RESULTS OF REMEDIATION PILOT TESTING

CONOCOPHILLIPS COMPANY
SERVICE STATION 255353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

Delta Project WA255-3523-1

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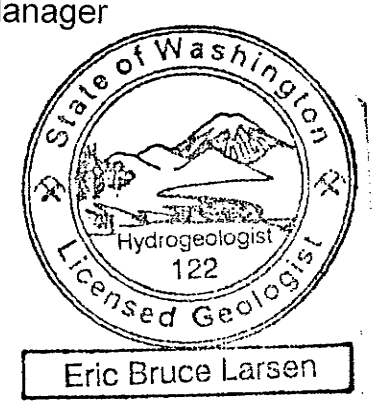

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1.0 INTRODUCTION

At the request of ConocoPhillips Company (ConocoPhillips or COP), Delta Environmental Consultants (Delta) conducted remediation pilot testing activities in the vicinity of COP Station No. 255353 located at 600 Westlake Avenue North in Seattle, Washington between January 11 and March 21, 2006. The activities included air sparging and soil vapor extraction tests, evaluation of vadose zone biorespiration characteristics, evaluation of physical groundwater characteristics, and vapor sampling of manholes and vaults. Testing and monitoring activities were performed on the subject ConocoPhillips property, on City of Seattle rights-of-way (City ROW), and on the property owned by City Investors XI, LLC (City Investors). The purpose of this report is to summarize the results of these pilot testing and vapor monitoring activities.

1.1 SITE LOCATION AND DESCRIPTION

ConocoPhillips Station No. 255353 is an operating service station located on the northeast corner of the intersection of Westlake Avenue North and Mercer Street in Seattle, Washington (Figure 1). ConocoPhillips also owns the adjacent parcel to the east. The service station was originally constructed by Union Oil Company of California (Unocal) in 1965. Previous uses of the service station property and adjacent parcel include a lumber mill, creamery, brewery, and a Denny's restaurant. Prior to development of the property for use as a lumber mill, the property was a wetland area and part of Lake Union, and the land was reclaimed using undocumented fill materials. The parcel adjacent to the service station is currently vacant and leased for use as a parking lot. The service station currently has four 10,000-gallon fuel underground storage tanks (UST), and six dispensing islands (Figure 2).

City Investors owns the property immediately north of the ConocoPhillips service station property and adjacent parcel. The western half of the City Investors property was developed and operated as a service station as early as 1921, and a Unocal station operated on the property until 1964, when the City of Seattle acquired the property from Unocal. Other historical uses of the property include a lumber mill, boat maintenance, cabinet manufacturing, and automobile service and detailing operations. Buildings and other structures associated with the former service station on the western half of the City Investors property were recently demolished and the property was paved with asphalt. A vacant building, formerly associated with the lumber mill, remains on the eastern half of the City Investors property.

1.2 BACKGROUND AND PREVIOUS INVESTIGATIONS

In May 1980, a release of supreme leaded gasoline at the existing service station was confirmed by Unocal following inventory discrepancies. Approximately 80,000 gallons was estimated to have leaked over a four-month period. The release occurred from a product line just south of the western pump islands. The USTs and associated underground lines were immediately replaced, two product recovery trenches were installed on the service station property, and a number of recovery wells were installed on and around the property. Recovery of free product began in June 1980. Recovery of free product was discontinued in October 1982, as amounts being recovered dwindled.

In 1988, a soil vapor extraction (SVE) system was installed utilizing the free product recovery wells and trenches for vapor extraction. Monitoring showed that SVE was effective at reducing residual free product across the site. The system was shut down in August 1990 to evaluate site conditions after extracted vapor concentrations had decreased. The system was pulsed on/off several times during the 1990s and manual/passive free product recovery was employed.

Tosco Corporation acquired the service station property and adjacent property from Unocal in 1997. Tosco subsequently was acquired by Phillips Petroleum, which ultimately merged with Conoco to form ConocoPhillips.

Meanwhile, in May 2001, a contractor was removing the waste oil and heating oil USTs at the site and accidentally broke a product line. An estimated 600 gallons of unleaded gasoline was released. The contractor had a vacuum truck standing by on site and recovery of free product was initiated immediately from the UST excavation. Approximately 500 gallons of free product were removed from the excavation at that time.

Vacuum trucks continued to be used for enhanced fluid recovery (EFR) from adjacent monitoring wells near the release location on a biweekly to monthly basis throughout the following year. Free product had been measured in on-site monitoring wells following the May 2001 release. Subsequent data from those wells indicated that free product recovery using EFR was effective at removing impacts associated with the May 2001 release.

To further remediate the station property and to prevent hydrocarbon migration off-site onto the adjacent properties, a new remediation system was designed and installed. The system consists of an air sparge/soil vapor extraction (AS/SVE) trench, SVE wells, and several deep air sparge wells. Approximately 1,410 tons of impacted soils were removed during installation of the trench and wells. The new remediation system was installed and began operating in August of 2003. Groundwater concentrations in a number of wells on site with residual petroleum hydrocarbons showed dramatic improvement after the system began operating.

Additional on-site and off-site assessment of soil and groundwater conditions on and surrounding the COP station property and property owned by City Investors was performed between June and November 2005. On-site assessment activities included installing a total of 24 soil borings across the two COP parcels and off-site assessment activities included installing a total of 71 soil borings on the City ROW and on the City Investors property. Each boring was sampled continuously from 5 feet below grade to the total depth explored. Seven of the on-site borings and 48 of the off-site borings were completed as groundwater monitoring wells. Additionally, nine of the on-site borings were completed as potential air sparging or soil vapor extraction wells. A total of 460 soil samples collected from on- and off-site borings were analyzed to document hydrocarbon concentrations at various depths on the COP and City Investors parcels and the City ROW.

Soil sample results indicated that residual hydrocarbon impacts remained in various areas beneath the COP and City Investors parcels and the City ROW. Hydrocarbon impacts were mostly limited vertically in a smear-zone that varied in thickness at depths between approximately 9 and 15 feet below the ground surface on the COP property, between approximately 5 and 15 feet below the ground surface on areas of the City ROW, and between approximately 4 and 20 feet below the ground surface on areas of the City Investors property. In addition, groundwater was sampled from new and pre-existing wells located on the COP property, City Investors property, and on the City ROW. Groundwater sampling results from July and November 2005 indicated that elevated dissolved hydrocarbon concentrations remained present in several areas on the COP and City Investors properties as well as on areas of the City ROW. Details of these on-site and off-site assessment activities were presented in reports prepared by Delta, which were issued in August 2005 and November 2005.

1.3 SUBSURFACE CONDITIONS

Subsurface soil encountered during drilling activities on the COP property consisted of sands and silts with varying amounts of gravel and clay directly beneath the asphalt surface to depths ranging from approximately 10 to 20 feet below ground surface. A layer of wood debris was encountered across the site at depths ranging from approximately 7 to 20 feet below ground surface, and appeared to increase in thickness from west to east. Native silts and sands and areas of peat were encountered at the bottom of the wood debris layer, at depths of approximately 19 to 21.5 feet below ground surface.

Asphalt and/or concrete layers, ranging from approximately 3 inches to 20 inches in thickness, were encountered at ground surface of each boring located on the City Investors property and in the surrounding City streets. Subsurface soil encountered during drilling of borings located on the City Investors property consisted of sands, silts, and clays, with varying amounts of gravel, extending from directly beneath surface layers of asphalt and concrete to depths ranging from 5.5 feet to 20 feet below ground surface. A layer of wood debris, ranging from 0.5 foot to 10 feet in thickness, was encountered at varying depths across the City Investors property.

Subsurface soil encountered during drilling of borings located in surrounding City ROW consisted of sands, silts, and clays, with varying amounts of gravel extending from beneath the surface layers of asphalt and concrete to depths ranging from 9 feet to 20 feet below ground surface. Wood debris was encountered at depths ranging from 9 feet to 19.9 feet below ground surface, and in amounts ranging from trace amounts beneath Valley Street and the City park property to the north, up to a thickness of 11 feet along Terry Avenue North to the east. The wood debris layer beneath Westlake Avenue varied from 0.5 foot to 3 feet in thickness, and increased to a thickness ranging from 3 feet to 7.5 feet beneath Mercer Street. Peat was also encountered at deeper depths (approximately 16 to 19 feet below ground surface) during drilling of borings located along Mercer Street and in Westlake and Terry Avenues in the vicinity of Mercer Street.

Groundwater was encountered during drilling activities at depths ranging from approximately 9.5 to 12.5 feet below ground surface on the COP property, and at depths ranging from approximately 5 to 11 feet below ground surface across the City Investors' property. Groundwater encountered during drilling on the surrounding streets and City park property to the north ranged in depths from approximately 7 to 13.5 feet below ground surface.

2.0 REMEDIATION PILOT TESTING AND VAPOR MONITORING

Remediation pilot testing and vapor monitoring activities were conducted by Delta on the COP property and in the City ROW during January, February, and March of 2006. These activities included air sparge tests, a soil vapor extraction test, biorespiration tests, aquifer characteristic testing, and monitoring vapors at utility manholes and vaults. The following sections describe these field activities.

2.1 AIR SPARGE TESTING

Delta performed air sparge testing activities on the southwest portion of the COP property, adjacent to Westlake Avenue North, on January 11 and 12, 2006. Recently-installed wells DAS-8 and DAS-12 were designated as air sparge test wells. On January 11, 2006, Delta conducted a 4-hour air sparge test on DAS-8. On January 12, 2006, Delta conducted a 2-hour test on DAS-8 to supplement data collected during the test performed on January 11. Following the 2-hour test performed on DAS-8, Delta performed a 2-hour air sparge test on DAS-12 to obtain additional information.

Observation wells used during the tests on DAS-8 included MW-34, MW-58, MW-59, MW-97, MW-98, DAS-9, and DAS-12, which ranged in distance between approximately 16 feet (MW-34) and 75 feet (MW-59) from the test well. Wells MW-58 and MW-97 were used as observation wells during the test performed on DAS-12, at distances from the test well of approximately 36 feet and 28 feet, respectively.

Prior to injecting air into the test well, Delta measured baseline water quality parameters at the test well and at each observation well. Water quality parameters included depth to water, which was measured using an electronic water level meter, and dissolved oxygen (DO), temperature, pH, oxidation-reduction potential (ORP), and conductivity, which were measured using an electronic water quality meter with a down-hole probe. Following baseline field measurements, data-logging transducers were placed in selected observation wells to automatically record measurements of temperature, pressure, ORP, pH, DO, and conductivity at regular time intervals during each air sparge test. The data loggers were calibrated to each water quality parameter and synchronized prior to being placed into each well.

Each air sparge test was conducted using a portable 5.5 horsepower (hp) air compressor capable of a maximum flow rate of 8.9 cubic feet per minute (cfm) and maximum pressure of 100 pounds per square inch (psi). Air was injected into the test well using air supply hose connected to a threaded well cap at the wellhead. A pressure gauge (0 to 30 psi), flow meter (0 to 25 cfm air), and regulator valve were connected to the air supply line and were used to monitor and control injection pressure and the air injection rate into the test well. During air sparge testing activities, a maximum air flow of 5 cfm was achieved with the portable compressor. Details of each air sparge test are summarized below.

2.1.1 4-Hour Test, DAS-8, January 11, 2006

Data-logging transducers were placed in observation wells MW-34, MW-97, MW-98, and DAS-12 to automatically record water quality parameters during this test. In addition, water quality parameters were manually gauged during the test at MW-58, MW-59, and DAS-9. Air was initially injected into DAS-8 at a flow rate of 3 cfm with an injection pressure of 9 psi for the first 1.5 hours of the test. The air injection flow rate was then increased to 5 cfm at a pressure of 17 psi for the remainder of the test. Due to complications with two of the data loggers used during this test, no data was recorded during the first two and a half hours of the test in wells MW-34 and MW-97.

2.1.2 2-Hour Test, DAS-8, January 12, 2006

This test was performed to supplement data from the previous test performed on January 11, 2006. Data-logging transducers were placed in observation wells MW-34 and MW-98 during the supplemental test. The transducer placed in MW-34 was used to obtain water quality data that had not been recorded during the previous test. The transducer placed in MW-98 was used to compare data with results obtained from the well during the previous test. Water quality parameters were also manually gauged at MW-97 and DAS-12 during this test. Air was injected into DAS-8 at a flow rate of 5 cfm with an injection pressure of 17 psi for the duration of this test.

2.1.3 2-Hour Test, DAS-12, January 12, 2006

Data-logging transducers were placed in observation wells MW-58 and MW-97 to automatically record water quality parameters during this test. Air was injected into DAS-12 at a flow rate of 5 cfm with an injection pressure of 17 psi for the duration of this test.

After completion of each air sparge test, the data-logging transducers were recovered from the observation wells, the data was downloaded, and the data were analyzed to determine the effective radius of influence that is indicated by the test. Water quality parameters were also measured manually at each well following completion of each test. Summaries of pre-test and post-test field measurements of water quality parameters for each air sparge test are included in Table 1. Additionally, data recorded by the transducers are included in Appendix A.

2.2 SOIL VAPOR EXTRACTION TEST

Delta performed a soil vapor extraction (SVE) test in the vicinity of the COP property on February 7, 2006. The test was conducted on recently-installed groundwater monitoring well MW-98, which is located on the City ROW in Westlake Avenue North, immediately west of the COP property. Groundwater monitoring wells MW-34, MW-61, MW-62, MW-97, and MW-105, located approximately 41.5 feet (MW-61) to 65 feet (MW-105) from the test well, were designated as observation wells to monitor vacuum influence during the test. The test was performed for approximately 3 hours.

Prior to applying vacuum to the test well, Delta measured baseline headspace vapors and water quality parameters at the test well and at each observation well. Headspace vapor monitoring included volatile organic compounds (VOCs), which were measured using a photo-ionization detector (PID), and methane, carbon dioxide, and oxygen, which were measured using respective gas detection meters. Water quality parameters included depth to water, which was measured using an electronic water level meter, and dissolved oxygen (DO), temperature, pH, oxidation-reduction potential (ORP), and conductivity, which were measured using an electronic water quality meter with a down-hole probe. Following the baseline field measurements, magnehelic gauges were attached to each observation well to measure vacuum influence during the SVE test. The magnehelic gauges were attached to each wellhead using a slip cap fitted with a barbed valve and flexible tubing.

The SVE test was conducted using a Rotron DR454 1.5 hp regenerative blower capable of a maximum vacuum of 60 inches of water column (inches w.c.) and maximum air flow rate of 127 cfm. Vacuum was applied to the test well through a wellhead assembly, which included a dilution valve/vacuum relief valve, a vacuum gauge (0 to 100 inches w.c.), and an air sampling port. The dilution valve and vacuum gauge were used to control and monitor applied vacuum to the test well. An anemometer was used to measure air velocity at the wellhead.

At the beginning of the SVE test, the blower vacuum was increased gradually to 30 inches w.c., which was applied through the first 60 minutes of the test. Applied vacuum was then increased to 35 inches w.c., which was sustained for approximately 30 minutes. At 90 minutes into the test, Delta observed groundwater coming out of the top of the wellhead, so the blower was turned off to allow the water to recede. After allowing the water level to recede for approximately 10 minutes, the test was resumed at a lower vacuum of approximately 20 inches w.c., which was applied for approximately 60 minutes. The final 30 minutes of the test were completed using a vacuum of approximately 26 inches of water.

Approximately every five to fifteen minutes during the SVE test, extracted soil vapors at the test well were monitored for velocity, VOCs, methane, carbon dioxide, and oxygen, and vacuum influence was observed and recorded at each observation well. Extracted soil vapors were discharged directly into the atmosphere from an exhaust stack at a height of approximately eight feet above ground to discharge vapors above the breathing zone for health and safety purposes. Prior to performing the test, Delta confirmed with the Puget Sound Clean Air Agency that this temporary discharge did not require a special permit.

At the conclusion of the SVE test, a vapor sample was collected at the wellhead sampling port using a portable vacuum pump. The vapor sample was collected into a Tedlar bag and kept in an opaque container until delivered to the analytical laboratory for analyses. The vapor sample was transported to North Creek Analytical, Inc., in Bothell, Washington under standard chain-of-custody procedure, for analysis of the following parameters: total petroleum hydrocarbons as gasoline (TPH-G) by EPA Method 8015 modified; benzene, toluene, ethylbenzene, total xylenes (BTEX) and methyl tert-butyl ether (MTBE) by EPA Method 8021; and nitrogen, methane, carbon monoxide, carbon dioxide, and oxygen by ASTM Method D-1946 (“Fixed Gas Analysis”).

After completion of the SVE test, headspace vapors and water quality parameters were measured at the test well and each of the observation wells. A summary of vapor monitoring data collected at the test well during the SVE test is presented in Table 2, a summary of vacuum influence observations is presented in Table 3, and summaries of pre-test and post-test vapor and water quality monitoring are included in Table 4. Vacuum influence data are also included in Appendix B.

2.3 BIORESPIRATION TESTING

Delta performed biorespiration testing in the vicinity of two groundwater monitoring wells associated with the COP property between February 7 and March 8, 2006. Biorespiration testing was performed on wells MW-98 and MW-51 to evaluate the effects of biological activity in areas of significant hydrocarbon impact and insignificant hydrocarbon impact, respectively. Biorespiration testing was initiated at MW-98 on February 7, 2006, concurrent with SVE testing activities, and was initiated at MW-51 on February 8, 2006.

Biorespiration testing consisted of collecting baseline measurements at the test well, aerating the zone of interest, and then measuring biorespiration response over time following aeration. The respiration measurements included monitoring headspace vapors at each test well for oxygen, carbon dioxide, and methane using respective gas detection meters, and VOCs using a PID. Delta personnel also monitored water quality parameters at each test well using an electronic water quality meter with a down-hole probe. Water quality parameters included temperature, pH, DO, ORP, and conductivity.

Baseline field measurements were collected at MW-98 and MW-51 on February 7 and 8, respectively. Immediately following collection of baseline measurements, the test well was aerated by venting the well using a regenerative blower (Rotron DR454). As indicated in the description of SVE testing activities,

MW-98 was aerated for approximately three hours. Well MW-51 was aerated for approximately four hours. Immediately following aeration, response measurements were collected at the test well and a soil vapor sample was collected into a Tedlar bag using a portable vacuum pump at the wellhead. The vapor sample was kept in an opaque container until delivered to the laboratory for analysis of TPH-G using EPA Method 8015M, BTEX compounds and MTBE using EPA Method 8021, and nitrogen, methane, carbon dioxide, carbon monoxide, and oxygen using ASTM Method D-1946 ("Fixed Gas Analysis").

Subsequent response measurements at each test well were collected on a weekly basis for a period of four weeks following the initial biorespiration event, and included collection of vapor samples from each well for laboratory analysis. The subsequent biorespiration monitoring events were performed on February 15, February 24, March 2, and March 8, 2006. Baseline and response measurements for biorespiration testing performed on MW-51 and MW-98 are presented in Table 5. Laboratory analytical results of vapor samples are presented in Table 6. Copies of laboratory analytical reports and chain of custody documentation for biorespiration air samples are included in Appendix C.

2.4 AQUIFER CHARACTERISTIC TESTING

Delta performed aquifer testing activities at the COP site between February 9 and March 21, 2006, which included slug tests on Wells DW-1, DAS-6, DAS-10, DAS-12, MW-53, and MW-59, and step-drawdown pump tests on Wells DW-1 and MW-50. Slug tests were performed to provide data for estimating hydraulic conductivity in the water-bearing zone in the vicinity of each slug test well. Step-drawdown pump tests were conducted to determine an optimal pumping rate for a subsequent 24-hour constant rate pump test for each pump test well. No constant rate pump tests were performed.

Well DW-1 is a deep well, which was recently installed at the site to obtain information with respect to a deep water-bearing zone. The well is approximately 46 feet in total depth and is screened between depths of 41 feet and 46 feet below ground surface. Wells DAS-6, DAS-10, and DAS-12 were installed at the site during June 2005, for possible future use as air sparge wells to remediate the site. The wells are approximately 20 feet in total depth and are screened between depths of 18 and 20 feet below ground surface. Wells MW-50, MW-53 and MW-59 are groundwater monitoring wells. MW-50 is approximately 17.5 feet in total depth and is screened between depths of 2.5 and 17.5 feet below ground surface. Wells MW-53 and MW-59 are approximately 20 feet in depth and are screened between 5 and 20 feet below ground surface. The locations of these wells are shown on the site map in Figure 2, and represent different areas of the COP station property.

