPW44 WATER 12/11/2012 10:45 2/11/2013	OR-18SM OR-18SM_121112 6891594 LLI BPW44 WATER 12/11/2012 12:45 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	17	0.8 U	0.8 U	0.8 U	4 U	4 U	0.8 U	0.8 U
75-34-3	1,1-DICHLOROETHANE	ug/l	7.1	1 U	1 U	1 U	5 U	5 U	1 U	1 U
75-35-4	1,1-DICHLOROETHENE	ug/l	2.2 J	0.8 U	0.8 U	0.8 U	4 U	4 U	0.8 U	0.8 U
75-00-3	CHLOROETHANE	ug/l	14	5.2 J	5.9 J	16	5 U	5 U	1 U	1 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	350	3.4 J	3.5 J	0.8 U	4 U	4 U	0.8 U	160
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	0.8 U	0.8 U	0.8 U	0.8 U	4 U	4 U	0.8 U	0.8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	3.3 J	0.8 U	0.8 U	2.2 J	4 U	4 U	0.8 U	7
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	1.7 J	1 U	1 U	1 U	5 U	5 U	1 U	1 U
75-01-4	VINYL CHLORIDE	ug/l	130	13	13	1 U	5 U	5 U	1 U	210
74-85-1	ETHENE	ug/l	29	16 J	8.4 J	1 U	2.6 J	3.8 J	1 U	340
74-84-0	ETHANE	ug/l	6.6	11	6.6	4.3 J	2.5 J	4.9 J	1.8 J	12
74-82-8	METHANE	ug/l	14000	12000	13000	13000	12000	12000	11000 J	14000 J
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.0743 U	0.0743 U	0.116 J	0.0853 J	0.0743 U	0.0835 J	0.0743 U
7440-38-2	ARSENIC	mg/l	0.0208	0.0111 J	0.0154 J	0.0246	0.0162 J	0.0127 J	0.0179 J	0.0068 U
7440-70-2	CALCIUM	mg/l	315	327	323	481	642	663	711	240
7439-89-6	IRON	mg/l	0.0333 U	8.93	8.64	37	38.3	38.6	76.3	0.0333 U
7439-95-4	MAGNESIUM	mg/l	89.3	100	99.9	198	238	236	143	74.8
7439-96-5	MANGANESE	mg/l	1.34	2.72	2.71	6.6	7.98	8.07	10	0.875
9/7/7440	POTASSIUM	mg/l	16.9	23.6	23.4	64.1	153	158	175 J	16.6 J
7782-49-2	SELENIUM	mg/l	0.0075 UJ	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0075 U	0.0076 J	0.0075 U
7440-23-5	SODIUM	mg/l	214	181	186	258	146	149	184	70.4
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	272	357	305	397	185	193	238	89
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.95	0.054 J		0.03 U	0.03 U		0.03 U	0.6 U
14808-79-8	SULFATE (AS SO4)	mg/l	82.4	34.1	33.9	14.6	197	196	1.5 U	257
18496-25-8	SULFIDE	mg/l	42.7	1.6		0.79	4.8		0.054 U	68.8
7440-44-0	TOTAL CARBON	mg/l	331 J	355		675	824		1030	202
TOC	TOTAL ORGANIC CARBON	mg/l	26.6	39.5	36.4	95.4	143	146	250	27.4
TIC	TOTAL INORGANIC CARBON	mg/l	305	316		580	681		778	174
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL				7	96.8			
DHBt	DHBt	cells/mL				119	269			
DHC	DHC	cells/mL				1080	2520			
TCE	TCE	cells/mL				51.9	260			
VCR	VCR	cells/mL				8.2	1660			
	OTHER									
74-86-2	Acetylene	ug/l				0.5 U	0.5 U			
1333-74-0	Hydrogen	nM				2 U	1.2			

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	PMW-1D PMW-1D_120612 6886536 LLI BPW41 WATER 12/6/2012 11:00 2/11/2013	PMW-1S PMW-1S_120512 6884466/012JL-10/17/18 LLI/MI/MICROSEEPS BPW40/012JL/7520 WATER 12/5/2012 0:00 2/11/2013	PMW-2D PMW-2D_120612 6886535/012JL-18 LLI/MI BPW41/012JL Water 12/6/2012 0:00 2/11/2013	PMW-2S PMW-2S_120412 6882507/012JL-9/15/16 LLI/MI/MICROSEEPS BPW39/012JL/7520 Water 12/4/2012 0:00 2/11/2013	PMW-2S PMW-2S_120512 6882507/012JL-9/15/16 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/5/2012 0:00 2/11/2013	PMW-3D PMW-3D_120512 6884469 LLI BPW40 WATER 12/5/2012 12:00 2/11/2013	PMW-3S PMW-3S_120512 6884470/012JL-14/23/24 LLI/MI/MICROSEEPS BPW40/012JL/7520 WATER 12/5/2012 0:00 2/11/2013	PMW-4D PMW-4D_120512 6884471 LLI BPW40 WATER 12/5/2012 15:25 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	18 J	0.8 U	80 U	0.8 U		11 J	40 U	61 J