2.4.1 Slug Tests

Slug tests were performed on wells DW-1 and DAS-6 on February 9, 2006, and on MW-53, MW-59, DAS-10, and DAS-12 on March 21, 2006. For each test, a "slug" comprised of galvanized steel piping, sealed at each end, was used to displace approximately 1.5 feet of water column in each 2-inch diameter test well. Each test included positive displacement, where the slug was inserted into the well to raise the water level, and negative displacement, where the slug was removed from the well to lower the water level. Prior to the start of each test the water level in the well was gauged with an electronic water level meter. Following insertion of the slug into the well, the water level was monitored in the test well at regular timed intervals until the water level returned to within 90% of its original level. The slug was then quickly removed, and water level was monitored in the test well at regular timed intervals until the water column recovered to within 90% of its original level. Water levels were recorded in a field notebook during each test. Prior to and between each test, the slug was cleaned and new rope was attached to the slug to prevent cross-contamination of the test wells. A summary of pre- and post-test water levels and slug test recovery times are included in Table 6, and recorded field data are included in Appendix D.

2.4.2 Step-Drawdown Pump Tests

Step-drawdown pump tests were performed on DW-1 and MW-50 on February 17 and March 2, 2006, respectively. Each pump test was conducted using a Grundfos Redi-Flo2 variable speed electric submersible pump, capable of a maximum discharge rate of 8 gallons per minute (gpm) and maximum head of 250 feet. The pump was powered by a portable generator and included a controller to manually adjust the pumping speed (0 to 400 hertz). The pump was placed into the test well near the bottom of the well. Discharge tubing from the pump was routed to a flow meter (0 to 10 gpm water), which was connected to a hose to discharge water into a storage tank. A totalizing flow meter (totalizer) was connected in-line with the discharge hose to monitor the total gallons pumped during each test and to confirm the discharge rate during pumping.

Water levels were measured in selected observation wells surrounding each test well before and after each test was conducted to obtain additional information regarding drawdown influence. Observation wells used during the test on DW-1 included DAS-6, MW-3A, MW-33, MW-35, and MW-60, which ranged in distance from approximately five feet (DAS-6) to 54 feet (MW-35) from the test well. Observation wells used during the test on MW-50 included DW-1, DAS-4, DAS-6, DAS-7, and MW-33, which ranged in distance from approximately 25 feet (DAS-4) to 60 feet (DAS-6) from the test well.

Prior to placing the pump into the test well, depth to water and total depth were measured in the well to calculate the height of the water column and determine the desired two-thirds drawdown for the test. During the test, the pump was set to several pump speeds that corresponded to varying discharge rates. Each rate was sustained for a length of time ranging from approximately ten minutes to approximately one hour before being adjusted to the next rate. Water level was measured in the test well at regular timed intervals during each pumping rate “step” to monitor drawdown. Following completion of the pump test, water level was measured in the test well at regular timed intervals to monitor recovery. A summary of step-drawdown pump test parameters is presented in Table 8, and recorded field data are included in Appendix D.

2.4.3 Water Storage and Discharge

Water generated during step-drawdown pump test activities was stored in a 4,000-gallon capacity tank provided by Baker Tanks. Prior to discharge, Delta obtained authorization from King County’s Wastewater Treatment Division (Discharge Authorization No. 10692-01) to temporarily discharge the water to the sanitary sewer. Discharge Authorization No. 10692-01 defined specific discharge limits for water quality parameters including pH, settleable solids, benzene, toluene, and ethylbenzene, and limited the discharge quantity to 1,000 gallons. As such, Delta collected a water sample from the Baker tank for analysis of pH by EPA Method 150.1, settleable solids by EPA Method 160.5, and benzene, toluene, and ethylbenzene by EPA Method 8021B. Delta also obtained verbal authorization from King County to increase the total discharge quantity to 1,500 gallons and obtained verbal authorization from Seattle Public Utilities (SPU) to use a selected catch basin located on the COP property as the discharge point. SPU personnel required that the discharge rate did not exceed 50 gpm.

Upon receipt of the analytical results, which indicated that water quality parameters were within the authorized limits, Delta returned to the site on March 23, 2006 to discharge the water from the Baker tank to the sanitary sewer. A total of approximately 1,390 gallons of water were discharge from the tank to a catch basin located within the northern portion of the parking lot leased by West Marine. The catch basin drains to the sanitary sewer in Terry Avenue North. The discharge rate ranged between 2.5 gpm and 11 gpm. A copy of King County Discharge Authorization No. 10692-01 is included as Appendix E and laboratory analytical results for water discharge samples are included in Appendix F.

2.5 VAPOR MONITORING AND SAMPLING

On March 15, 2006, Delta personnel surveyed utility manholes and vaults and storm drains in the vicinity of the COP property, City Investors property, and City of Seattle rights-of-way, using an explosive gas detector (methane detection meter) and a photo-ionization detector (PID) to test the atmosphere in these facilities for volatiles. Where detectable concentrations of volatiles were detected in a particular utility vault during field screening, a vapor sample was collected in a Tedlar bag and submitted for laboratory analysis. A total of 27 manholes, vaults, or storm drains were identified at the site for monitoring explosive vapors. A summary of vapor monitoring results is presented in Table 9. The locations of these monitoring points are shown on Figure 3.

3.0 RESULTS

Results of the pilot testing and vapor monitoring activities described above are summarized in the following sections.

3.1 AIR SPARGE TESTING

Data collected during each of the air sparge tests indicated no significant rise in water levels in any of the observation wells. With respect to dissolved oxygen, concentrations did not increase significantly in most of the observation wells during the tests. However, during the 4-hour test performed on DAS-8, field measurements of dissolved oxygen in Well MW-34 did show increased concentrations at 30 minutes and at approximately three hours into the test, at 1.48 milligrams per liter (mg/l) and 3.67 mg/l, respectively, compared to the initial field measurement of 0.34 mg/l. The final field measurement of dissolved oxygen in MW-34 at completion of the 4-hour test on DAS-8 indicated that the concentration decreased to 0.26 mg/l. Data obtained from the data-logging transducer that was placed in MW-34 during the 4-hour test also indicated increasing dissolved oxygen concentrations followed by a decrease in concentration by completion of the test. As stated previously, the transducer in MW-34 recorded data for only the last 1.5 hours of the 4-hour test due to complications with the device.

During the supplemental 2-hour test performed on DAS-8, the dissolved oxygen concentration in observation well MW-34 increased from a pre-test field measurement of 0.19 mg/l to a post-test field measurement of 1.52 mg/l. Data obtained from the data-logging transducer that was placed in MW-34 during the supplemental test concurred with the increase in concentration observed in the field. Well MW-34 is located approximately 16 feet from test well DAS-8 and was the closest observation well to the test well.

Field measurements of the other water quality parameters and data obtained from the transducers did not indicate significant change in temperature, pH, ORP, or conductivity in any of the observation wells during any of the tests. Field measurements obtained during air sparge testing are presented in Table 1 and electronically recorded data from the transducers are included in Appendix A.

3.2 SOIL VAPOR EXTRACTION TESTING

3.2.1 Observed Flow Rates and Vacuum Influence

During the SVE test performed on MW-98, observed vapor extraction flow rates ranged from approximately 17 cubic feet per minute (cfm) to approximately 26 cfm at applied vacuums ranging from 20 inches w.c. to 35 inches w.c., respectively. A summary of applied SVE vacuum and extraction flow rates is included in Table 2.

Measurable vacuum influence was observed at each of the SVE observation wells during the test, ranging from 0.01 inches w.c. at MW-34 (at 20 inches w.c. applied test vacuum) to 0.38 inches w.c. at MW-97 (at 30 inches w.c. applied test vacuum). Observation Well MW-97, located approximately 50 feet south of Test Well MW-98, appeared to show the highest vacuum influence of the five observation wells during each applied test vacuum. A summary of vacuum influence observations is included in Table 3. Additional vacuum influence data is also included in Appendix B.

An effective radius of influence is determined by evaluating the radius at which the normalized vacuum (measured vacuum in observation well divided by the applied vacuum at the test well) equals 0.01.

Normalized vacuums ranged from 0.0008 in MW-34 (at 35 inches w.c. applied test vacuum) to 0.0111 in MW-97 (at 30 inches w.c. applied vacuum). Graphs 1 through 4 show normalized vacuum plotted with respect to distance from the test well during each applied vacuum. As illustrated on the graphs, the results are not particularly linear, which implies a lack of homogeneity in subsurface materials between the test well (MW-98) and the five observation wells (MW-34, MW-61, MW-62, MW-97, and MW-105). This is consistent with subsurface soil observations made during drilling of these borings. According to the test data, the observed radius of influence was approximately 50 feet, corresponding to observation well MW-97. However, the actual effective radius of influence may be less than 50 feet in areas of the site and vicinity where subsurface materials are less conducive to flow.

3.2.2 Extracted Vapor Monitoring and Analysis

Monitoring of extracted vapors at MW-98 during the test indicated that VOC concentrations fluctuated between 254 parts per million (ppm) and 311 ppm and that methane remained greater than 1% (greater than 10,000 ppm). During the first half of the test, oxygen levels in extracted vapors showed a steady increase, ranging from 4.6% to 8.2%, while carbon dioxide levels appeared to decrease, from values greater than 20% to 16%. During the second half of the test, both oxygen and carbon dioxide showed fluctuating levels, ranging from 0% to 6.1% for oxygen and from 18.6% to greater than 20% for carbon dioxide. Monitored concentrations in extracted soil vapors from MW-98 are presented in Table 2.

Analytical results of the vapor sample collected at the end of the test indicated a concentration of TPH-G at 2,460 ppm by volume (ppmv), benzene at 57.2 ppmv, toluene at 70.2 ppmv, ethylbenzene at 23.1 ppmv, and total xylenes at 93.2 ppmv. Due to an oversight, the laboratory did not analyze the vapor sample for MTBE as requested. Fixed gas analysis of the sample indicated methane, oxygen, carbon dioxide, and nitrogen at 1.1%, 12%, 6.5%, and 80%, respectively. Carbon monoxide was not detected above the laboratory reporting limit. The analytical results for the vapor sample are included in Table 6, and a copy of the laboratory analytical report and chain of custody documentation is included in Appendix C.

3.2.3 Headspace Vapor Monitoring

Monitoring of headspace vapors at the SVE observation wells prior to the test indicated VOC concentrations ranging from 1.5 ppm (MW-61) to 86 ppm (MW-97) and methane levels ranging from 0.004% (MW-62) to 0.049% (MW-105). Following the test, VOC concentrations appeared to decrease in the SVE observation wells, ranging from 0 ppm (MW-34) to 32.4 ppm (MW-62), while methane levels ranged from 0% (MW-97) to greater than 1% (MW-105). Prior to the test, oxygen was at 0% in four of the observation wells and at 11.8% in one well (MW-34), while carbon dioxide ranged from 1.4% (MW-34) to greater than 20% (MW-61, MW-62, MW-97). Following the test, oxygen and carbon dioxide levels varied in the wells, ranging from 0% (MW-62) to 20.9% (MW-97) for oxygen, and from 0.4% (MW-97) to greater than 20% (MW-61, MW-62) for carbon dioxide. Headspace vapor monitoring data is included in Table 4.

3.2.4 Water Quality Monitoring

Monitoring of water quality parameters in each of the wells before and after the test did not indicate significant differences in water levels, dissolved oxygen, temperature, pH, ORP, or conductivity. However, the water level in Test Well MW-98 did rise approximately one foot following the test. Dissolved oxygen concentrations showed only a slight increase in the wells, ranging from 0.21 mg/l (MW-62) to 0.31 mg/l (MW-97, MW-105) prior to the test, and ranging from 0.24 mg/l (MW-62) to 0.61 mg/l (MW-97) following the test. Water quality monitoring data is also included in Table 4.

3.3 BIORESPIRATION TESTING

The data collected from biorespiration testing activities were analyzed and interpreted to identify trends that would indicate biological activity is occurring in the subsurface, such as depletion of oxygen and generation of carbon dioxide. Another indication of biological activity is evidence of remediation effectiveness based on rebound of petroleum hydrocarbon concentrations and final oxygen levels versus baseline measurements. Results of vapor monitoring and water quality monitoring at each test well are described below.

3.3.1 Soil Gas Monitoring and Analysis

Baseline field monitoring of oxygen, methane, and carbon dioxide indicated that vapors from MW-51 and MW-98 contained 0% oxygen, 0% to 0.01% methane, and greater than 20% carbon dioxide. Following aeration, field monitoring indicated increases in oxygen levels to 2.4% in MW-51 and 4.7% in MW-98, a slight increase in methane from 0% to 0.005% in MW-51, and a significant increase in methane from 0.01% to greater than 1% in MW-98. Field monitoring of carbon dioxide indicated that levels remained greater than 20% following aeration. Field monitoring during subsequent events indicated that oxygen decreased back to 0% in both wells, carbon dioxide remained above 20% in both wells, and that methane fluctuated between 0% and greater than 1% in MW-51 and remained greater than 1% in MW-98. Field monitoring data for natural gases are presented in Table 5.

Analytical results of vapor samples collected from the two wells during the study indicated initially elevated levels of oxygen (following venting) and initially lower levels of methane and carbon dioxide. The results showed initial oxygen levels in MW-51 and MW-98 at 10% and 12%, respectively. The oxygen levels then decreased significantly in vapor samples collected from subsequent events, ranging from 1.2% to 1.8% in MW-51 and from 2.0% to 3.9% in MW-98. According to the analytical results, initial methane levels in MW-51 and MW-98 were at 2.6% and 1.1%, respectively. Thereafter, methane increased to levels ranging between 6.8% and 9.5% in MW-51, and showed an overall general increase in MW-98, from 1.7% to 3.1% during subsequent events. Initial carbon dioxide analyses indicated levels at 10% and 6.5% in MW-51 and MW-98, respectively, which subsequently increased in MW-51 to 17% and 18% and fluctuated between 11% and 14% in MW-98. Analysis of nitrogen indicated fairly constant levels in both wells, ranging from 72% to 77% in MW-51 and from 80% to 82% in MW-98. Carbon monoxide analysis indicated no detectable levels above the laboratory reporting limit in vapors from both wells. Additionally, hydrogen sulfide analysis was conducted on two samples from both wells during the last two monitoring events. The results showed concentrations at 600 parts per billion by volume (ppbv) and 62 ppbv in vapors collected on March 2, 2006 from MW-51 and MW-98, respectively. Hydrogen sulfide concentrations showed an increase in vapors collected from both wells on March 8, 2006, at 8,500 ppbv in MW-51 and 120 ppbv in MW-98. Biorespiration analytical results for natural gases are presented in Table 6 and plotted on Graphs 5 and 6.

3.3.2 Petroleum Hydrocarbon Vapor Monitoring and Analysis

Field monitoring of vapor VOCs with the PID indicated initial concentrations at 0 ppm in MW-51 and at 229 ppm in MW-98. Subsequent monitoring indicated a slight increase in concentrations immediately following aeration of each well, to 0.5 ppm in MW-51 and to 292 ppm in MW-98. Continued field monitoring of VOCs in headspace vapors showed a general increase in concentrations in both wells over time, ranging from 0 to 8.7 ppm in MW-51 and from 238 to greater than 2,000 ppm in MW-98. Field monitoring data for VOCs are presented in Table 5.

Laboratory analysis of petroleum hydrocarbons in the vapor samples collected from the two wells during the study indicated that TPH-G and BTEX concentrations generally decreased over time in MW-51 and generally increased over time in MW-98. Initial TPH-G concentrations were detected at 15.8 ppmv in MW-51 and at 2,460 ppmv in MW-98. According to the analytical results, TPH-G concentrations subsequently decreased in MW-51 to 3.90 ppmv during the study, and subsequently increased in MW-98 to 6,330 ppmv during the study. Similar to TPH-G, benzene concentrations in MW-51 also showed a decrease during the study, from an initial concentration of 0.554 ppmv to non-detectable concentrations. Conversely, benzene in MW-98 increased from an initial concentration of 57.2 ppmv to 147 ppmv, showing a decreasing trend thereafter to a final concentration of 88.6 ppmv. Analytical results also indicated similar increasing then decreasing trends for toluene, ethylbenzene, and xylenes in both wells. Additionally, MTBE and naphthalene analyses were conducted on two samples from both wells during

the last two monitoring events. The results indicated that neither compound was detected above respective laboratory reporting limits in any of the samples. Biorespiration analytical results for petroleum hydrocarbons are presented in Table 6 and plotted on Graphs 7 and 8.

3.3.3 Water Quality Monitoring

Field monitoring of water quality parameters during the test indicated generally increasing trends in dissolved oxygen in both wells and generally decreasing trends in pH and ORP in both wells. Other parameters, including measured water levels, temperature, and conductivity did not appear to show significant changes during the course of the study. Dissolved oxygen concentrations ranged from 0.28 to 2.25 mg/l in MW-51 and ranged from 0.24 to 1.29 mg/l in MW-98. Field monitoring of pH indicated a slight increase in both wells immediately following aeration, then a decreasing trend during the study, from 8.12 to 6.32 in MW-51 and from 8.41 to 6.25 in MW-98. ORP values were generally negative in both wells, ranging from approximately -117 millivolts (mV) to 8 mV in MW-51 and from approximately -102 mV to 23.6 mV in MW-98. Biorespiration water quality parameters are summarized in Table 5 and selected parameters are plotted on Graphs 9 through 12.

3.4 AQUIFER CHARACTERISTIC TESTING

3.4.1 Slug Tests

Data collected from each slug test was used to evaluate a hydraulic conductivity of the water-bearing zone in which each well is screened. Hydraulic conductivity values were evaluated using the Hvorslev formula for conductivity, which is based on the length and radius of the well screen within the water-bearing zone, the volume of water column displaced by the slug, and the initial flow rate of water entering or leaving the test well following displacement by the slug. The radius of each well screen in each test well is two inches. The five-foot well screen in DW-1 was estimated to be completely within the water-bearing zone of the deeper confined aquifer. The two-foot well screens in DAS-6, DAS-10, and DAS-12 were estimated to be completely within the water-bearing zone of the shallow unconfined aquifer. The well screens for MW-53 and MW-59 were partially within the water-bearing zone of the shallow unconfined aquifer. As such, the length of each screen used in the calculation for conductivity for MW-53 and MW-59 was assumed to be the initial height of the water column in each well, which were approximately 8.5 feet and 8 feet, respectively.

Based on observed initial flow rates for the test wells during positive displacement, hydraulic conductivity values ranged between 5.08×10^{-5} meters per second (m/s) and 1.08×10^{-4} m/s in shallow zone wells DAS-6, DAS-10, DAS-12, MW-53, and MW-59. Hydraulic conductivity values estimated for these wells from negative displacement data ranged between 1.91×10^{-5} m/s and 9.24×10^{-5} m/s. Hydraulic conductivity values for deep well DW-1 were estimated to be 1.22×10^{-4} m/s and 6.80×10^{-5} m/s, based on positive displacement and negative displacement values, respectively. The hydraulic conductivity values calculated for DAS-6, DAS-10, DAS-12, and MW-53 correspond to theoretical values for silty sand. The hydraulic conductivity values calculated for MW-59 and DW-1 correspond to theoretical values for clean sand. These results concur with field observations of soils encountered during drilling of each of the test wells. Slug testing data and calculated hydraulic conductivities are presented in Table 7. Field data are also included in Appendix D.

3.4.2 Step-Drawdown Pump Tests

Step-drawdown pump tests were performed on DW-1 and MW-50 to obtain additional information regarding deep and shallow aquifer characteristics, respectively, beneath the site. Specifically, data from each test were evaluated to determine a sustainable pumping rate for each well that would be capable of maintaining a drawdown of two-thirds of the standing water column. Water columns measured during the step-drawdown tests were 35.45 feet in DW-1 and 7.11 feet in MW-50, corresponding to desired drawdown of 23.63 feet and 4.74 feet, respectively.