75-34-3	1,1-DICHLOROETHANE	ug/l	20 U	1.4 J	100 U	1.1 J		26	50 U	96 J
75-35-4	1,1-DICHLOROETHENE	ug/l	26 J	1.3 J	190 J	0.8 U		22 J	150 J	31 J
75-00-3	CHLOROETHANE	ug/l	20 U	1 U	100 U	1 U		5 U	50 U	20 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	36000	420	150000	270		16000	85000	51000
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	16 U	0.8 U	80 U	0.8 U		30	40 U	24 J
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	190	11	220 J	13		20 J	1300	54 J
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	180	1.7 J	9500	88		3000	600	930
75-01-4	VINYL CHLORIDE	ug/l	840	410	2500	220		270	13000	700
74-85-1	ETHENE	ug/l	49	420	160	110		18	430	110
74-84-0	ETHANE	ug/l	10	410	14	300		14	290	14
74-82-8	METHANE	ug/l	250	9600	2000	13000		3200	12000	5000
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.0743 U	0.0743 U	0.0743 U		0.0743 U	0.0743 U	0.0743 U
7440-38-2	ARSENIC	mg/l	0.0068 U	0.0068 U	0.0128 J	0.0083 J		0.0068 U	0.0068 U	0.0068 U
7440-70-2	CALCIUM	mg/l	463	86.6	333	193		452	433	460
7439-89-6	IRON	mg/l	240	0.414	0.0569 J	5.73		0.0333 U	4.56	0.0333 U
7439-95-4	MAGNESIUM	mg/l	91.3	18.1	149	44.1		137	216	179
7439-96-5	MANGANESE	mg/l	3.38	0.23	0.467	1.15		0.133	2.57	0.503
9/7/7440	POTASSIUM	mg/l	11.3	10.8	9.85	13.8		7.55	7.87	12.4
7782-49-2	SELENIUM	mg/l	0.0231 J	0.0075 U	0.0075 UJ	0.0075 U		0.0075 U	0.0075 U	0.0075 U
7440-23-5	SODIUM	mg/l	232	308	249	278		121	290	251
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	88.7	563	383	443		151	831	202
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.25 U	0.25 U	0.63		0.25 U	0.25 U	0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.036 J	0.13 J	0.6 U	0.14		0.6 U	0.03 U	0.6 U
14808-79-8	SULFATE (AS SO4)	mg/l	6.8	95.9	99.5	34.1		752	883	283
18496-25-8	SULFIDE	mg/l	3	2.4	106	0.89		323	0.37	247
7440-44-0	TOTAL CARBON	mg/l	1780 J	49.3	716 J	169		543	202	1370
TOC	TOTAL ORGANIC CARBON	mg/l	1550	7.2	790	19.4		345	12.8	1020
TIC	TOTAL INORGANIC CARBON	mg/l	230	42.1	25 U	150		198	189	352
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL		6480	6490	5100			66100	
DHBt	DHBt	cells/mL		48.5	2280	198			12.1	
DHC	DHC	cells/mL		126000	12100	101000			124000	
TCE	TCE	cells/mL		4450	8040	2600			2220	
VCR	VCR	cells/mL		80000	961	6590			15000	
	OTHER									
74-86-2	Acetylene	ug/l		0.5 U		0.5 U			0.5 U	
1333-74-0	Hydrogen	nM		0.6 U			2 U		0.6 U	

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	PMW-4S PMW-4S_121112 6891593 LLI BPW44 WATER 12/11/2012 11:30 2/11/2013	PMW-5D PMW-5D_121312 6894960 LLI BPW46 WATER 12/13/2012 9:05 2/11/2013	PMW-5S PMW-5S_121112 6891590 LLI BPW44 WATER 12/11/2012 9:20 2/11/2013	PMW-6D PMW-6D_120612 6886532/012JL-16 LLI/MI BPW41/012JL WATER 12/6/2012 0:00 2/11/2013	PMW-6S PMW-6S_121012 6889521 LLI BPW43 WATER 12/10/2012 15:20 2/11/2013	PMW-7D PMW-7D_121012 6889517 LLI BPW43 WATER 12/10/2012 11:45 2/11/2013	PMW-7S PMW-7S_120612 6886538 LLI BPW41 WATER 12/6/2012 13:35 2/11/2013	PMW-8D PMW-8D_121312 6894964 LLI BPW46 WATER 12/13/2012 11:05 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	16 U	140 J	16 U	16 U	1.6 U	78 J	0.8 U	16 U