During the test performed on DW-1, pump speeds ranged from 125 hertz (Hz) to 400 Hz, corresponding to discharge rates ranging from 1.4 gpm to a maximum of 6.0 gpm. The maximum drawdown achieved during the test on DW-1 measured 7.91 feet, which was approximately 23% of the initial water column in the well. The maximum pumping rate (6.0 gpm) could not achieve the desired two-thirds drawdown in Well DW-1. Water levels measured in observation wells prior to and following the pump test at DW-1 did not appear to be significantly affected.

During the test performed on MW-50, pump speeds ranged from 150 Hz to 225 Hz, corresponding to discharge rates ranging from 1.6 gpm to 3.1 gpm, respectively. Results of the test performed on MW-50 indicated that a pumping rate of approximately 2.9 gpm could achieve the desired drawdown in the well. Water levels measured in observation wells during the pump test at MW-50 indicated drawdown in the wells ranging from 0.06 feet at DAS-4 and DAS-6, located approximately 25 feet and 60 feet, respectively, from the test well, to 0.39 feet at DAS-7, located approximately 35 feet from the test well.

A summary of step-drawdown pump test parameters is presented in Table 8 and field data from each test are included in Appendix D.

3.5 VAPOR MONITORING

Delta field personnel located a total of seventeen storm drains (identified as SD-1 through SD-17), eight manhole covers (identified as MH-1 through MW-8), one electrical utility vault (identified as EV-1), and one sump (identified as SUMP-1) in the vicinity of the COP and City Investors properties and City ROWs. Four of the manhole covers (MH-5 through MH-8) appear to be associated with former recovery wells at the site which are currently being used as vapor extraction wells for the existing remediation system. Three of the four covers (MH-6, MH-7, and MH-8) had plugged holes, which prevented access of the gas detection meter probe. Additionally, one of the storm drains identified on the City Investors' property (SD-9) was covered with surface water and could not be monitored.

Vapors from five of the monitoring points (SD-15, MH-2, MH-4, MH-5, and EV-1) contained detectable levels of methane, ranging from approximately 0.001% to 0.015%. Volatile concentrations detected by the PID ranged from 0.1 ppm to 0.6 ppm in 15 of the monitoring points. One vapor sample was collected from MH-5 (0.015% methane) for natural gas analysis by ASTM Method D-1946. The laboratory analytical results indicated methane at 0.022%, and oxygen, nitrogen, and carbon dioxide at 20%, 77%, and 2.0%, respectively. A summary of vapor monitoring results is presented in Table 9 and monitoring points are shown on Figure 3. A copy of the laboratory analytical report for the vapor sample from MH-5 is included in Appendix G.

4.0 CONCLUSIONS

The air sparge testing in the southwest portion of the site that was performed on January 11 and 12, 2006 indicated that air sparging could be an effective remedial technology at the site and vicinity based on the results of the dissolved oxygen measurements observed in MW-34. Observation well MW-34 was located 16 feet from the test well, DAS-8. Therefore, the zone of influence of air sparge wells would likely be limited to this distance due to the heterogeneity of subsurface soils at the site and vicinity.

The SVE test at the site that was conducted on February 7, 2006 indicated that SVE technology would be an effective remediation technique at the site and vicinity. The results of the SVE tests showed vacuum influence in all of the monitored observation wells during the test at MW-98. The test results illustrate and confirm the known heterogeneity of the subsurface soils at the site and vicinity. A minimum effective radius of influence of vapor extraction wells was measured to be approximately 50 feet, but should be considered less than this for design purposes due to heterogeneous soils at the site and vicinity. Analytical results of extracted vapors and wellhead vapor monitoring further supported that SVE would be an effective remedial technology for the site and vicinity.

Biorespiration testing results from the well in the area of significant hydrocarbon impact (MW-98) and the well in the area of insignificant hydrocarbon impact (MW-51) indicate that natural gas concentrations rebounded quickly following aeration during the testing period. Hydrocarbon vapor concentrations of TPH-G and BTEX increased in MW-98 and decreased in MW-51 over the testing period. Dissolved oxygen concentrations in the groundwater from both wells increased over the testing period. These results confirm that anaerobic biological activity is occurring. Treatment technologies such as air sparging and SVE can greatly enhance the biological degradation of hydrocarbon compounds when oxygen is naturally limited.

The slug tests and step-drawdown pump tests were performed in both the shallow unconfined aquifer and the deeper confined aquifer at the site. The test results conclude that a sustained groundwater pumping rate of approximately 2.9 gpm from the shallow aquifer can be achieved. The test results conclude that a sustained groundwater pumping rate from the deeper confined aquifer was greater than the pumping capacity of 6.0 gpm. Water level measurements in observation wells during the pump tests indicated that extraction from the shallow aquifer would induce drawdown in surrounding wells. However, drawdown would not be uniform due to heterogeneity of the shallow soils.

Site and vicinity vapor monitoring indicate that methane gas and volatile vapors are detectable in several of the storm drains, manholes, and one electric utility vault. None of the vapor concentrations were at explosive levels.

5.0 LIMITATIONS

The recommendations contained in this report represent Delta's professional opinions based upon the currently available information and are arrived at in accordance with currently acceptable professional standards. This report is based upon a specific scope of work requested by the client.

The Contract between Delta and its client outlines the scope of work, and only those tasks specifically authorized by that contract or outlined in this report were performed. This report is intended only for the use of Delta's Client and anyone else specifically listed on this report. Delta will not and cannot be liable for unauthorized reliance by any other third party. Other than as contained in this paragraph, Delta makes no express or implied warranty as to the contents of this report.

TABLE 1
AIR SPARGE TESTING FIELD MEASUREMENTS
PRE- AND POST-TEST WATER QUALITY PARAMETERS[1]
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Well I.D.	Distance from Test Well (feet)	DTW (feet)		D.O. (mg/l)		Temperature (°C)		pH		ORP (mV)		Conductivity (mS/cm)	
		Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test	Pre-Test	Post-Test
Air Sparge Test (4-hour)[2], January 11, 2006, Test Well DAS-8													
DAS-8*	0.0	11.65	16.12	0.17	2.45	18.50	17.89	7.25	7.25	-20.8	-4.3	1.153	1.078
DAS-9	66.0	10.65	10.58	0.16	0.13	17.80	17.52	7.52	7.28	-42.8	-27.8	1.406	1.405
DAS-12	29.0	10.97	11.42	0.20	0.26	17.91	17.42	8.29	7.78	-67.5	-4.2	0.952	0.951
MW-34	16.2	10.71	11.49	0.34	0.26	18.47	18.18	8.13	7.42	-68.3	-3.8	0.781	0.969
MW-58	36.0	11.14	11.01	0.15	0.16	18.46	18.32	7.57	7.34	-58.6	-29.2	1.204	1.193
MW-59	84.0	11.16	11.20	0.18	0.14	18.86	18.54	7.84	7.47	-64.4	-36.4	1.466	1.459
MW-97	49.0	10.71	10.72	0.25	0.25	16.86	16.00	8.86	7.56	-97.1	-21.5	0.912	0.922
MW-98	34.0	11.03	11.09	0.19	0.17	16.74	16.32	8.70	7.84	-90.1	-43.6	1.375	1.286
Supplemental Air Sparge Test (2-hour)[3], January 12, 2006, Test Well DAS-8													
DAS-8*	0.0	11.23	--	1.08	--	18.29	--	7.70	--	-15.7	--	1.048	--
DAS-12[4]	29.0	11.02	10.40	0.20	0.20	18.02	17.88	7.94	6.81	-18.8	46.4	0.96	0.958
MW-34	16.2	11.17	11.11	0.19	1.52	18.17	17.67	7.91	6.51	-13.0	72.4	0.796	1.010
MW-97[4]	49.0	10.72	10.69	0.13	0.19	16.73	17.14	6.64	6.89	6.3	2.0	0.80	0.845
MW-98	34.0	11.02	11.05	0.18	0.42	16.89	17.10	6.61	7.22	7.6	7.1	1.260	1.274
Air Sparge Test (2-hour)[3], January 12, 2006, Test Well DAS-12													
DAS-12*	0.0	--	--	--	--	--	--	--	--	--	--	--	--
MW-58	36.0	10.72	10.72	0.38	0.25	17.69	18.29	7.12	7.24	-7.3	-10.6	1.20	1.194
MW-97	28.0	11.65	10.60	0.32	0.48	16.50	16.25	7.07	6.36	82.0	36.4	0.820	0.847

Notes:

DTW = depth to water
D.O. = dissolved oxygen
ORP = oxidation-reduction potential
mg/l = milligrams per liter
°C = degrees Celsius
mV = millivolts
mS/cm = millisiemens per centimeter
* = AS test well
"--" = not measured

[1] Depth to water measured with an electronic water level meter from top of well casing. Water quality parameters measured using a Y-Si Model 556 electronic water quality meter
[2] Test conducted using an air flow rate and pressure of 3 cubic feet per minute (cfm) at 9 pounds per square inch (psi) for 1.5 hours and 5 cfm at 17 psi for 2.5 hours.
[3] Test conducted using an air flow rate and pressure of 5 cfm at 17 psi.
[4] Post-test readings were not collected; post-test data shown was collected at 1 hour into test.

TABLE 2
SOIL VAPOR EXTRACTION TEST, FEBUARY 7, 2006
SVE TEST PARAMETERS AND VAPOR MONITORING - TEST WELL MW-98
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Elapsed Time (hr:min:sec)	Applied Vacuum (inches w.c.)	Extraction Velocity[1] (fpm)	Extraction Flowrate (cfm)	VOCs[2] (ppm)	Methane[3] (ppm)	Oxygen[3] (%)	Carbon Dioxide[3] (%)
0:00:00	12	1,200	26	296	>10,000	4.6	>20
0:05:00	26	1,200	26	254	>10,000	4.8	>20
0:11:00	30	1,200	26	268	>10,000	4.5	>20
0:18:00	30	1,200	26	299	>10,000	5.2	>20
0:25:00	30	1,200	26	292	>10,000	6.2	19.7
0:40:00	30	1,200	26	286	>10,000	7.0	18.1
0:55:00	30	1,100	24	288	>10,000	7.2	17.3
1:10:00	35	1,200	26	290	>10,000	7.7	16.6
1:25:00	35	1,200	26	271	>10,000	8.2	16.0
1:30:00	Shut off blower due to water coming out of test well.[4]						
1:35:00	20	NM	NM	NM	NM	NM	NM
1:40:00	20	1,000	22	260	>10,000	0	>20
1:55:00	20	800	17	311	>10,000	6.1	18.6
2:10:00	20	1,000	22	297	>10,000	3.7	>20
2:25:00	19	800	17	294	>10,000	3.9	>20
2:35:00	26	1,000	22	295	>10,000	5.3	19.8
2:55:00	27	1,000	22	292	>10,000	4.7	>20

Notes:

inches w.c. = inches of water column
fpm = feet per minute
cfm = cubic feet per minute
ppm = parts per million
NM = not measured

[1] Soil vapor extraction velocity measured using an anemometer in the field.
[2] Volatile organic compound (VOC) vapors measured in the field using a photoionization detector (PID).
[3] Methane, oxygen, and carbon dioxide measured in the field using respective gas meters.
[4] Water level was gauged at 9.50 feet below top of casing in the test well immediately following temporary shut-down. Test resumed at a lower applied vacuum to prevent water from coming out of well.

TABLE 3
SOIL VAPOR EXTRACTION TEST, FEBUARY 7, 2006
VACUUM INFLUENCE OBSERVATIONS
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Observation Well I.D.	Distance from Test Well (feet)	Average Vacuum Influence Observations Corresponding to Applied Extraction Well Vacuums							
		@ 20 inches w.c.		@ 26 inches w.c.		@ 30 inches w.c.		@ 35 inches w.c.	
		Observed Influence (inches w.c.)	Normalized[1] Vacuum	Observed Influence (inches w.c.)	Normalized[1] Vacuum	Observed Influence (inches w.c.)	Normalized[1] Vacuum	Observed Influence (inches w.c.)	Normalized[1] Vacuum
MW-61	41.5	0.05	0.0025	0.06	0.0023	0.12	0.0039	0.10	0.0029
MW-34	48.0	0.01	0.0005	0.025	0.0010	0.036	0.0012	0.028	0.0008
MW-97	50.0	0.13	0.0067	0.18	0.0070	0.33	0.0111	0.30	0.0086
MW-62	58.5	0.035	0.0018	0.055	0.0021	0.11	0.0035	0.085	0.0024
MW-105	65.0	0.03	0.0014	0.03	0.0012	0.07	0.0023	0.065	0.0019

Notes:

inches w.c. = inches of water column

[1] Normalized vacuum is the ratio of observed vacuum influence to the applied extraction well vacuum

TABLE 4
SOIL VAPOR EXTRACTION TEST, FEBUARY 7, 2006
HEADSPACE VAPOR AND WATER QUALITY MONITORING
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Well I.D.	Distance from Test Well (feet)	Headspace Vapors[1]				Water Quality Parameters[2]					
		VOCs (ppm)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Depth to Water (feet)	Dissolved Oxygen (mg/l)	Temp. (°C)	pH	ORP (mV)	Conductivity (mS/cm)
Pre-Test Monitoring											
MW-34	48.0	2.3	0.015	11.8	1.4	11.10	0.29	17.52	7.29	61.5	0.858
MW-61	41.5	1.5	0.005	0.0	>20	10.58	0.27	16.48	6.53	112.5	1.527
MW-62	58.5	40	0.004	0.0	>20	10.34	0.21	16.79	7.82	-35.1	1.292
MW-97	50.0	86	0.005	0.0	>20	10.76	0.31	14.87	7.50	-32.1	0.822
MW-98*	0.0	229	0.011	0.0	>20	10.97	0.24	15.62	7.69	-41.4	1.203
MW-105	65.0	NM	0.049	0.0	14.0	10.15	0.31	16.32	6.25	159.3	1.528
Post-Test Monitoring											
MW-34	48.0	0.0	0.001	9.4	1.6	11.08	0.43	17.49	6.77	121.6	1.530
MW-61	41.5	0.6	0.005	2.5	>20	10.52	0.29	16.45	6.58	106.9	1.555
MW-62	58.5	32.4	0.002	0.0	>20	10.30	0.24	16.94	6.73	107.8	1.539
MW-97	50.0	7.5	0.00	20.9	0.4	10.73	0.61	15.46	6.32	157.6	1.604
MW-98*	0.0	229	0.011	0.0	>20	9.88	0.52	14.05	8.41	-22.6	1.746
MW-105	65.0	26.1	>1	8.1	10.0	10.13	0.49	15.41	8.13	-23.9	1.030

Notes:

ppm = parts per million

mg/l = milligrams per liter
°C = degrees celsius
mV = millivolts
mS/cm = millisiemens per centimeter
NM = not measured

* = SVE test well

[1] Volatile organic compound (VOC) vapors measured using a photoionization detector (PID). Methane, oxygen, and carbon dioxide measured using respective gas meters.

[2] Depth to water measured with an electronic water level meter from top of well casing. Water quality parameters measured using a Y-Si 556 water quality meter.

TABLE 5
BIORESPIRATION TESTING FIELD MEASUREMENTS
HEADSPACE VAPOR AND WATER QUALITY MONITORING
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Well I.D.	Monitoring Date	Headspace Vapors[1]				Water Quality Parameters[2]						
		VOCs (ppm)	Methane (%)	Oxygen (%)	Carbon Dioxide (%)	Depth to Water (feet)	Dissolved Oxygen (mg/l)	Temp. (°C)	pH	ORP (mV)	Conductivity (mS/cm)	TDS (g/l)
MW-51	02/08/06*	0	0	0	>20	11.52	0.28	14.94	8.06	-33.4	1.656	--
	02/08/06	0.5	0.005	2.4	>20	11.22	0.29	14.66	8.12	-11.5	1.478	--
	02/15/06	0	0	0	>20	11.59	1.12	14.70	6.44	-93.4	1.545	1.004
	02/24/06[3]	0	0	0	>20	--	0.28	14.10	7.90	8.0	1.276	1.048
	03/02/06	3.5	>1	0	>20	11.66	2.25	14.48	6.41	-117.1	1.615	1.050
	03/08/06	8.7	0.007	0	>20	--	1.98	13.3	6.32	--	1.766	--
MW-98	02/07/06*	229	0.011	0	>20	10.97	0.24	15.62	7.69	-41.4	1.203	--
	02/07/06	292	>1	4.7	>20	9.88	0.52	14.05	8.41	-22.6	1.746	--
	02/15/06	244	>1	0	>20	11.13	1.29	15.94	6.51	-102.01	1.218	0.792
	02/24/06[3]	238	>1	0	>20	--	0.65	14.69	7.86	23.6	0.971	0.788
	03/02/06	>2,000	>1	0	>20	11.34	1.14	15.47	6.46	-97.1	1.222	0.794
	03/08/06	821	>1	0	>20	--	0.46	13.9	6.25	--	1.341	--

Notes:
VOCs = volatile organic compounds
ORP = oxidation reduction potential
TDS = total dissolved solids
ppm = parts per million
mg/ = milligrams per liter
°C = degrees celsius
mV = millivolts
mS/cm = millisiemens per centimeter
g/l = grams per liter
"--" = not monitored
* = baseline measurements, collected prior to aeration of well

[1] VOC vapors measured using a photo-ionization detector. Methane, oxygen, and carbon dioxide measured using respective gas detection meters.
[2] Depth to water measured with an electronic water level meter from top of well casing. Water quality parameters measured using a Y-Si 556 water quality meter.
[3] Water quality parameters were measured on February 22, 2006 during quarterly groundwater monitoring.

TABLE 6
BIORESPIRATION TESTING
LABORATORY ANALYTICAL RESULTS FOR VAPOR SAMPLES
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Well I.D.	Sample Date	Natural Gas Analysis[1]						Petroleum Hydrocarbon Analysis[2]						
		Oxygen (%)	Nitrogen (%)	Carbon Monoxide (%)	Methane (%)	Carbon Dioxide (%)	Hydrogen Sulfide (ppbv)	TPH-G (ppmv)	Benzene (ppmv)	Toluene (ppmv)	Ethyl-benzene (ppmv)	Xylenes (ppmv)	Naph-thalene (ppmv)	MTBE (ppmv)
MW-51	02/08/06	10	77	ND	2.6	10	--	15.8	0.554	0.186	0.147	0.842	--	--
	02/15/06	1.2	74	ND	7.8	17	--	12.8	0.145	0.541	0.273	1.46	--	--
	02/24/06	1.5	72	ND	9.5	17	--	7.23	0.0705	0.0981	0.0731	0.373	--	--
	03/02/06[3]	1.8	74	ND	6.8	17	600	4.23	ND	ND	ND	ND	ND	ND
	03/08/06[3]	1.6	73	ND	7.5	18	8,500	3.90	ND	ND	ND	ND	ND	ND
MW-98	02/07/06	12	80	ND	1.1	6.5	--	2,460	57.2	70.2	23.1	93.2	--	--
	02/15/06	2.7	82	ND	1.7	13	--	5,220	147	241	56.3	229	--	--
	02/24/06	3.9	81	ND	2.0	11	--	5,100	135	135	24.9	120	--	--
	03/02/06[3]	2.0	81	ND	2.7	13	62	5,670	77.6	114	ND	69.1	ND	ND
	03/08/06[3]	2.2	80	ND	3.1	14	120	6,330	88.6	163	27.2	125	ND	ND

NOTES:

ppmv = parts per million by volume
ppbv = parts per billion by volume
"--" = Not analyzed, sampled, or reported
ND = Not detected at or above the laboratory reporting limit
TPH as Gasoline - Analysis by Northwest Method NWTPH-Gx
BTEX Compounds - Analysis by EPA Method 8021B
Natural Gas Compounds - Analysis by ASTM Method D-1946 'Fixed Gas Analysis'

[1] Oxygen, nitrogen, carbon monoxide, methane, and carbon dioxide analysis by Modified ASTM D-1946 ("Fixed Gas Analysis"), hydrogen sulfide analysis by ASTM D-5504 GC/SCD.

[2] TPH-G analysis by Northwest Method NWTPH-Gx, BTEX compounds analysis by EPA Method 8021B or 8260B, Naphthalene and MTBE analysis by EPA Method 8260B.

[3] Analytical laboratory reported BTEX, MTBE, and naphthalene in units of micrograms per liter (ug/l) air. Concentrations were converted to units of ppmv using a unit conversion calculator available on-line from www.airtoxics.com.