75-34-3	1,1-DICHLOROETHANE	ug/l	20 U	100 J	20 U	74 J	6.3 J	120 J	150	20 U
75-35-4	1,1-DICHLOROETHENE	ug/l	22 J	40 U	47 J	38 J	6.5 J	40 U	0.8 U	40 J
75-00-3	CHLOROETHANE	ug/l	20 U	50 U	20 U	20 U	2 UJ	50 UJ	1 U	20 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	14000	62000	29000	38000	3300	51000	9.8	15000
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	16 U	80 J	16 U	16 U	1.6 UJ	49 J	0.8 U	52 J
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	350	40 U	550	78 J	94	56 J	0.8 U	51 J
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	230	1900	1600	850	4.1 J	1200	1 U	1600
75-01-4	VINYL CHLORIDE	ug/l	860	1200	4900	1800	2400	650	1 U	1900
74-85-1	ETHENE	ug/l	53	200 J	180	330	360	280	1 U	190
74-84-0	ETHANE	ug/l	68	19	33	20	68	15	1 U	9.4
74-82-8	METHANE	ug/l	6900 J	2900	930 J	8100	10000	3900	4.9 J	2800
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.127 J	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U
7440-38-2	ARSENIC	mg/l	0.0068 U	0.0068 U	0.0068 U	0.0252	0.015 J	0.0068 U	0.0068 U	0.0068 U
7440-70-2	CALCIUM	mg/l	817	589	318	383	333	354	424	394
7439-89-6	IRON	mg/l	0.991	0.329	0.0851 J	0.0333 U	29.1	0.13 J	0.306	0.0333 U
7439-95-4	MAGNESIUM	mg/l	399	239	179	124	115	296	488	429
7439-96-5	MANGANESE	mg/l	1.27	0.414	1.06	0.649	4.12	0.562	0.148	0.433
9/7/7440	POTASSIUM	mg/l	4.02 J	10.2	7.19 J	15.8	23.4	31.4	6.09	6.84
7782-49-2	SELENIUM	mg/l	0.0075 U	0.0075 UJ	0.0075 U	0.0075 UJ	0.0075 U	0.0075 U	0.0075 UJ	0.0075 UJ
7440-23-5	SODIUM	mg/l	318	248	106	273	147	267	147	215
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	1590	264	345	283	267 J	273 J	329	213
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.34 J	0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.03 U	0.3 U	0.03 U	0.6 U	0.03 U	0.6 U	0.03 U	0.3 U
14808-79-8	SULFATE (AS SO4)	mg/l	1980	622	1000	24.1	209	965	2620	1480
18496-25-8	SULFIDE	mg/l	0.054 U	163	0.054 U	149	0.35	293	0.054 U	258
7440-44-0	TOTAL CARBON	mg/l	102		120	701 J	339	902	147 J	
TOC	TOTAL ORGANIC CARBON	mg/l	3.7	1010	10.3	502	48.2	689	3.5	299
TIC	TOTAL INORGANIC CARBON	mg/l	98.2		109	199	291	213	144	
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL				6330				
DHBt	DHBt	cells/mL				223				
DHC	DHC	cells/mL				124000				
TCE	TCE	cells/mL				6610				
VCR	VCR	cells/mL				31200				
	OTHER									
74-86-2	Acetylene	ug/l								
1333-74-0	Hydrogen	nM								

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	PMW-8S PMW-8S_120612 6886542 LLI BPW41 WATER 12/6/2012 15:55 2/11/2013	PMW-9D PMW-9D_120712 6887769 LLI BPW42 WATER 12/7/2012 9:40 2/11/2013	PMW-9S PMW-9S_120412 6882500/012JL-5/09/10 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 0:00 2/11/2013	PMW-10D PMW-10D_121212 6893321 LLI BPW45 WATER 12/12/2012 11:15 2/11/2013	PMW-10S PMW-10S_120412 6882497/012JL-2/03/04 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 0:00 2/11/2013	PMW-11D PMW-11D_120612 6886540/012JL-19/27/28 LLI/MI/MICROSEEPS BPW41/012JL/7520 WATER 12/6/2012 0:00 2/11/2013	PMW-11S PMW-11S_120612 6886537 LLI BPW41 WATER 12/6/2012 13:00 2/11/2013	PMW-12D PMW-12D_121012 6889523 LLI BPW43 WATER 12/10/2012 15:40 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	26	200 J	8 U	370 J	0.8 U	29000	8 U	76 J