TABLE 7
SUMMARY OF SLUG[1] TEST DATA
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Test Well ID	Test Date	Length of Well Screen[2] (feet)	Pre-Test DTW (feet)	Post-Test DTW (feet)	Recovery Time (minutes)	Initial Flowrate[3] (cfs)	Calculated Hydraulic Conductivity[4] (m/s)
Positive Displacement Data (Insertion of Slug)							
DW-1	02/09/06	5	10.81	10.80	4	0.0047	1.22E-04
DAS-6	02/09/06	2	10.75	10.73	15	0.0010	5.08E-05
DAS-10	03/21/06	2	11.15	10.77	25	0.0011	5.32E-05
DAS-12	03/21/06	2	11.79	11.71	40	0.0011	5.32E-05
MW-53	03/21/06	8.5	11.52	11.49	15	0.0042	7.23E-05
MW-59	03/21/06	8	12.03	12.03	2.2	0.0059	1.08E-04
Negative Displacement Data (Removal of Slug)							
DW-1	02/09/06	5	10.80	10.81	3	0.0026	6.80E-05
DAS-6	02/09/06	2	10.73	10.77	20	0.0004	1.91E-05
DAS-10	03/21/06	2	10.77	11.07	15	0.0018	9.24E-05
DAS-12	03/21/06	2	11.71	11.92	15	0.0015	7.40E-05
MW-53	03/21/06	8.5	11.49	11.45	15	0.0016	2.70E-05
MW-59	03/21/06	8	12.03	12.03	7	0.0044	8.09E-05

Notes:

DTW = depth to water table, measured from top of well casing
cfs = cubic feet per second
m/s = meters per second

[1] Slug volume designed to displace approximately 1.52 feet of water column in a 2-inch diameter well.

[2] Length of well screen equal to screened interval below water table. In MW-53 and MW-59, this was equal to the intial water column in the well.

[3] Initial flowrate of water flowing into or out of well screen; based on field measurement of DTW immediately following insertion or removal of slug. Measurement was taken approximately 5 seconds following insertion or removal of slug in each well, except for the measurements taken at DW-1 and DAS-6 following slug removal, which were taken at 10 seconds and 40 seconds, respectively.

[4] Hydraulic conductivity using Hvorslev formula for conductivity in units of feet per second (ft/s), converted to m/s:

Conductivity (K, ft/s) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, and (K, m/s) = (K, ft/s) * 0.305 m/ft; where:

r = radius of well (ft) = 0.0854 ft (all test wells 2-inch diameter)
L = length of well screen (below water table) (ft)
R = radius of well screen (ft) = 0.0854 ft
V = slug volume (ft^3) = 0.0348 ft^3
q_0 = initial flow rate (cfs)

TABLE 8
SUMMARY OF STEP-DRAWDOWN PUMP TEST DATA
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Pump Speed (Hz)	Discharge Rate (gpm)	Step Duration (minutes)	Measured Drawdown (feet)	Percent Drawdown[1] (%)
Step-Drawdown Pump Test, February 17, 2006, Test Well DW-1				
125	1.4	9	1.65	0.05
200	2.9	30	3.65	0.10
300	4.7	41	6.13	0.17
400	6.0	63	7.91	0.23
Step-Drawdown Pump Test, March 2, 2006, Test Well MW-50				
150	1.6	12	1.55	0.22
175	2.1	14	2.33	0.33
200	2.6	9	3.05	0.43
215	2.9	15	4.68	0.66
225	3.1	53	5.11	0.72

Notes:

Hz = hertz
gpm = gallons per minute

[1] Percent drawdown based on initial water column measured at 35.45 feet in DW-1 and at 7.11 feet in MW-50 prior to tests.

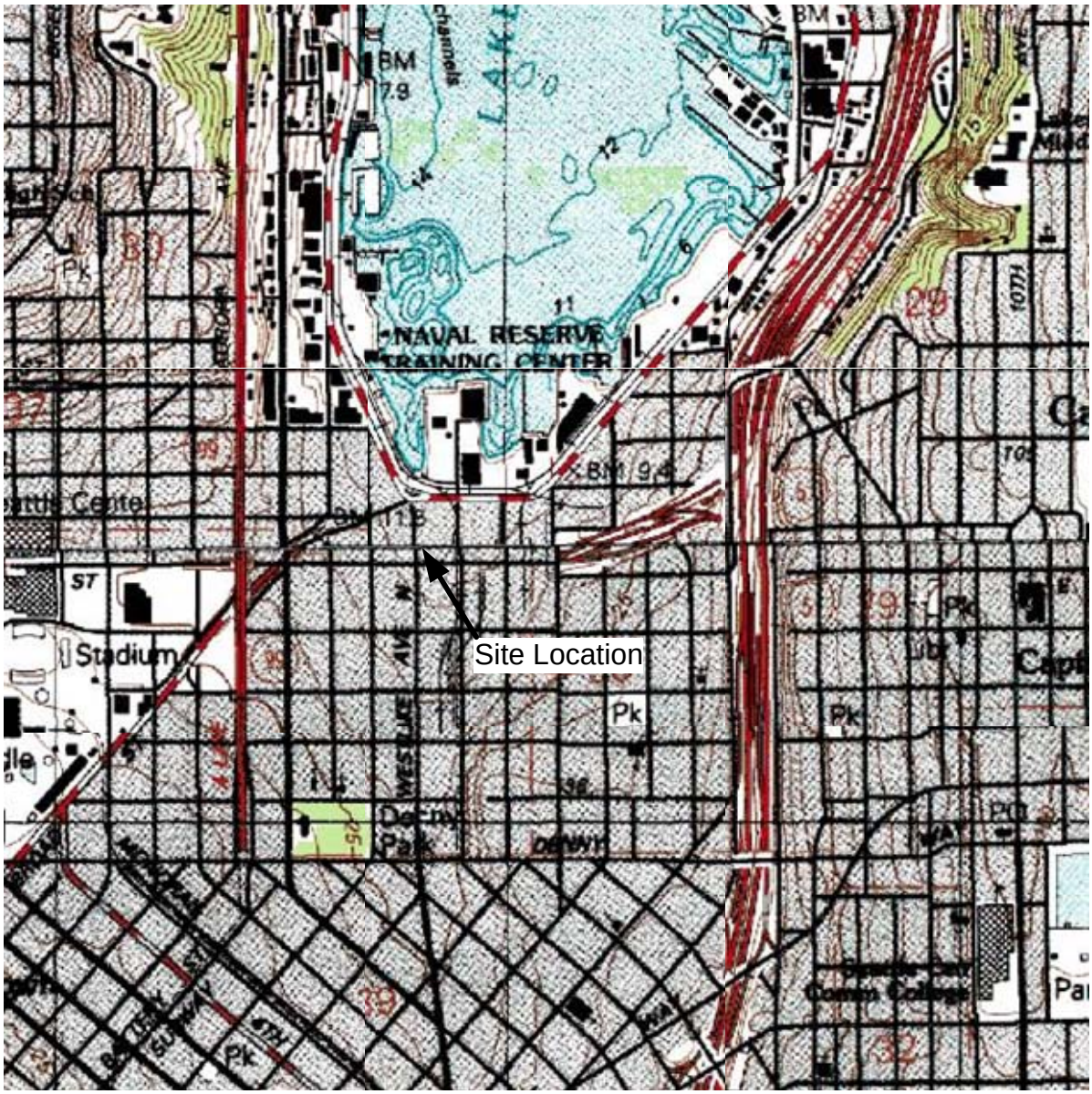
TABLE 9
SUMMARY OF VAPOR MONITORING
MARCH 15, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

Monitoring Point ID	Methane (%)	VOCs (ppm)	Description/Comments
SD-1	0.000	0.1	Storm drain catch basin, southeast intersection at Westlake and Valley
SD-2	0.000	0.1	Storm drain catch basin, southwest intersection at Westlake and Valley
SD-3	0.000	0.2	Storm drain catch basin, west side of City Investors' property
SD-4	0.000	0.0	Storm drain catch basin, west side of City Investors' property
SD-5	0.000	0.0	Storm drain catch basin, west side of City Investors' property
SD-6	0.000	0.0	Storm drain catch basin, north end of City Investors' property
SD-7	0.000	0.0	Area drain, north end of City Investors' property
SD-8	0.000	0.1	Area drain, north end of City Investors' property
SD-9	--	--	Storm drain, north of City Investors' property; covered with water, unable to monitor
SD-10	0.000	0.0	Area drain, south of sump on City Investors' property, west of vacant building
SD-11	0.000	0.0	Storm drain manhole, southwest intersection at Terry and Valley
SD-12	0.000	0.0	Storm drain manhole, southeast intersection at Terry and Valley
SD-13	0.000	0.1	Storm drain catch basin, Terry Ave N. east of City Investors' property
SD-14	0.000	0.4	Storm drain catch basin, northwest area of COP property
SD-15	0.001	0.1	Storm drain catch basin, northeast area of COP property
SD-16	0.000	0.1	Storm drain catch basin, southwest area of COP property
SD-17	0.000	0.1	Storm drain catch basin, Westlake Ave N. north of Mercer Street
MH-1	0.000	0.2	Sewer/stormwater manhole, Westlake Ave N. at Mercer Street
MH-2	0.003	0.6	Sewer/stormwater manhole, Westlake Ave N. west of COP property
MH-3	0.000	0.6	Sewer/stormwater manhole, Westlake Ave N. corner at Valley Street
MH-4	0.003	0.5	Sewer/stormwater manhole, Westlake Ave N. south of Valley Street
MH-5	0.015 (0.022 by lab)	0.5	Appears to be vapor extraction well for current remediation system; vapor sample collect for natural gas analysis*
MH-6	--	--	Appears to be vapor extraction well for current remediation system; unable to monitor due to plugged hole in lid
MH-7	--	--	Appears to be vapor extraction well for current remediation system; unable to monitor due to plugged hole in lid
MH-8	--	--	Appears to be vapor extraction well for current remediation system; unable to monitor due to plugged hole in lid
EV-1	0.001	0.2	Electrical vault at north end of COP property
SUMP-1	0.000	0.0	Sump located on City Investors' property, west of vacant building

Notes:

ppm = parts per million
VOCs = Volatile organic compounds, measured with a photo-ionization detector
Methane measured with a methane detection meter.

*Laboratory analytical results indicated methane at 0.022%,oxygen at 20%, nitrogen at 77%, and carbon dioxide at 2.0%.



REFERENCES

USGS 7.5 Minute Topographic Map
Name: Seattle South
Year Created: 1983

SCALE: 1: 12,000

North

FIGURE 1

SITE LOCATION MAP

CONOCOPHILLIPS SITE NO. 255353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

PROJECT NO. WA255-3521-1	DRAWN BY TS 5/10/06
FILE NO. WA255-3521-1	PREPARED BY TS 5/10/06
REVISION NO. 0	REVIEWED BY EL

Delta Environmental Consultants, Inc.

MW-81 (~35 ft north)
MW-38 (~20 ft north)
MW-80
MW-46
MW-79
MW-78
MW-77
MW-76
MW-75
SMW-3
MW-203
North
0
50 FT
APPROX. SCALE

VALLEY ST

BROAD ST
MW-204
Former fuel dispenser (removed)
Former gas station building (removed)
MW-86
MW-87
MW-88
MW-44
SMW-4
MW-806
MW-36
MW-85
MW-X (no I.D.)
MW-103
MW-93
WESTLAKE AVE N
TERRY AVE N
MW-205
CITY INVESTORS' PROPERTY
MW-92
MW-96
MW-102
Parking Lot
SMW-2S
MW-84
MW-94
MW-82
MW-69
MW-14
SUMP
Former auto servicing building (removed)
MW-90
MW-42
MW-49
MW-32
MW-64
MW-8
Vacant Building
MW-48
MW-65
MW-91
Dumpster Enclosure
MW-101
SMW-5
MW-99
MW-83
MW-89
MW-67
MW-35
DAS-11
MW-3A
MW-52
MW-57
MW-45
MW-54
MW-63
DAS-10
MW-60
DW-1
MW-32A
DAS-6
/VE-6
Remediation System Enclosure
MW-66
MW-15
MW-27
MW-105
VE-1
DAS-5
VE-2
MW-59
DAS-9
MW-62
MW-33
DAS-4
COP 255353 Station Building
MW-55
Dispenser Islands
SIDEWALK
Former Denny's Restaurant (Demolished)
MW-50
PARKING
MW-47
MW-98
MW-68
MW-61
MW-34
DAS-8
DAS-3
DAS-7
West Marine
VE-5
MW-56
MW-51
DAS-12
Dispenser Islands
MW-16
MW-97
MW-53
MW-43
MW-13
MW-17
VE-3
MW-58
VE-7
VE-4
DAS-2
DAS-1 (not used)
SIDEWALK
MW-202
MW-208
MW-18
MW-37
MW-19
MW-200
MW-201

MERCER ST

MW-206
MW-24
MW-71
MW-72
MW-73
MW-40
SIDEWALK
MW-70
MW-74
MW-207
GRASS
PARKING
MW-95
(~200 ft)
MW-41

LEGEND

- MW-37 — COP GROUNDWATER MONITORING WELL
- MW-105 — CITY INVESTORS' GROUNDWATER MONITORING WELL
- DW-1 — DEEP WELL (INSTALLED DECEMBER 2005)
- MW-17 — ABANDONED OR DESTROYED WELL
- VE-6 — SOIL VAPOR EXTRACTION WELL LOCATION
- DAS-4 — AIR SPARGING WELL LOCATION

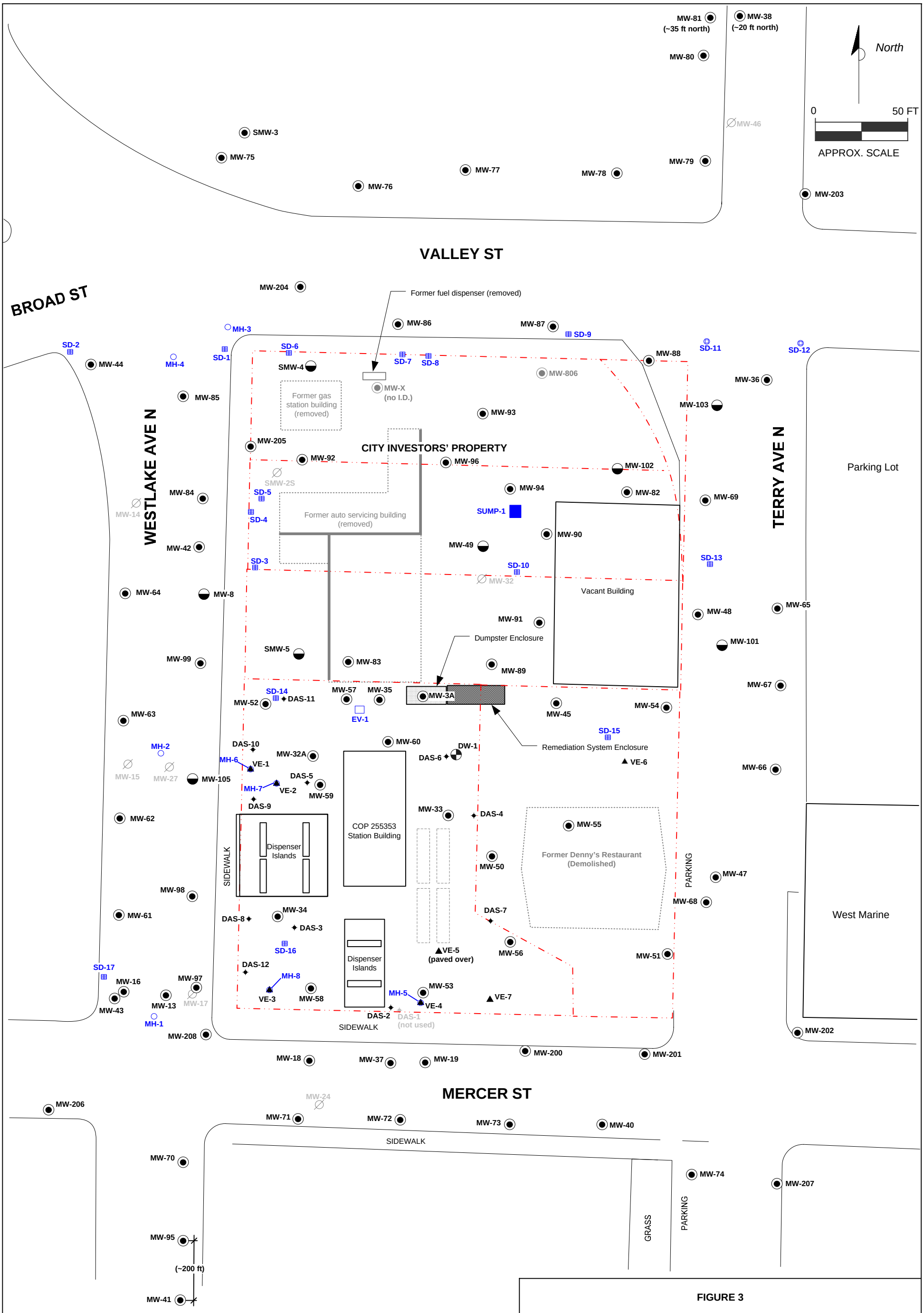
FIGURE 2

SITE MAP WITH WELL LOCATIONS

CONOCOPHILLIPS SITE NO. 255353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

PROJECT NO. WA255-3521-1	DRAWN BY TS 5/10/06
FILE NO. WA255-3521-1	PREPARED BY TS 5/10/06
REVISION NO. 0	REVIEWED BY EL

Delta Environmental Consultants, Inc.



LEGEND

- MW-37 — COP GROUNDWATER MONITORING WELL
- MW-105 — CITY INVESTORS' GROUNDWATER MONITORING WELL
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- MW-17 — ABANDONED OR DESTROYED WELL
- VE-6 — SOIL VAPOR EXTRACTION WELL LOCATION
- DAS-4 — AIR SPARGING WELL LOCATION

VAPOR MONITORING LOCATIONS

- SD-1 — STORM DRAIN CATCH BASIN OR AREA DRAIN
- MH-1 — UTILITY MANHOLE
- SD-11 — STORM DRAIN MANHOLE
- EV-1 — ELECTRICAL VAULT
- SUMP-1 — SUMP

FIGURE 3

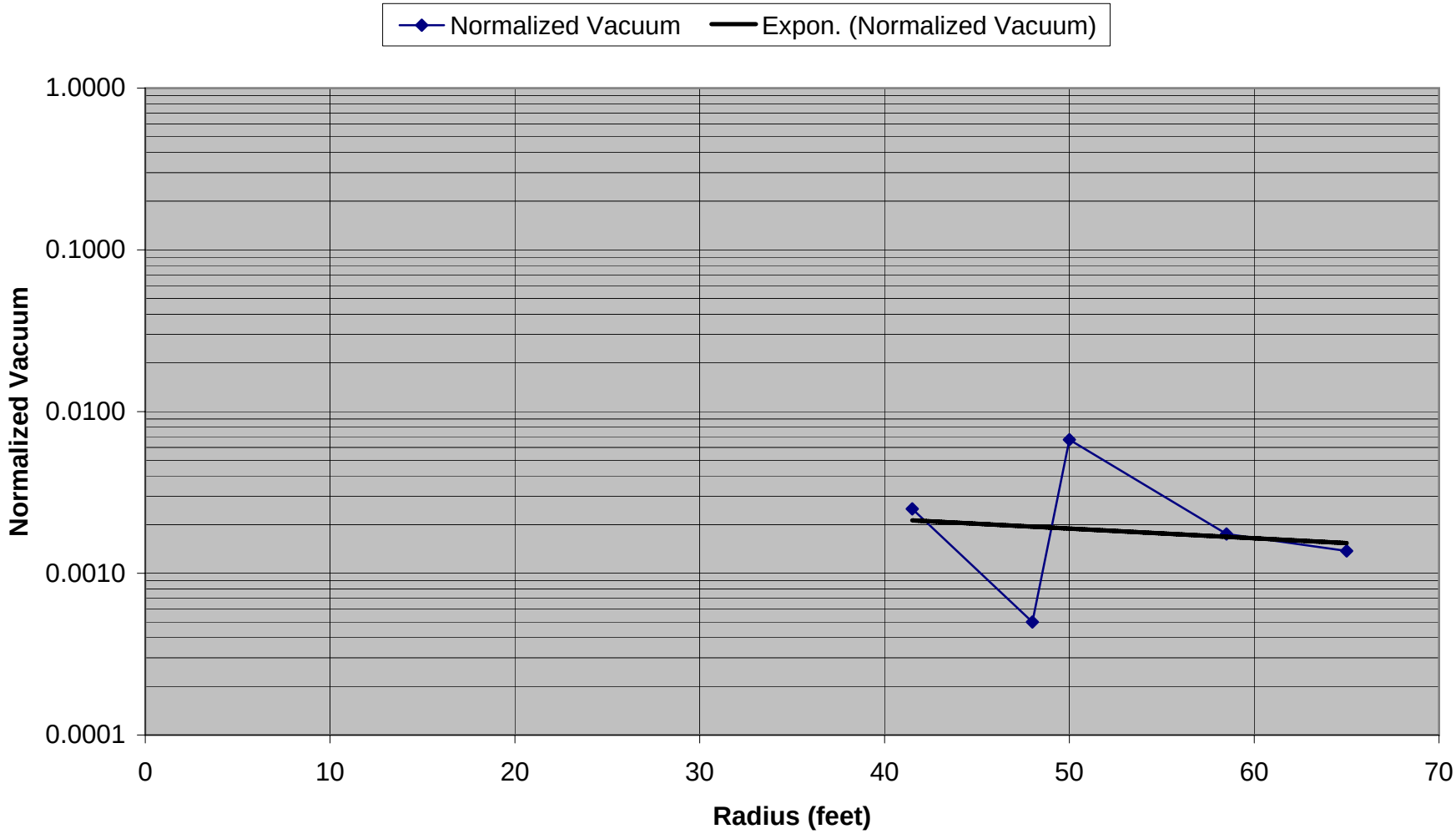
SITE MAP WITH VAPOR MONITORING LOCATIONS

CONOCOPHILLIPS SITE NO. 255353
600 WESTLAKE AVENUE NORTH
SEATTLE, WASHINGTON

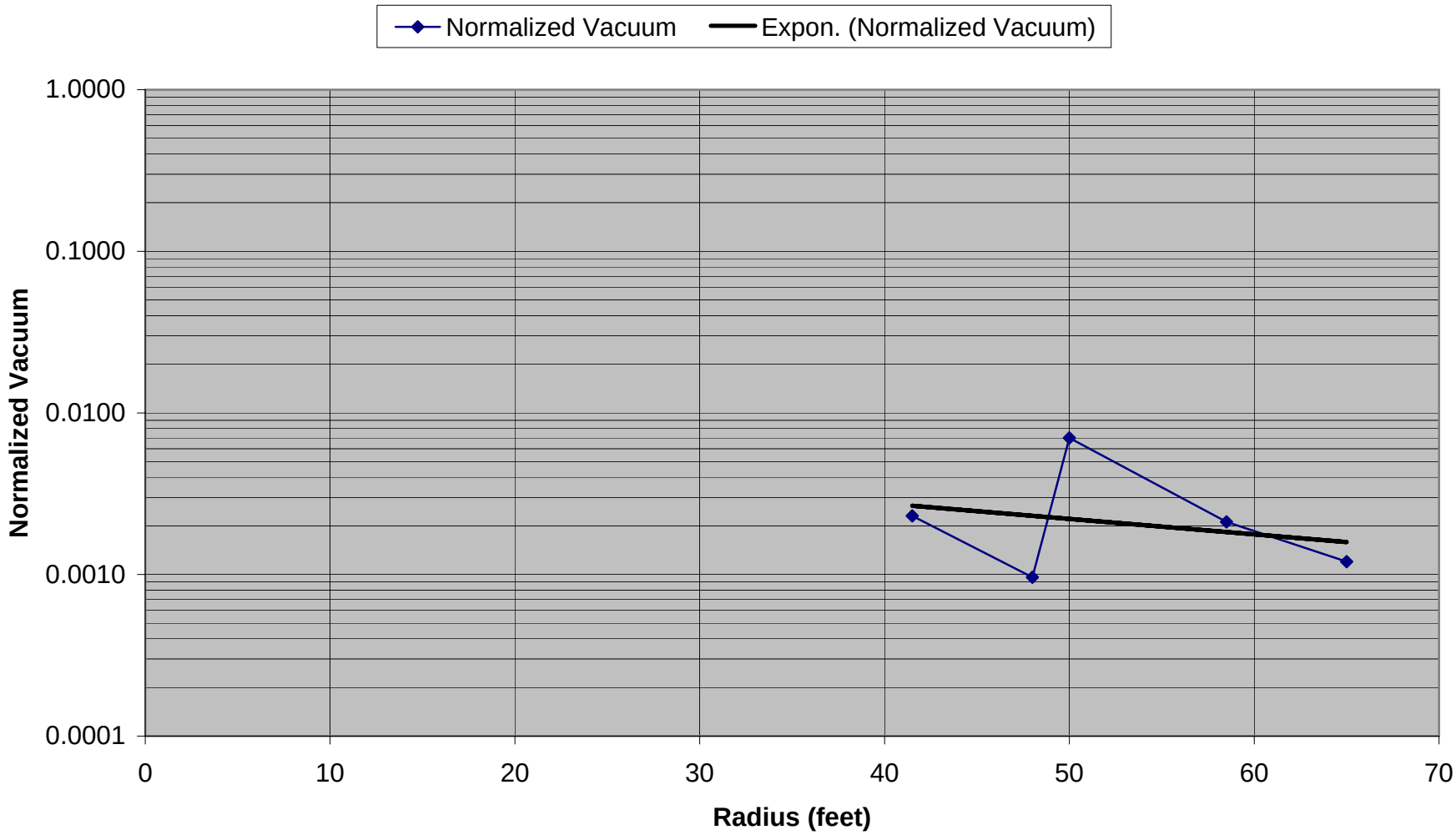
PROJECT NO. WA255-3521-1	DRAWN BY TS 5/10/06
FILE NO. WA255-3521-1	PREPARED BY TS 5/10/06
REVISION NO. 0	REVIEWED BY EL

Delta Environmental Consultants, Inc.