75-34-3	1,1-DICHLOROETHANE	ug/l	22	100 U	10 U	200 U	1 U	460	43 J	90 J
75-35-4	1,1-DICHLOROETHENE	ug/l	1.6 J	190 J	12 J	160 U	0.8 U	960	31 J	92 J
75-00-3	CHLOROETHANE	ug/l	2.2 J	100 UJ	10 U	200 UJ	1 U	20 U	10 U	50 UJ
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	310	170000	6500	190000	0.8 U	7100	16000	98000
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	0.8 U	1900	8 U	350 J	0.8 U	81 J	8 U	380
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	4.5 J	290 J	62	160 U	0.8 U	22 J	220	140 J
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	4.4 J	73000	4100	52000	1.4 J	1300	340	1100
75-01-4	VINYL CHLORIDE	ug/l	210	810	12 J	520 J	1 U	64 J	2400	460
74-85-1	ETHENE	ug/l	160	100	1 U	35	1 U	3.8 J	180	77
74-84-0	ETHANE	ug/l	13	64	2 J	9.1	1 U	19	27	28
74-82-8	METHANE	ug/l	5800	820	3 U	980	3 U	35	1200	210
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.477	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0743 U	0.0747 J
7440-38-2	ARSENIC	mg/l	0.0068 U	0.0116 J	0.0068 U	0.0068 U	0.0068 U	0.0077 J	0.0069 J	0.0068 U
7440-70-2	CALCIUM	mg/l	363	876	458	377	408	218	500	318
7439-89-6	IRON	mg/l	3.6	5.94	0.0839 J	42.4	0.0333 U	0.26	0.552	120
7439-95-4	MAGNESIUM	mg/l	330	135	642	63.9	484	72	321	70.8
7439-96-5	MANGANESE	mg/l	1.54	0.781	0.185	1.1	0.0437	0.396	0.445	3.48
9/7/7440	POTASSIUM	mg/l	8.01	17.6	5.9	4.88 J	5.42	3.34	4.59	15.7
7782-49-2	SELENIUM	mg/l	0.0075 UJ	0.0075 U	0.0075 U	0.0075 UJ	0.0075 U	0.0075 UJ	0.0075 UJ	0.0167 J
7440-23-5	SODIUM	mg/l	166	529	123	125	114	91.5	169	403
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	300	309	117	167	173	113	493	144 J
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.03 U	0.6 U	0.03 U	0.074 J	0.03 U	0.6 U	0.051 J	1.1
14808-79-8	SULFATE (AS SO4)	mg/l	1460	15.8	3420	6.7	2930	309	1960	3.9 J
18496-25-8	SULFIDE	mg/l	8.6	87.2	0.054 U	4.7	0.054 U	73.9	0.054 U	6.3
7440-44-0	TOTAL CARBON	mg/l	197 J	4930	139	1110	105	369 J	116 J	4200
TOC	TOTAL ORGANIC CARBON	mg/l	11	4420	4.6	878	2.6	268	2	3900
TIC	TOTAL INORGANIC CARBON	mg/l	186	509	135	228	102	101	114	305
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL			0.5 U		0.5 U	4.8		
DHBt	DHBt	cells/mL			32.4		3.3	10.6		
DHC	DHC	cells/mL			2.8		0.5 J	109		
TCE	TCE	cells/mL			0.5 U		0.5 U	129		
VCR	VCR	cells/mL			0.5 U		0.5 U	15.2		
	OTHER									
74-86-2	Acetylene	ug/l			0.5 U		0.5 U	0.5 U		
1333-74-0	Hydrogen	nM			0.6 U		0.6 U	5.2		

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	PMW-13D PMW-13D_121212 6893318 LLI BPW45 WATER 12/12/2012 9:20 2/11/2013	PMW-14D PMW-14D_110112 6846049 LLI BPW30 WATER 11/1/2012 16:30 2/11/2013	PMW-14D PMW-14D_111912 6867275 LLI BPW32 WATER 11/19/2012 9:35 2/11/2013	PMW-14D PMW-14D_121112 6891599 LLI BPW44 WATER 12/11/2012 15:35 2/11/2013	Dup of PMW-14D_121112 PMW-14D PMW-140D_121112 6891600 LLI BPW44 WATER 12/11/2012 12:01 2/11/2013	PMW-15D PMW-15D_110112 6846047 LLI BPW30 WATER 11/1/2012 15:10 2/11/2013	PMW-15D PMW-15D_111912 6867276 LLI BPW32 WATER 11/19/2012 10:00 2/11/2013	PMW-15D PMW-15D_120412 6882504/012JL-7/11/12 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 0:00 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	280 J			500	560			7700
75-34-3	1,1-DICHLOROETHANE	ug/l	160 J			420	430 J			1600
75-35-4	1,1-DICHLOROETHENE	ug/l	240 J			89 J	80 U			210
75-00-3	CHLOROETHANE	ug/l	100 UJ			50 U	100 U			20 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	120000			77000	74000			19000
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	3200			130 J	140 J			18 J
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	80 U			72 J	80 U			33 J
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	280000			16000	14000			540
75-01-4	VINYL CHLORIDE	ug/l	340 J			570	550			550
74-85-1	ETHENE	ug/l	33			92	83			10
74-84-0	ETHANE	ug/l	14			9.1	7.8			3.8 J
74-82-8	METHANE	ug/l	120			230 J	230 J			76
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U			0.0743 U	0.0743 U			0.0743 U
7440-38-2	ARSENIC	mg/l	0.0068 U			0.0068 U	0.0068 U			0.0068 U
7440-70-2	CALCIUM	mg/l	626			504	501			354
7439-89-6	IRON	mg/l	7.17			7.37	6.84			0.15 J
7439-95-4	MAGNESIUM	mg/l	106			136	136			95.2
7439-96-5	MANGANESE	mg/l	0.873			1.28	1.3			0.375
9/7/7440	POTASSIUM	mg/l	7.8 J			6.66 J	6.58 J			5.11
7782-49-2	SELENIUM	mg/l	0.0117 J			0.0095 J	0.0108 J			0.0075 U
7440-23-5	SODIUM	mg/l	220			224	231			156
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	204			201	199			125
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U			0.25 U	0.25 U			0.25 U
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	1			0.66 J				0.6 U
14808-79-8	SULFATE (AS SO4)	mg/l	93			76.6	76.9			44.3
18496-25-8	SULFIDE	mg/l	69.3			79.9				238
7440-44-0	TOTAL CARBON	mg/l	1870	837	1990	1800		247	4940	974
TOC	TOTAL ORGANIC CARBON	mg/l	12.5 U	556	970	1450	1470	94.8	2090	739
TIC	TOTAL INORGANIC CARBON	mg/l	1870	281	1020	353		152	2850	235
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL								16.8
DHBt	DHBt	cells/mL								249
DHC	DHC	cells/mL								111
TCE	TCE	cells/mL								79.3
VCR	VCR	cells/mL								10.6
	OTHER									
74-86-2	Acetylene	ug/l								0.5 U
1333-74-0	Hydrogen	nM								46

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	PMW-16D PMW-16D_121112 6891596 LLI BPW44 WATER 12/11/2012 13:40 2/11/2013	PMW-17D PMW-17D_120412 6882498/012JL-3/05/06 LLI/MI/MICROSEEPS BPW39/012JL/7520 WATER 12/4/2012 0:00 2/11/2013	RMW-1D RMW-1D_121212 6893322 LLI BPW45 WATER 12/12/2012 11:55 2/11/2013	RMW-2D RMW-2D_120412 6882501/012JL-6 LLI/MI BPW39/012JL WATER 12/4/2012 0:00 2/11/2013	RMW-3D RMW-3D_120612 6886541 LLI BPW41 WATER 12/6/2012 15:10 2/11/2013	RMW-4D RMW-4D_121012 6889520 LLI BPW43 WATER 12/10/2012 13:40 2/11/2013	FIELDQC TB12279-A 6846041 LLI BPW30 WATER 10/28/2012 0:00 2/11/2013	FIELDQC TB12310-A 6880761 LLI BPW38 WATER 11/26/2012 0:00 2/11/2013
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	770	1300	850	160 J	19000	72 J	0.8 U	0.8 UJ
75-34-3	1,1-DICHLOROETHANE	ug/l	430	520	11	84 J	150	94 J	1 U	1 U