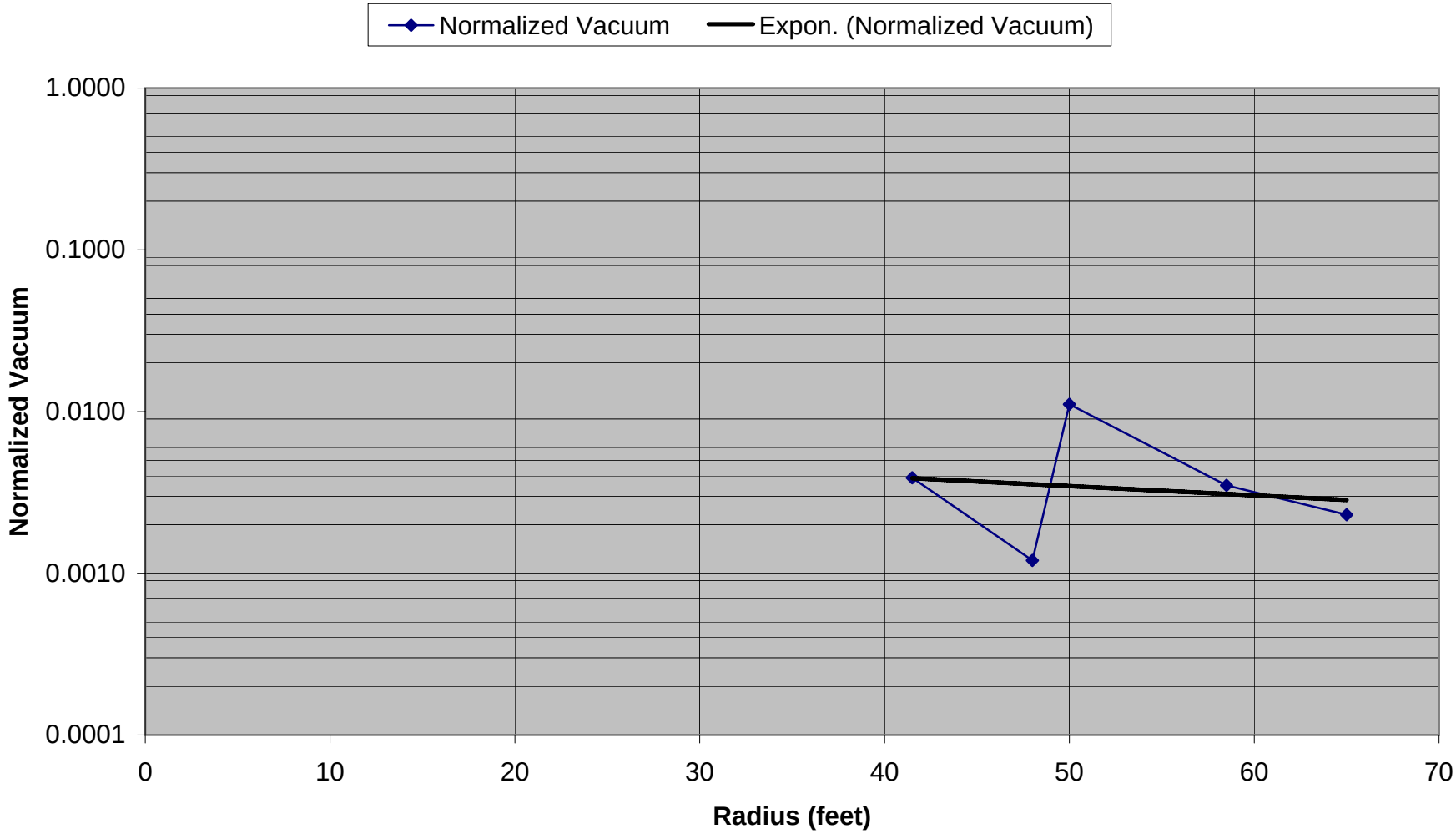
GRAPH 1
SVE TEST VACUUM @ 20 INCHES W.C.
NORMALIZED VACUUM vs. RADIUS



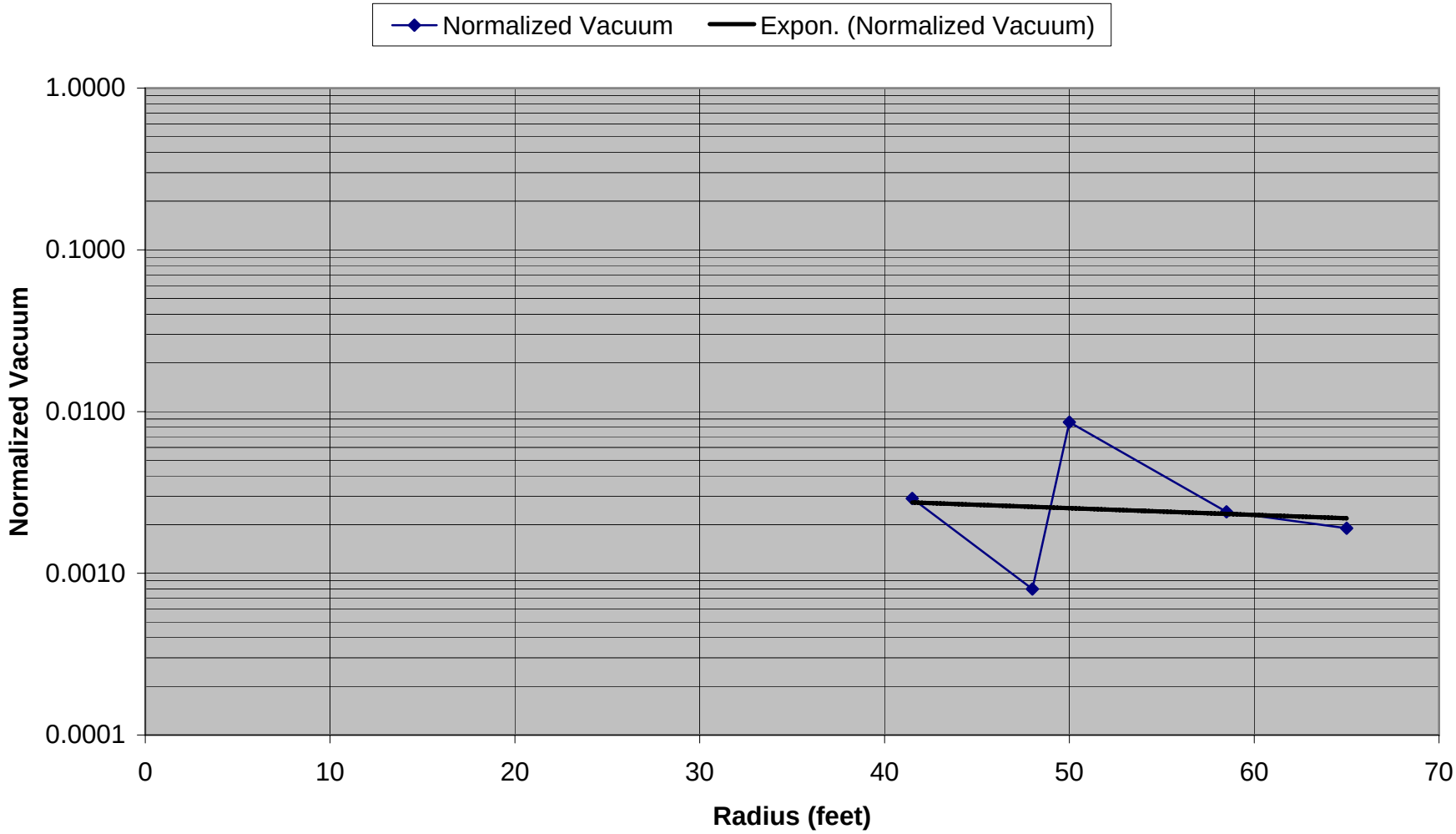
GRAPH 2
SVE TEST VACUUM @ 26 INCHES W.C.
NORMALIZED VACUUM vs. RADIUS



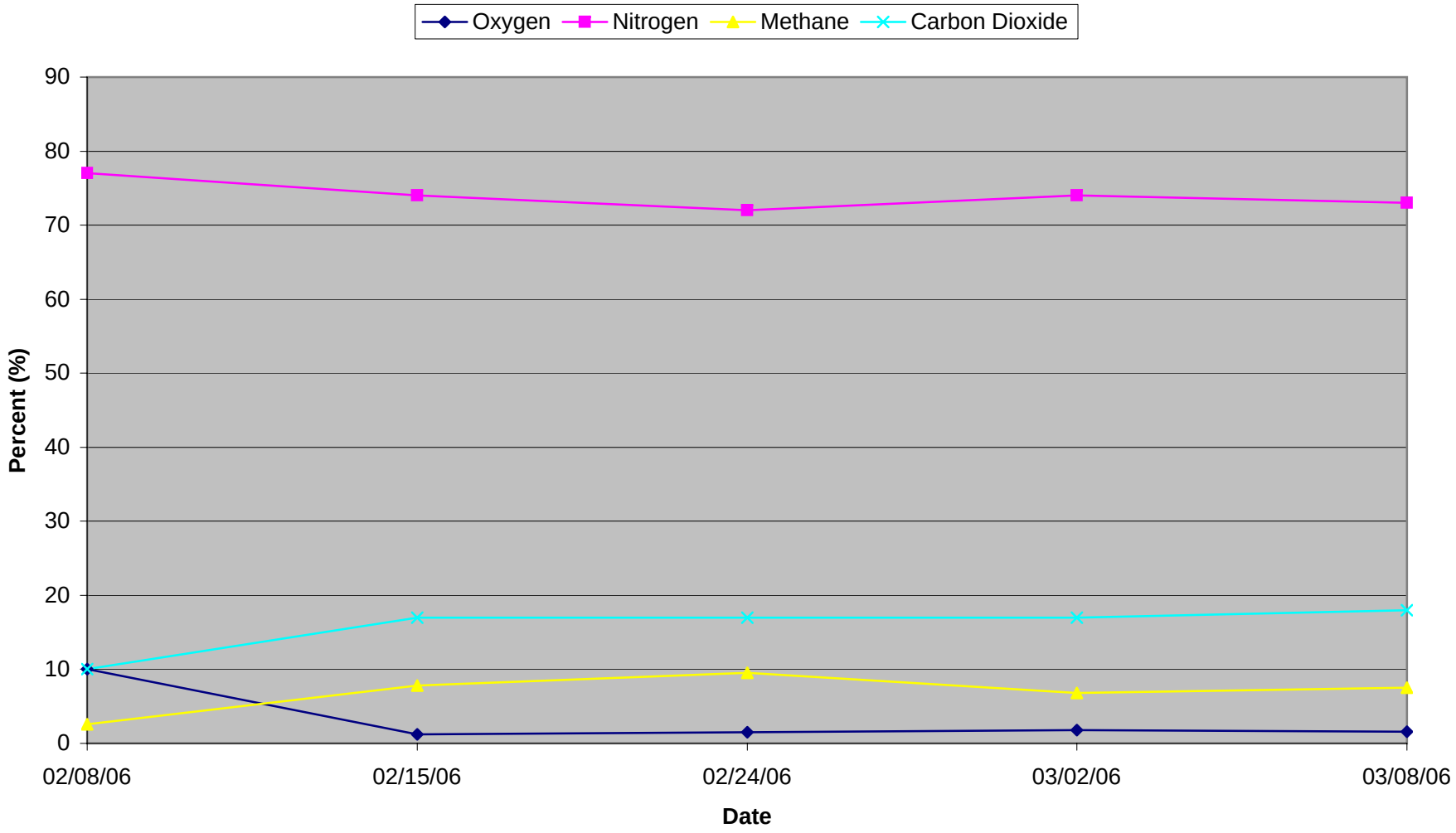
GRAPH 3
SVE TEST VACUUM @ 30 INCHES W.C.
NORMALIZED VACUUM vs. RADIUS



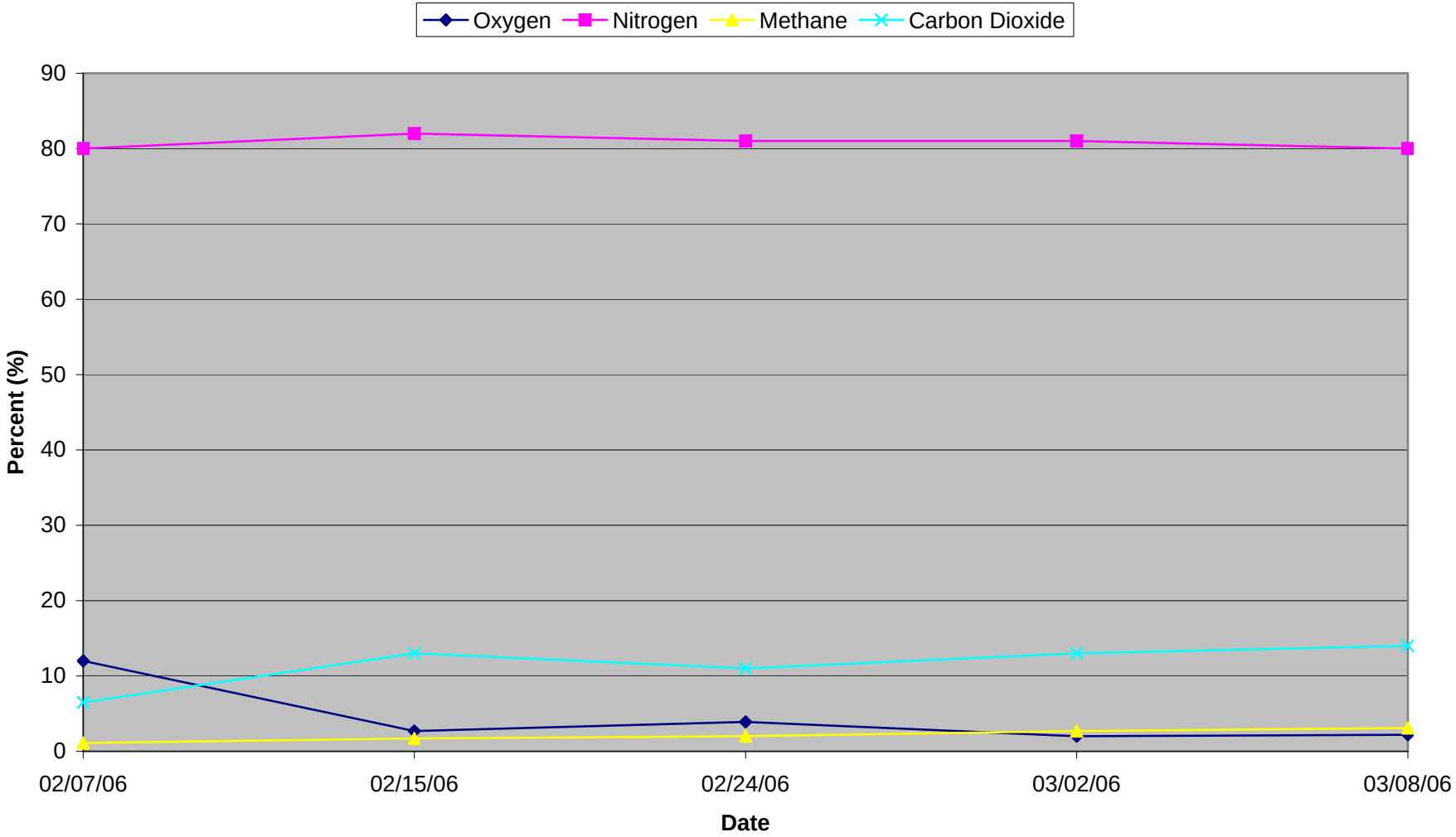
GRAPH 4
SVE TEST VACUUM @ 35 INCHES W.C.
NORMALIZED VACUUM vs. RADIUS



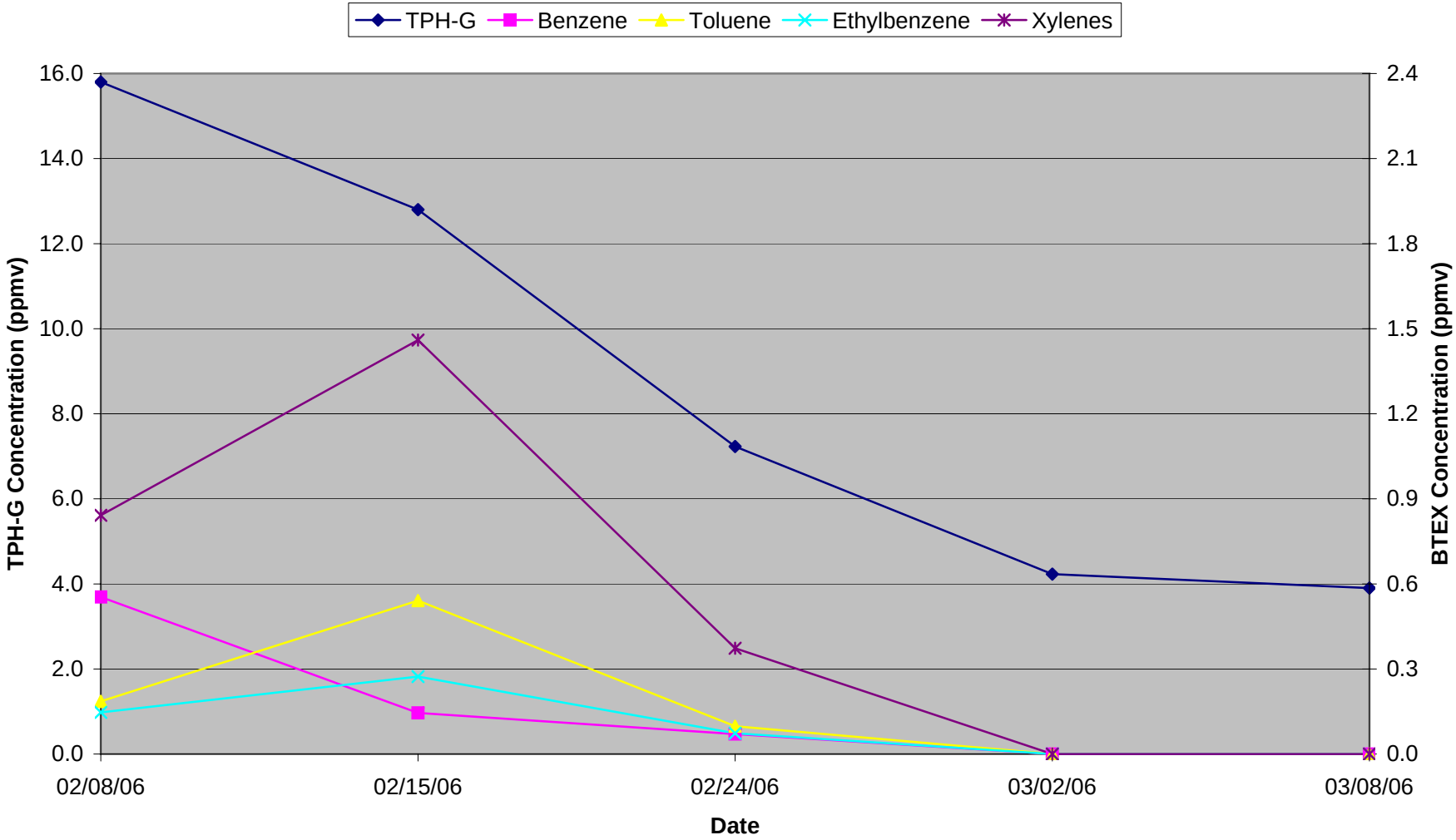
GRAPH 5
BIORESPIRATION TESTING - MW-51
NATURAL GAS MONITORING



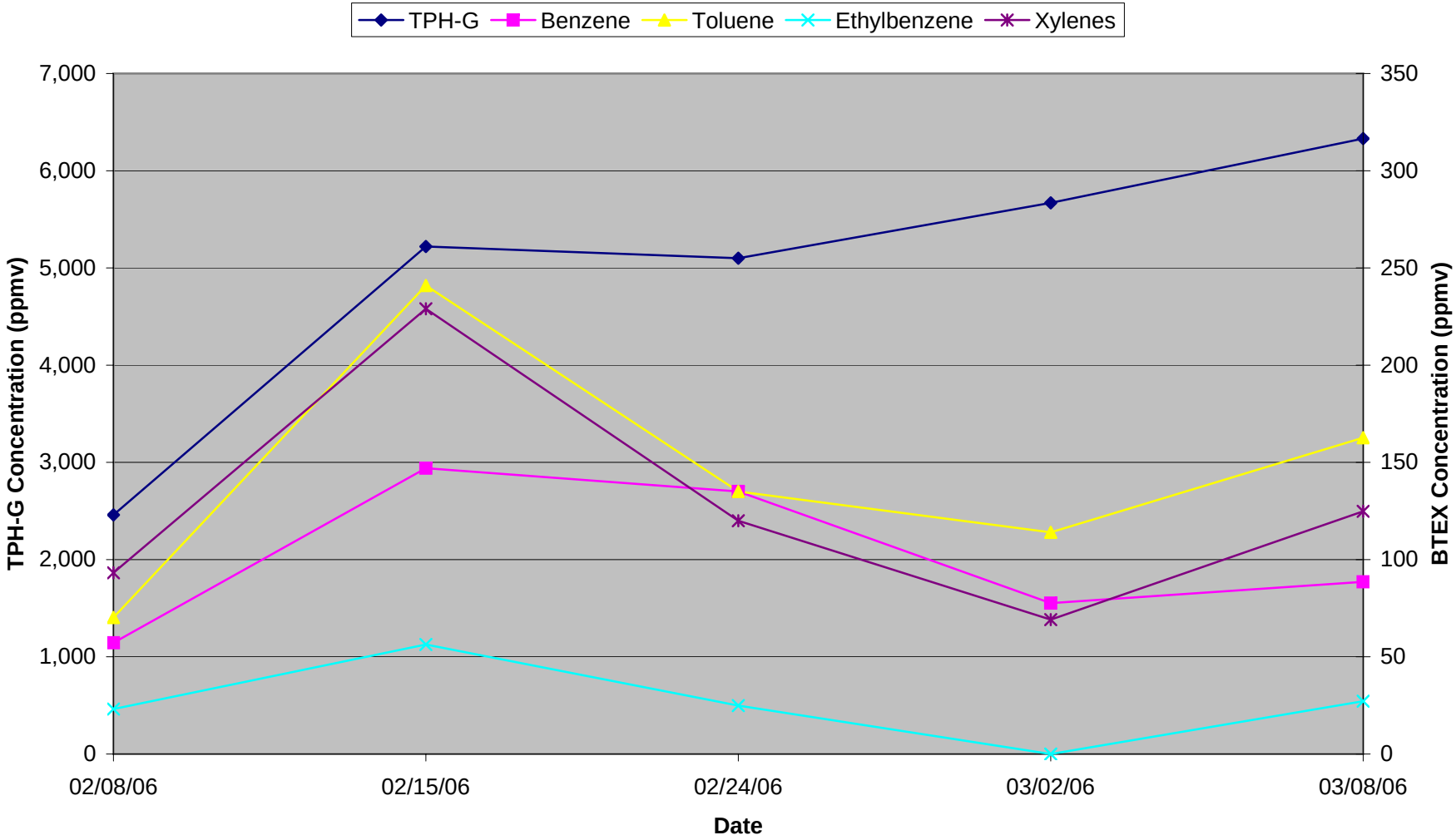
GRAPH 6
BIORESPIRATION TESTING - MW-98
NATURAL GAS MONITORING



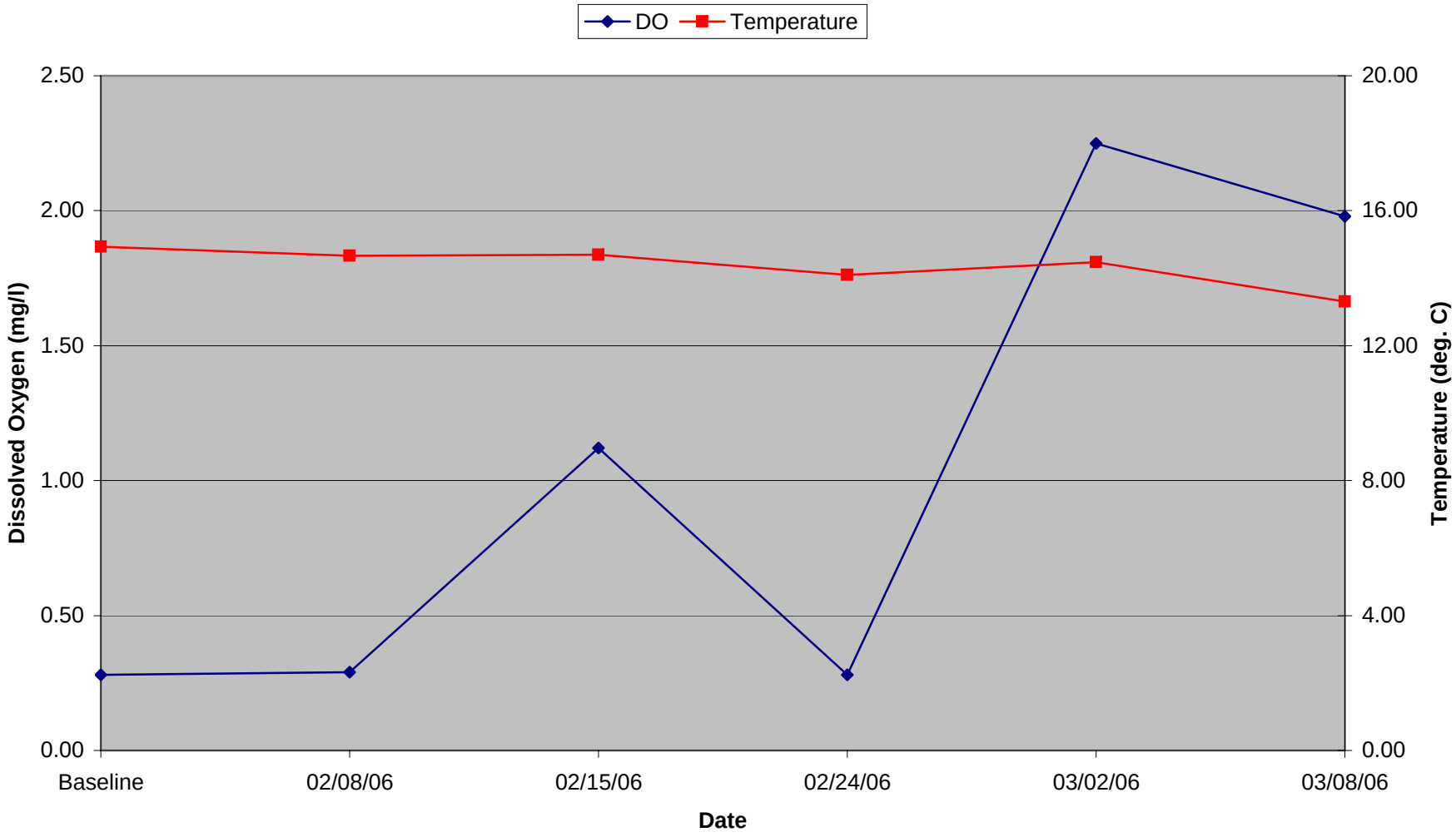
GRAPH 7
BIORESPIRATION TESTING - MW-51
HYDROCARBON VAPOR MONITORING



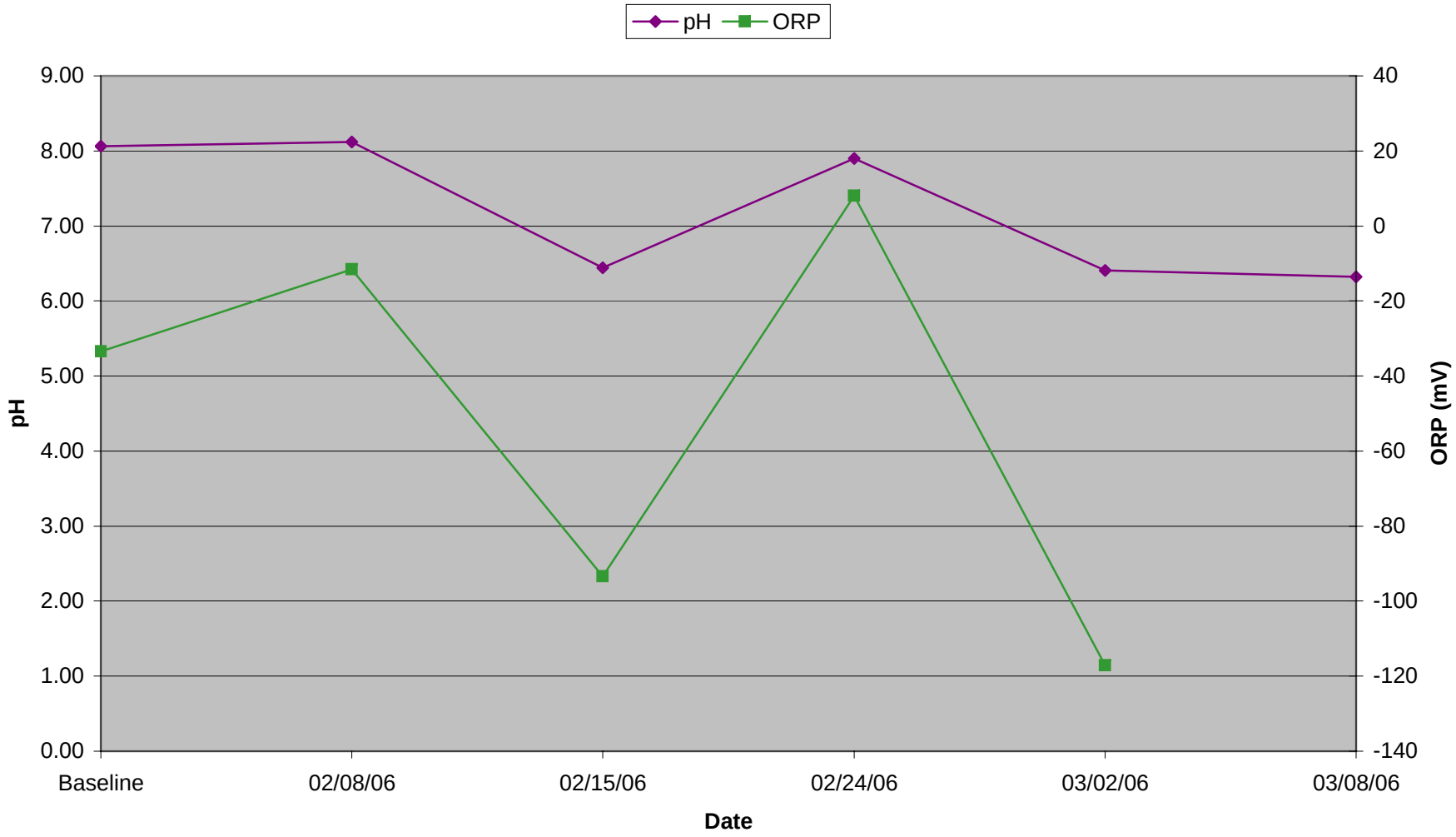
GRAPH 8
BIORESPIRATION TESTING - MW-98
HYDROCARBON VAPOR MONITORING



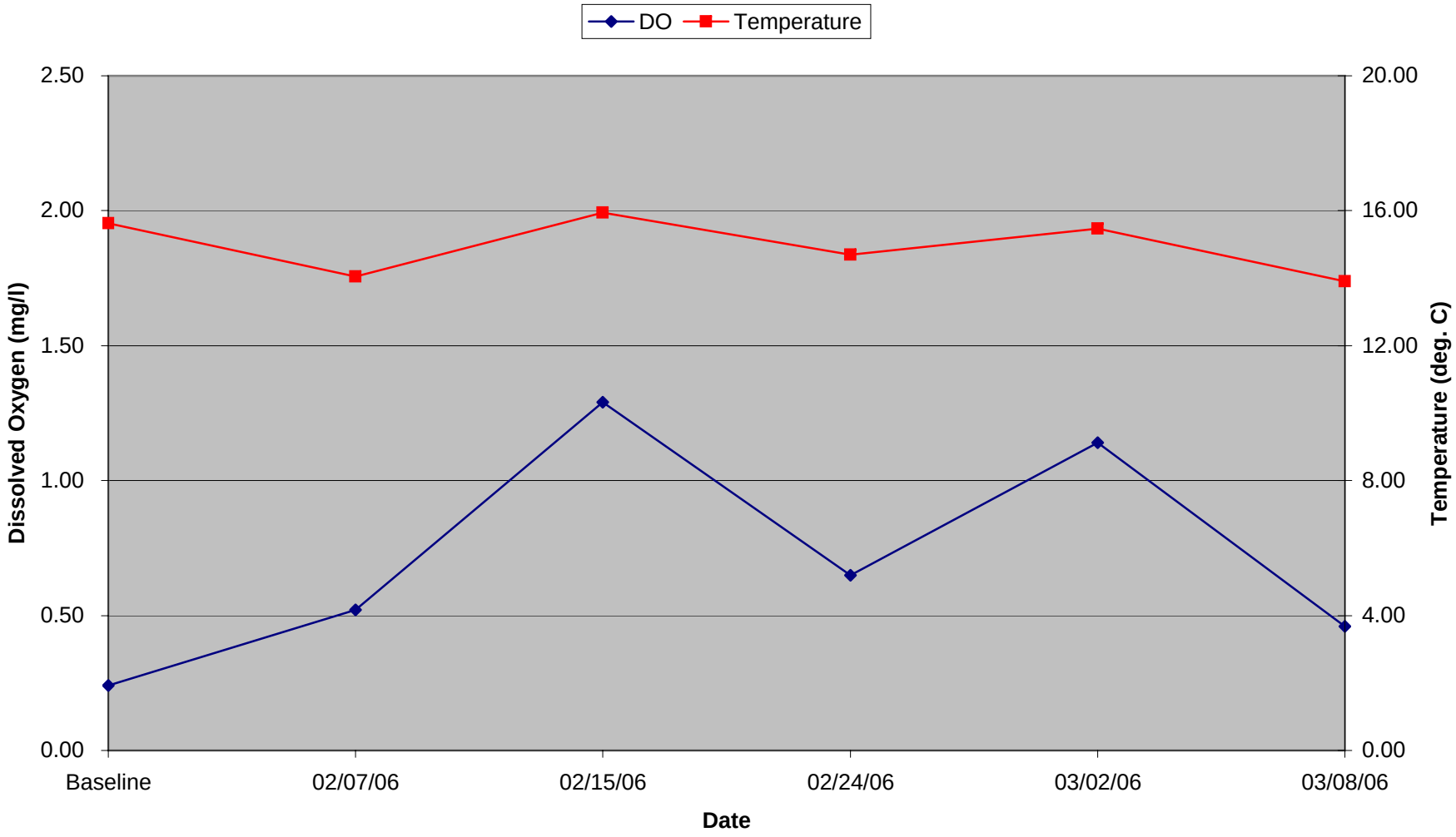
GRAPH 9
BIORESPIRATION TESTING - MW-51
WATER QUALITY MONITORING (DISSOLVED OXYGEN & TEMPERATURE)