75-35-4	1,1-DICHLOROETHENE	ug/l	56 J	54 J	8.1	99 J	790	32 J	0.8 U	0.8 U
75-00-3	CHLOROETHANE	ug/l	50 U	20 U	1 UJ	50 U	10 U	20 UJ	1 U	1 U
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	67000	23000	370	62000	4100	48000	0.8 U	0.8 U
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	130 J	97 J	5.6	3200	39 J	50 J	0.8 U	0.8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	47 J	23 J	1.3 J	40 U	12 J	55 J	0.8 U	0.8 U
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	5500	5100	61	410000	200	4300	1 U	1 U
75-01-4	VINYL CHLORIDE	ug/l	470	280	4 J	240 J	14 J	950	1 U	1 U
74-85-1	ETHENE	ug/l	45	6	1 U	12	1 U	360		
74-84-0	ETHANE	ug/l	5.6	5.6	3.2 J	28	3.5 J	22		
74-82-8	METHANE	ug/l	330 J	120	26	160	21	5500		
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l	0.0743 U	0.0743 U	0.0743 U	0.412	0.0743 U	0.0743 U		
7440-38-2	ARSENIC	mg/l	0.0135 J	0.0068 U	0.0068 U	0.0112 J	0.0068 U	0.0068 U		
7440-70-2	CALCIUM	mg/l	378	278	234	809	240	430		
7439-89-6	IRON	mg/l	0.107 J	0.178 J	0.264	39.5	0.063 J	0.0681 J		
7439-95-4	MAGNESIUM	mg/l	153	95.8	74.1	140	70.6	198		
7439-96-5	MANGANESE	mg/l	0.681	0.453	0.141	1.08	0.16	0.501		
9/7/7440	POTASSIUM	mg/l	6.62 J	4.83	2.78 J	7.72	2.76	8.03		
7782-49-2	SELENIUM	mg/l	0.0111 J	0.0075 U	0.0075 UJ	0.0075 U	0.0075 UJ	0.0075 U		
7440-23-5	SODIUM	mg/l	170	136	66.5	243	68.4	211		
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l	179	119	108	217	107	221 J		
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U		
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l	0.6 U	0.3 U	0.03 U	1.4	0.6 U	0.6 U		
14808-79-8	SULFATE (AS SO4)	mg/l	219	21.2	601	395	435	496		
18496-25-8	SULFIDE	mg/l	182	235	0.44	27.2	48.6	247		
7440-44-0	TOTAL CARBON	mg/l	1040	770		1890	117 J	967		
TOC	TOTAL ORGANIC CARBON	mg/l	728	547	2.4	1620	23.6	754		
TIC	TOTAL INORGANIC CARBON	mg/l	316	223		272	93.3	213		
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL		15.1		679				
DHBt	DHBt	cells/mL		38.3		949				
DHC	DHC	cells/mL		439		715000				
TCE	TCE	cells/mL		267		917000				
VCR	VCR	cells/mL		8		54400				
	OTHER									
74-86-2	Acetylene	ug/l		0.91						
1333-74-0	Hydrogen	nM		42						

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	FIELDQC TB12310-B 6882494 LLI BPW39 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-C 6882495 LLI BPW39 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-D 6884462 LLI BPW40 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-E 6884463 LLI BPW40 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310 6886530 LLI BPW41 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-H 6887764 LLI BPW42 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-I 6889509 LLI BPW43 WATER 11/26/2012 0:00 02/11/13	FIELDQC TB12310-J 6889510 LLI BPW43 WATER 11/26/2012 0:00 02/11/13
CAS NO.	COMPOUND	UNITS:								
	VOLATILES									
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
75-34-3	1,1-DICHLOROETHANE	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-35-4	1,1-DICHLOROETHENE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
75-00-3	CHLOROETHANE	ug/l	1 U	1 U	1 U	1 U	1 U	1 UJ	1 UJ	1 UJ