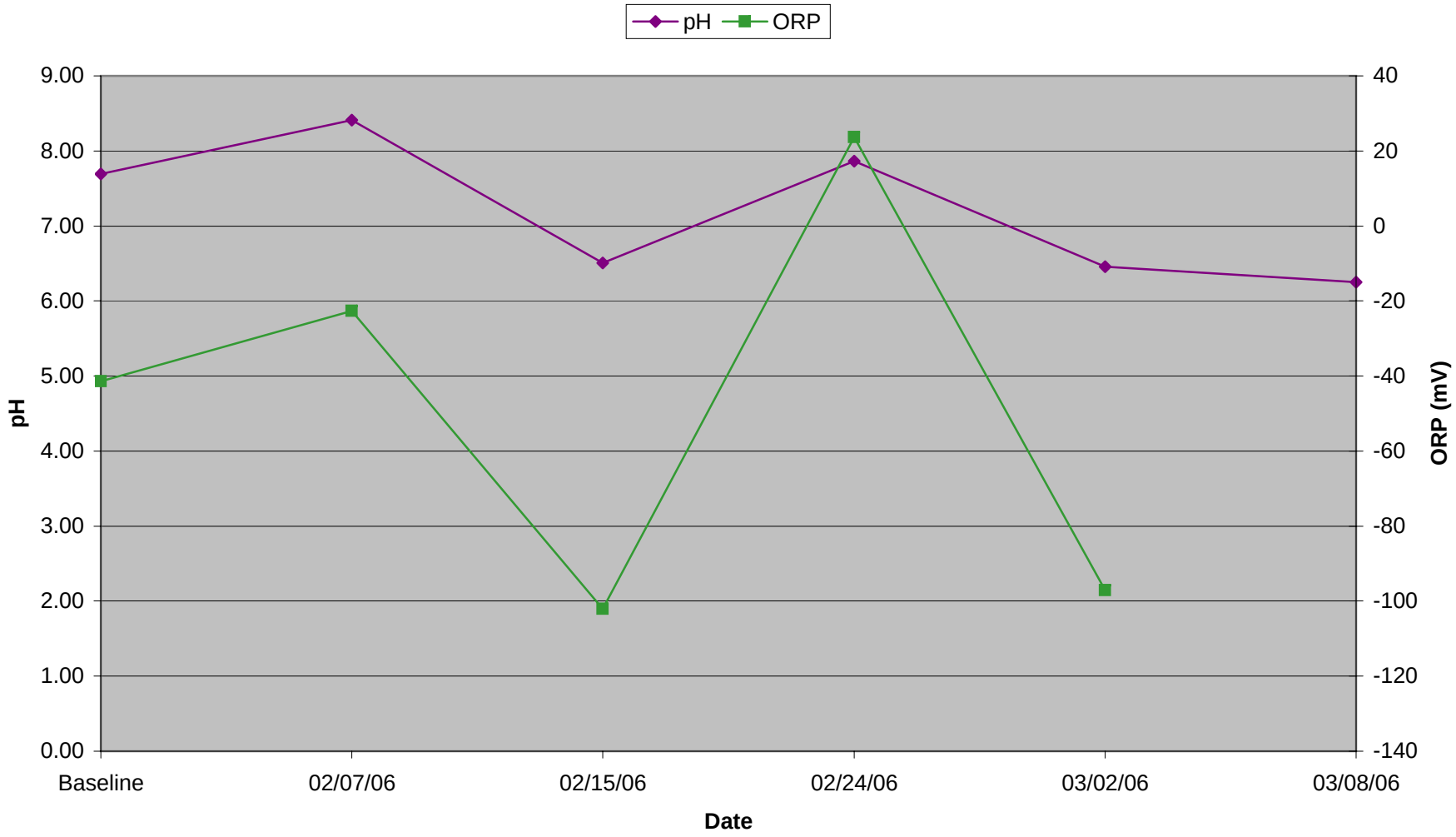
GRAPH 10
BIORESPIRATION TESTING - MW-51
WATER QUALITY MONITORING (PH & ORP)



GRAPH 11
BIORESPIRATION TESTING - MW-98
WATER QUALITY MONITORING (DISSOLVED OXYGEN & TEMPERATURE)



GRAPH 12
BIORESPIRATION TESTING - MW-98
WATER QUALITY MONITORING (PH & ORP)



APPENDIX A

AIR SPARGE TESTING DATA

AS TEST DATA EVALUATION - TEST WELL DAS-8
JANUARY 11, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Minimum initial pressure (psi) = [Depth to screen (ft) - DTW (ft)] x 0.4 (psi/ft)
Initial DTW (ft): 11.65
Well Depth (ft): 20.10
Screen Interval: 18'-20'
Minimum initial pressure (psi): 2.54

Initial observed breakthrough pressure 10 psi to achieve initial injection flow rate of ~2 cfm.
Flow rate increased to 3 cfm and stabilized during first 10 minutes of test, at 10 psi pressure.

Distance from AS Test Well (DAS-8) to:
MW-34: 16.2 feet
MW-58: 50 feet
MW-59: 84 feet
MW-97: 49 feet
MW-98: 34 feet
DAS-9: 66 feet
DAS-12: 29 feet

AS Test Well DAS-8						Observation Wells with Troll Data-Loggers - Field Readings											
						MW-34 (16.2')			DAS-12 (29')			MW-98 (34')			MW-97 (49')		
Time (hr:min)	Injection Rate (cfm)	Injection Pressure (psi)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)
0:00	0	0	0.17	18.50	11.65	0.34	18.47	10.71	0.20	17.91	10.97	0.19	16.74	11.03	0.25	16.86	10.71
0:30	3	9	--	--	--	1.48	15.65	10.55	--	--	10.62	--	--	11.02	--	--	10.70
1:00	3	9	--	--	--	--	--	--	--	--	10.43	--	--	11.02	--	--	10.69
1:30	--	--	--	--	--	--	--	--	0.26	17.49	--	--	--	--	--	--	--
2:00	5	17	--	--	--	--	--	--	--	--	10.31	0.17	16.21	11.02	0.17	15.99	10.70
2:30	5	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
3:00	5	17	--	--	--	3.67	18.65	10.28	--	--	--	--	--	--	--	--	--
3:30	5	17	--	--	--	--	--	--	0.22	17.80	9.95	--	--	--	0.16	16.24	10.72
4:00	5	17	--	--	--	--	--	--	--	--	--	--	--	--	--	--	10.71
Final:	0	0	2.45	17.89	16.12	0.26	18.18	11.49	0.26	17.42	11.42	0.17	16.32	11.09	0.25	16.00	10.72

AS Test Well DAS-8						Observation Wells w/o Data-Loggers - Field Readings								
						MW-58 (50')			DAS-9 (66')			MW-59 (84')		
Time (hr:min)	Injection Rate (cfm)	Injection Pressure (psi)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)
0:00	0	0	0.17	18.50	11.65	0.15	18.46	11.14	0.16	17.80	10.65	0.18	18.86	11.16
0:30	3	9	--	--	--	0.16	18.28	11.05	0.21	17.32	10.66	0.23	18.55	11.16
1:00	3	9	--	--	--	0.13	18.10	10.93	0.16	17.45	10.49	0.16	18.28	11.15
1:30	--	--	--	--	--	--	--	--	--	--	--	--	--	11.16
2:00	5	17	--	--	--	0.14	18.22	10.88	0.17	17.24	10.53	0.13	18.76	11.16
2:30	5	17	--	--	--	--	--	--	--	--	--	--	--	--
3:00	5	17	--	--	--	--	--	--	0.14	17.53	10.55	--	--	11.18
3:30	5	17	--	--	--	0.15	18.24	10.71	--	--	--	--	--	--
4:00	5	17	--	--	--	--	--	--	--	--	--	--	--	--
Final:	0	0	2.45	17.89	16.12	0.16	18.32	11.01	0.13	17.52	10.58	0.14	18.54	11.20

Notes:
D.O. = dissolved oxygen
Temp. = temperature
DTW = depth to water, measured from top of well casing
cfm = cubic feet per minute
psi = pounds per sqare inch
mg/l = milligrams per liter
deg. C = degrees celcius
"--" = not measured

AS Test Performed on DAS-8 / January 11, 2006
Observation Well MW-34

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro		
Report generated:	1/12/2006	14:16:15	
Report from file:	...\SN34013 2006-01-11 030813 mw-34.bin		
Win-Situ Version	4.533		
Serial number:	34013		
Firmware Version	1.55		
Unit name:	MP Troll 9000		
Test name:	mw-34		
Test defined on:	1/11/2006	3:08:06	*Note: Time of Troll was not set to actual time of test.
Test started on:	1/11/2006	3:08:13	
Test stopped on:	1/11/2006	4:36:52	
Data gathered using Linear testing			
Time between data points:	Seconds.		
Number of data samples:	18		
TOTAL DATA SAMPLES	18		
Channel number [1]			
Measurement type:	Temperature		
Channel name:			
Channel number [2]			
Measurement type:	Pressure		
Channel name:	Pressure		
Sensor Range:	30 PSIG.		
Sensor Offset:	0.000 psi		
Specific gravity:	1		
Mode:	TOC		
User-defined reference:	0	Feet H2O	
Referenced on:	test start		
Pressure head at reference:	1.838	Feet H2O	
Channel number [3]			
Measurement type:	Barometric Pressure		
Channel name:			
Channel number [5]			
Measurement type:	Battery Voltage		
Channel name:			
Channel number [11]			
Measurement type:	ORP		
Channel name:			
Channel number [12]			
Measurement type:	pH		
Channel name:			
Channel number [25]			
Measurement type:	Dissolved Oxygen		
Channel name:			
Channel number [25]			
Measurement type:	Dissolved Oxygen %Saturation		
Channel name:			
Channel number [45]			
Measurement type:	Conductivity, Low Range		
Channel name:			

AS Test Performed on DAS-8 / January 11, 2206
Observation Well MW-34

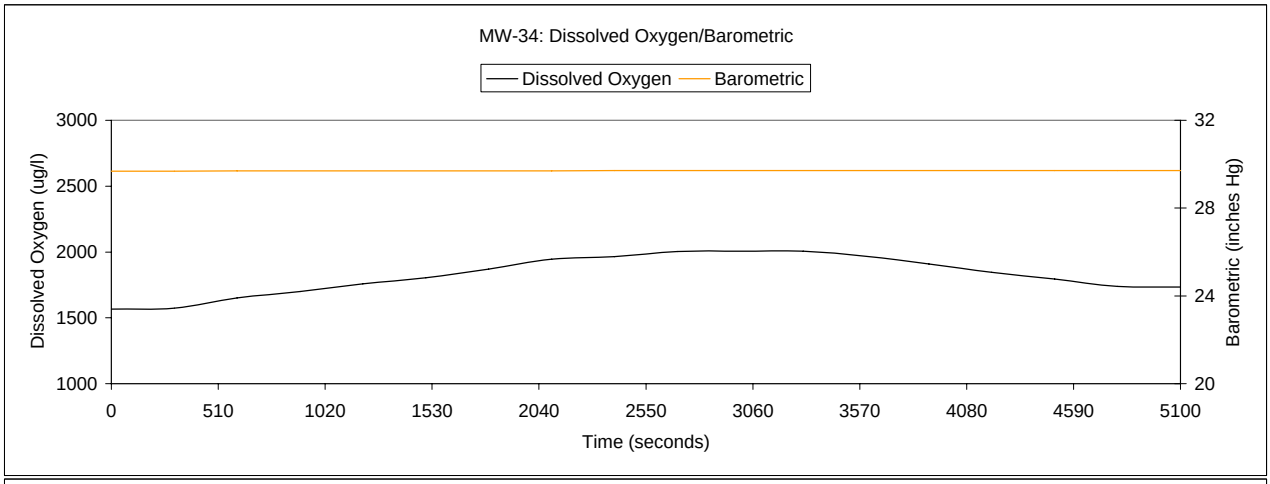
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

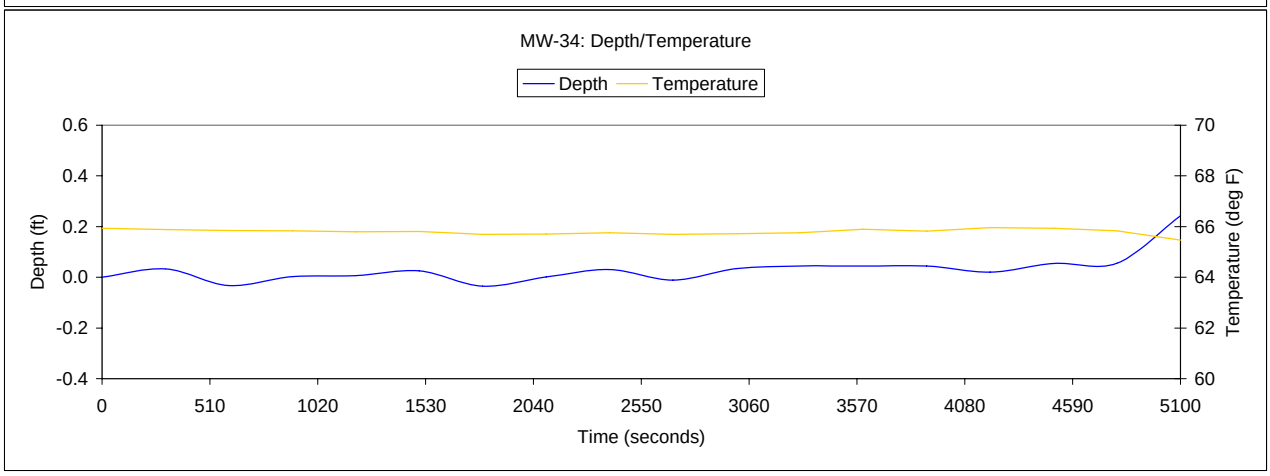
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/11/2006	3:08:13	0	65.94	0	29.683	3.124	34	6.29	1567	17.0284	927.91	
1/11/2006	3:13:13	300	65.89	0.033	29.687	3.124	34	6.29	1573	17.0846	929.01	
1/11/2006	3:18:13	600	65.84	-0.033	29.689	3.15	35	6.3	1651	17.9259	930.85	
1/11/2006	3:23:13	900	65.83	0.003	29.691	3.072	35	6.3	1701	18.4673	933.81	
1/11/2006	3:28:13	1200	65.79	0.006	29.694	3.15	35	6.3	1757	19.0584	934.18	
1/11/2006	3:33:13	1500	65.81	0.026	29.699	3.098	35	6.3	1805	19.5866	939.23	
1/11/2006	3:38:13	1800	65.7	-0.035	29.701	3.15	35	6.3	1869	20.2487	938.48	
1/11/2006	3:43:13	2100	65.71	0.001	29.7	3.124	34	6.3	1945	21.0739	940.36	
1/11/2006	3:48:13	2400	65.76	0.03	29.704	3.124	33	6.3	1965	21.3021	943.57	
1/11/2006	3:53:13	2700	65.7	-0.011	29.705	3.124	33	6.32	2003	21.6973	942.43	
1/11/2006	3:58:13	3000	65.72	0.034	29.706	3.124	33	6.31	2006	21.7319	945.66	
1/11/2006	4:03:13	3300	65.76	0.045	29.707	3.124	32	6.31	2007	21.7544	949.48	
1/11/2006	4:08:13	3600	65.9	0.044	29.707	3.124	30	6.31	1968	21.3674	957.03	
1/11/2006	4:13:13	3900	65.82	0.045	29.709	3.124	29	6.3	1908	20.6931	951.21	
1/11/2006	4:18:13	4200	65.96	0.02	29.714	3.124	26	6.29	1846	20.0561	957.61	
1/11/2006	4:23:13	4500	65.93	0.054	29.712	3.124	24	6.29	1795	19.4908	960.75	
1/11/2006	4:28:13	4800	65.83	0.056	29.715	3.124	23	6.29	1739	18.8653	955.67	
1/11/2006	4:33:13	5100	65.47	0.243	29.718	3.124	26	6.35	1735	18.7412	939.61	

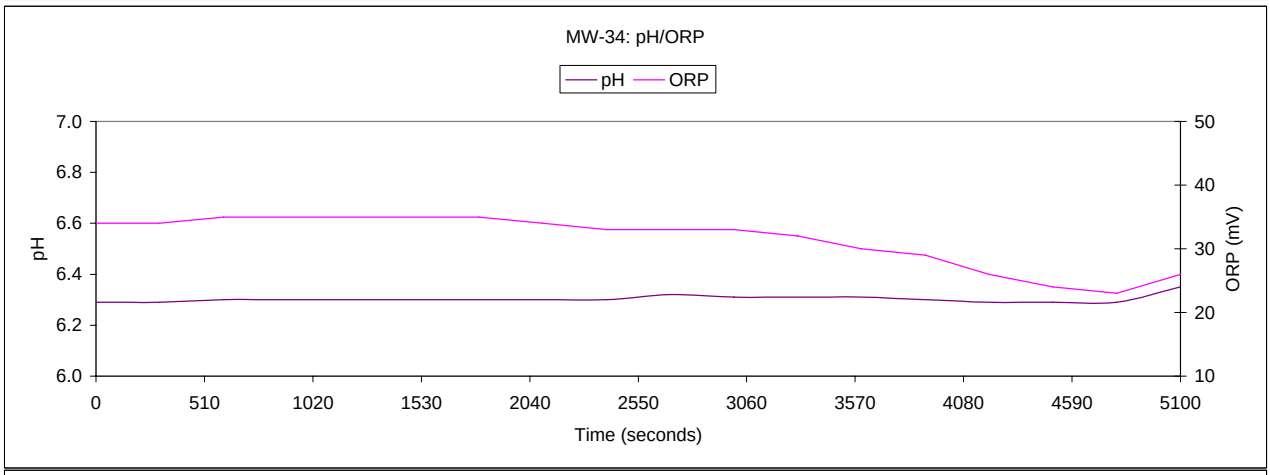
AS Test Performed on DAS-8 / January 11, 2006