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 UJ	0.8 UJ
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
75-01-4	VINYL CHLORIDE	ug/l	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
74-85-1	ETHENE	ug/l								
74-84-0	ETHANE	ug/l								
74-82-8	METHANE	ug/l								
	DISSOLVED METALS									
7429-90-5	ALUMINUM	mg/l								
7440-38-2	ARSENIC	mg/l								
7440-70-2	CALCIUM	mg/l								
7439-89-6	IRON	mg/l								
7439-95-4	MAGNESIUM	mg/l								
7439-96-5	MANGANESE	mg/l								
9/7/7440	POTASSIUM	mg/l								
7782-49-2	SELENIUM	mg/l								
7440-23-5	SODIUM	mg/l								
	OTHER									
16887-00-6	CHLORIDE (AS CL)	mg/l								
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l								
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l								
14808-79-8	SULFATE (AS SO4)	mg/l								
18496-25-8	SULFIDE	mg/l								
7440-44-0	TOTAL CARBON	mg/l								
TOC	TOTAL ORGANIC CARBON	mg/l								
TIC	TOTAL INORGANIC CARBON	mg/l								
	WASTE CHARACTERISTICS									
BVC	BVC	cells/mL								
DHBt	DHBt	cells/mL								
DHC	DHC	cells/mL								
TCE	TCE	cells/mL								
VCR	VCR	cells/mL								
	OTHER									
74-86-2	Acetylene	ug/l								
1333-74-0	Hydrogen	nM								

Ekonol Facility Validated Groundwater Analytical Results Wheatfield, New York 4th Qtr 2012 Sampling Event		Location ID: Sample ID: Lab Sample Id: Source: SDG: Matrix: Sampled: Validated:	FIELDQC TB12310-K 6891587 LLI BPW44 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-L 6891588 LLI BPW44 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-M 6893315 LLI BPW45 WATER 11/26/2012 0:00 2/11/2013	FIELDQC TB12310-N 6893316 LLI BPW45 WATER 11/26/2012 0:00 2/11/2013
CAS NO.	COMPOUND	UNITS:				
	VOLATILES					
71-55-6	1,1,1-TRICHLOROETHANE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U
75-34-3	1,1-DICHLOROETHANE	ug/l	1 U	1 U	1 U	1 U
75-35-4	1,1-DICHLOROETHENE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U
75-00-3	CHLOROETHANE	ug/l	1 U	1 U	1 UJ	1 UJ
156-59-2	CIS-1,2-DICHLOROETHYLENE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U
127-18-4	TETRACHLOROETHYLENE(PCE)	ug/l	0.8 U	0.8 U	0.8 U	0.8 U
156-60-5	TRANS-1,2-DICHLOROETHENE	ug/l	0.8 U	0.8 U	0.8 U	0.8 U
79-01-6	TRICHLOROETHYLENE (TCE)	ug/l	1 U	1 U	1 U	1 U
75-01-4	VINYL CHLORIDE	ug/l	1 U	1 U	1 U	1 U
74-85-1	ETHENE	ug/l				
74-84-0	ETHANE	ug/l				
74-82-8	METHANE	ug/l				
	DISSOLVED METALS					
7429-90-5	ALUMINUM	mg/l				
7440-38-2	ARSENIC	mg/l				
7440-70-2	CALCIUM	mg/l				
7439-89-6	IRON	mg/l				
7439-95-4	MAGNESIUM	mg/l				
7439-96-5	MANGANESE	mg/l				
9/7/7440	POTASSIUM	mg/l				
7782-49-2	SELENIUM	mg/l				
7440-23-5	SODIUM	mg/l				
	OTHER					
16887-00-6	CHLORIDE (AS CL)	mg/l				
14797-55-8	NITROGEN, NITRATE (AS N)	mg/l				
7723-14-0	PHOSPHORUS, DISSOLVED (AS P)	mg/l				
14808-79-8	SULFATE (AS SO4)	mg/l				
18496-25-8	SULFIDE	mg/l				
7440-44-0	TOTAL CARBON	mg/l				
TOC	TOTAL ORGANIC CARBON	mg/l				
TIC	TOTAL INORGANIC CARBON	mg/l				
	WASTE CHARACTERISTICS					
BVC	BVC	cells/mL				
DHBt	DHBt	cells/mL				
DHC	DHC	cells/mL				
TCE	TCE	cells/mL				
VCR	VCR	cells/mL				
	OTHER					
74-86-2	Acetylene	ug/l				
1333-74-0	Hydrogen	nM				