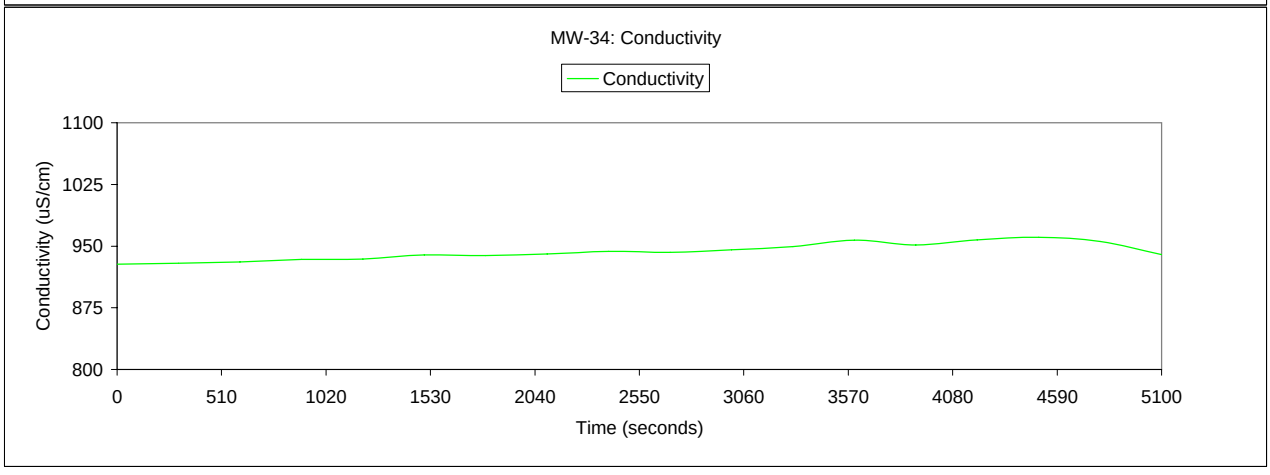
ConocoPhillips Site No. 255353

600 Westlake Avenue N., Seattle, WA









AS Test Performed on DAS-8 / January 11, 2006
Observation Well DAS-12

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro XP	
Report generated:	1/12/2006	14:11:42
Report from file:	...\SN31431 2006-01-11 113000 das-12.bin	
Win-Situ Version	4.533	
Serial number:	31431	
Firmware Version	1.55	
Unit name:	MP Troll 9000	
Test name:	**das-12**	
Test defined on:	1/11/2006	11:21:35
Test scheduled for:	1/11/2006	11:30:00
Test started on:	1/11/2006	11:30:00
Test stopped on:	1/11/2006	15:47:48
Data gathered using Linear testing		
Time between data points:	Seconds.	
Number of data samples:	52	
TOTAL DATA SAMPLES	52	
Channel number [1]		
Measurement type:	Temperature	
Channel name:		
Channel number [2]		
Measurement type:	Pressure	
Channel name:	Pressure	
Sensor Range:	30 PSIG.	
Sensor Offset:	0.000 psi	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0	Feet H2O
Referenced on:	test start	
Pressure head at reference:	8.441	Feet H2O
Channel number [3]		
Measurement type:	Barometric Pressure	
Channel name:		
Channel number [5]		
Measurement type:	Battery Voltage	
Channel name:		
Channel number [11]		
Measurement type:	ORP	
Channel name:		
Channel number [12]		
Measurement type:	pH	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen %Saturation	
Channel name:		
Channel number [45]		
Measurement type:	Conductivity, Low Range	
Channel name:		

AS Test Performed on DAS-8 / January 11, 2006
Observation Well DAS-12

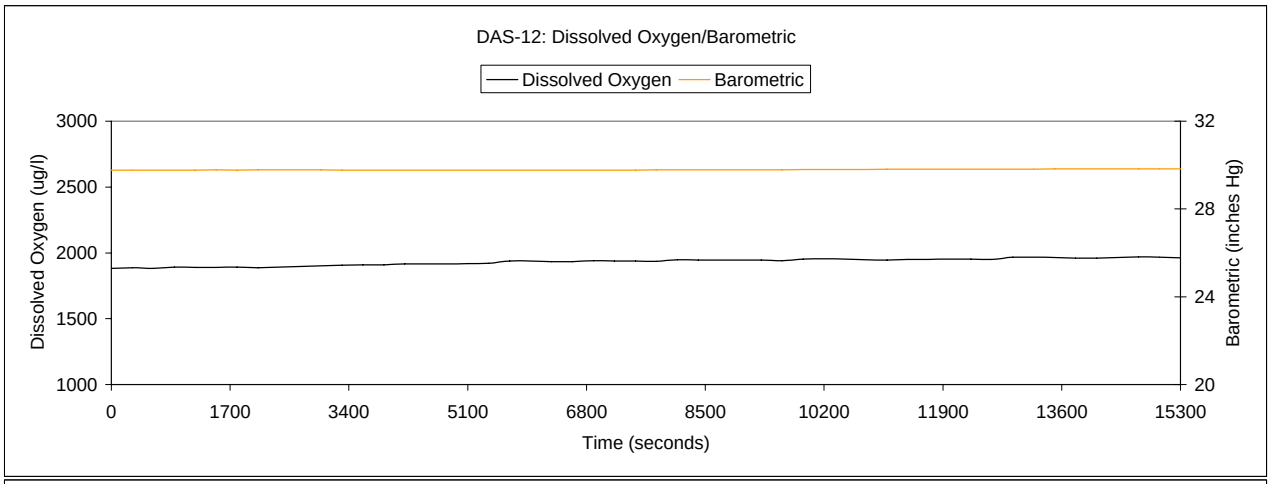
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

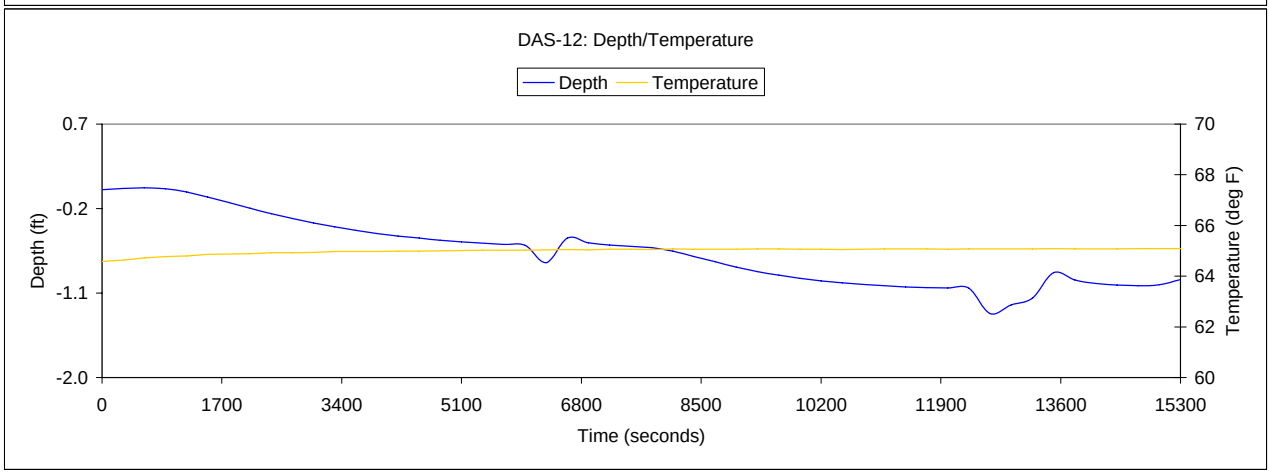
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/11/2006	11:30:00	0	64.58	0	29.768	3.15	-137	6.23	1881	20.0855	954.87	
1/11/2006	11:35:00	300	64.64	0.015	29.768	3.124	-141	6.23	1888	20.1697	933.76	
1/11/2006	11:40:00	600	64.72	0.02	29.77	3.15	-144	6.24	1881	20.1061	952.23	
1/11/2006	11:45:00	900	64.77	0.013	29.776	3.124	-147	6.24	1892	20.2337	991.24	
1/11/2006	11:50:00	1200	64.8	-0.023	29.774	3.124	-150	6.24	1890	20.2189	955.06	
1/11/2006	11:55:00	1500	64.86	-0.078	29.777	3.124	-152	6.25	1890	20.2356	984.15	
1/11/2006	12:00:00	1800	64.88	-0.136	29.776	3.124	-154	6.25	1892	20.2618	968.12	
1/11/2006	12:05:00	2100	64.89	-0.196	29.777	3.124	-157	6.25	1888	20.2221	958.1	
1/11/2006	12:10:00	2400	64.92	-0.254	29.777	3.098	-159	6.26	1893	20.2827	952.23	
1/11/2006	12:15:00	2700	64.93	-0.306	29.777	3.098	-161	6.26	1896	20.3163	958.87	
1/11/2006	12:20:00	3000	64.94	-0.353	29.778	3.098	-163	6.26	1902	20.3839	972.03	
1/11/2006	12:25:00	3300	64.97	-0.394	29.775	3.124	-165	6.26	1907	20.4459	984.96	
1/11/2006	12:30:00	3600	64.98	-0.431	29.773	3.124	-169	6.27	1910	20.4795	960.4	
1/11/2006	12:35:00	3900	64.98	-0.467	29.776	3.124	-170	6.27	1910	20.4748	953.74	
1/11/2006	12:40:00	4200	64.99	-0.493	29.774	3.124	-174	6.27	1916	20.5472	955.06	
1/11/2006	12:45:00	4500	64.99	-0.515	29.771	3.124	-175	6.27	1916	20.5472	971.25	
1/11/2006	12:50:00	4800	65	-0.536	29.772	3.124	-177	6.27	1915	20.5436	972.43	
1/11/2006	12:55:00	5100	65.01	-0.554	29.773	3.124	-185	6.28	1918	20.5746	972.03	
1/11/2006	13:00:00	5400	65.02	-0.569	29.771	3.124	-188	6.28	1921	20.6075	973.21	
1/11/2006	13:05:00	5700	65.02	-0.583	29.768	3.124	-186	6.28	1938	20.789	973.61	
1/11/2006	13:10:00	6000	65.02	-0.591	29.769	3.098	-187	6.28	1938	20.7887	974	
1/11/2006	13:15:00	6300	65.04	-0.775	29.765	3.124	-188	6.28	1933	20.7472	944.39	
1/11/2006	13:20:00	6600	65.05	-0.515	29.765	3.124	-190	6.28	1933	20.7413	929.61	
1/11/2006	13:25:00	6900	65.04	-0.564	29.766	3.124	-192	6.28	1940	20.8142	913.56	
1/11/2006	13:30:00	7200	65.06	-0.588	29.768	3.124	-194	6.29	1939	20.806	907.19	
1/11/2006	13:35:00	7500	65.06	-0.601	29.769	3.124	-195	6.29	1939	20.8039	920.73	
1/11/2006	13:40:00	7800	65.05	-0.615	29.778	3.098	-197	6.29	1936	20.7647	919.85	
1/11/2006	13:45:00	8100	65.07	-0.654	29.779	3.098	-199	6.29	1948	20.9007	924.26	
1/11/2006	13:50:00	8400	65.06	-0.71	29.781	3.098	-201	6.29	1945	20.8681	931.59	
1/11/2006	13:55:00	8700	65.06	-0.766	29.783	3.098	-202	6.3	1945	20.8644	922.14	
1/11/2006	14:00:00	9000	65.06	-0.823	29.784	3.124	-204	6.3	1945	20.8658	919.67	
1/11/2006	14:05:00	9300	65.07	-0.87	29.789	3.098	-205	6.3	1945	20.8583	919.67	
1/11/2006	14:10:00	9600	65.07	-0.909	29.791	3.124	-207	6.3	1941	20.8213	920.73	
1/11/2006	14:15:00	9900	65.06	-0.942	29.797	3.098	-208	6.3	1952	20.9289	923.37	
1/11/2006	14:20:00	10200	65.06	-0.97	29.796	3.124	-210	6.3	1955	20.9637	923.02	
1/11/2006	14:25:00	10500	65.05	-0.991	29.798	3.098	-211	6.3	1952	20.9287	922.49	
1/11/2006	14:30:00	10800	65.06	-1.009	29.802	3.124	-212	6.3	1948	20.8876	925.86	
1/11/2006	14:35:00	11100	65.07	-1.023	29.806	3.098	-213	6.3	1945	20.8476	925.86	
1/11/2006	14:40:00	11400	65.07	-1.034	29.807	3.098	-215	6.31	1951	20.9152	923.02	
1/11/2006	14:45:00	11700	65.07	-1.041	29.815	3.098	-216	6.31	1951	20.912	924.44	
1/11/2006	14:50:00	12000	65.06	-1.047	29.813	3.098	-217	6.31	1952	20.9148	926.04	
1/11/2006	14:55:00	12300	65.07	-1.049	29.82	3.098	-218	6.31	1952	20.9095	929.26	
1/11/2006	15:00:00	12600	65.08	-1.319	29.818	3.124	-219	6.31	1951	20.9038	925.15	
1/11/2006	15:05:00	12900	65.07	-1.226	29.818	3.124	-221	6.31	1968	21.0855	926.75	
1/11/2006	15:10:00	13200	65.07	-1.155	29.82	3.124	-222	6.31	1968	21.0834	927.47	
1/11/2006	15:15:00	13500	65.09	-0.882	29.821	3.124	-223	6.32	1964	21.0428	935.21	
1/11/2006	15:20:00	13800	65.08	-0.96	29.824	3.098	-224	6.32	1960	21.0057	932.86	
1/11/2006	15:25:00	14100	65.08	-0.997	29.826	3.124	-225	6.32	1960	21.0043	927.47	
1/11/2006	15:30:00	14400	65.08	-1.015	29.824	3.124	-226	6.32	1964	21.0428	931.77	
1/11/2006	15:35:00	14700	65.09	-1.02	29.83	3.124	-227	6.32	1970	21.1068	930.33	
1/11/2006	15:40:00	15000	65.09	-1.013	29.83	3.098	-229	6.32	1967	21.0704	932.5	
1/11/2006	15:45:00	15300	65.09	-0.958	29.834	3.124	-229	6.32	1963	21.0321	932.14	

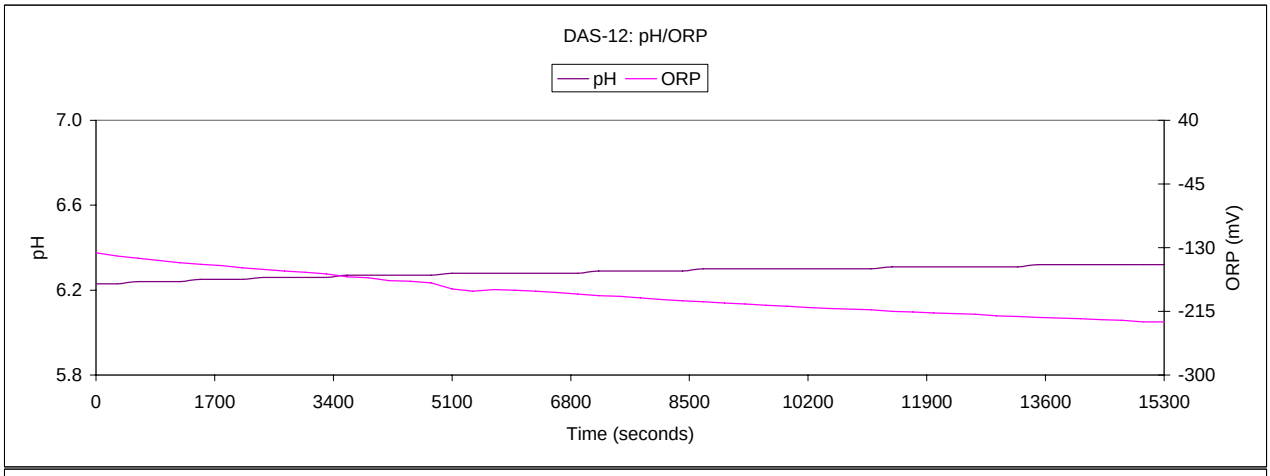
AS Test Performed on DAS-8 / January 11, 2006

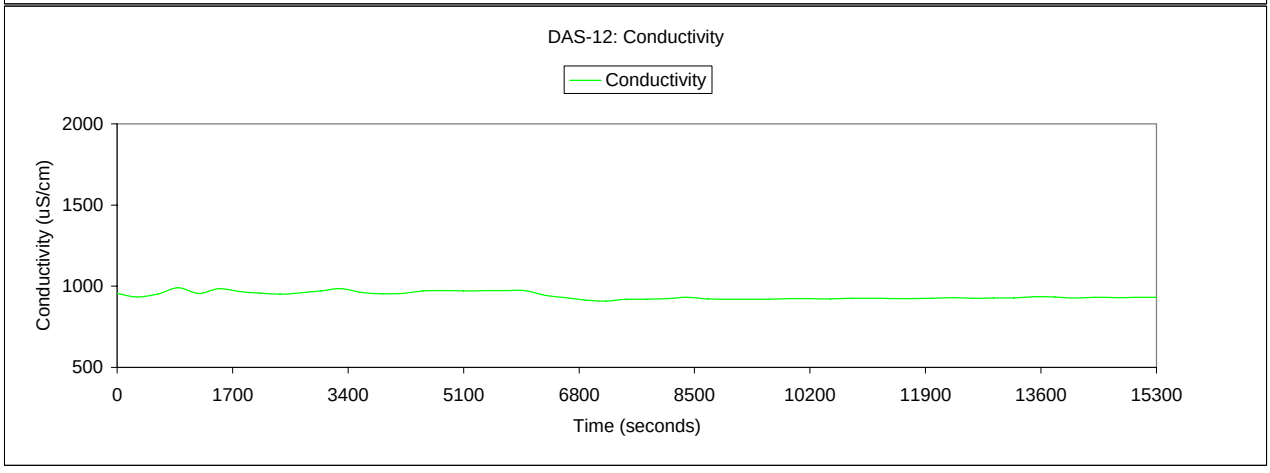
ConocoPhillips Site No. 255353

600 Westlake Avenue N., Seattle, WA









AS Test Performed on DAS-8 / January 11, 2006
Observation Well MW-98

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro	
Report generated:	1/12/2006	14:17:58
Report from file:	...\SN31745 2006-01-11 113300 mw-98.bin	
Win-Situ Version	4.533	
Serial number:	31745	
Firmware Version	1.55	
Unit name:	MP Troll 9000	
Test name:	mw-98	
Test defined on:	1/11/2006	11:27:30
Test scheduled for:	1/11/2006	11:33:00
Test started on:	1/11/2006	11:33:00
Test stopped on:	1/11/2006	15:41:00
Data gathered using Linear testing		
Time between data points:	Seconds.	
Number of data samples:	50	
TOTAL DATA SAMPLES	50	
Channel number [1]		
Measurement type:	Temperature	
Channel name:		
Channel number [2]		
Measurement type:	Pressure	
Channel name:	Pressure	
Sensor Range:	30 PSIG.	
Sensor Offset:	0.000 psi	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0	Feet H2O
Referenced on:	test start	
Pressure head at reference:	4.628	Feet H2O
Channel number [3]		
Measurement type:	Barometric Pressure	
Channel name:		
Channel number [5]		
Measurement type:	Battery Voltage	
Channel name:		
Channel number [11]		
Measurement type:	ORP	
Channel name:		
Channel number [12]		
Measurement type:	pH	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen %Saturation	
Channel name:		
Channel number [45]		
Measurement type:	Conductivity, Low Range	
Channel name:		

AS Test Performed on DAS-8 / January 11, 2006
Observation Well MW-98

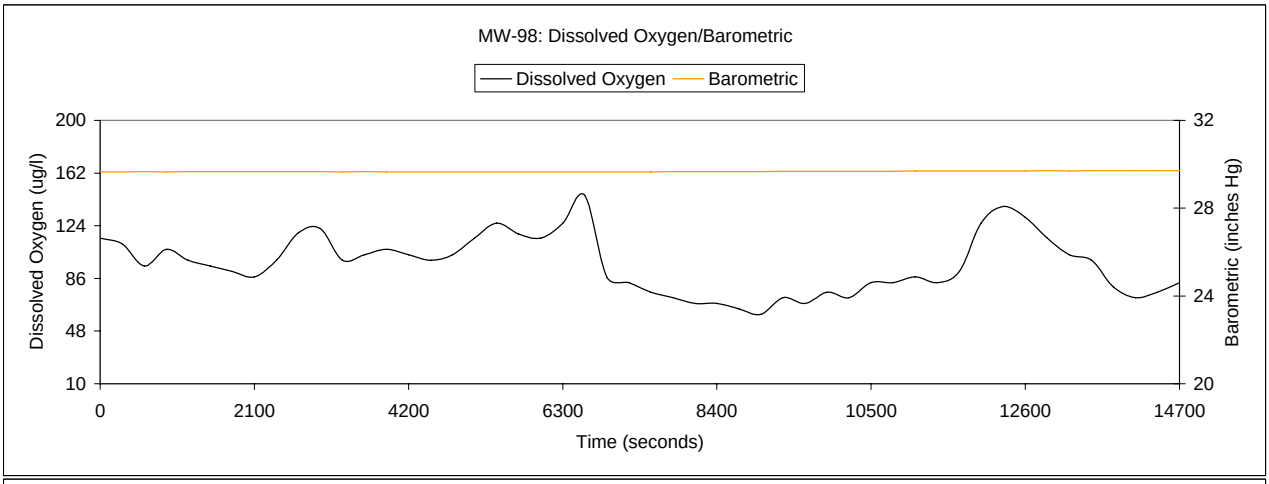
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

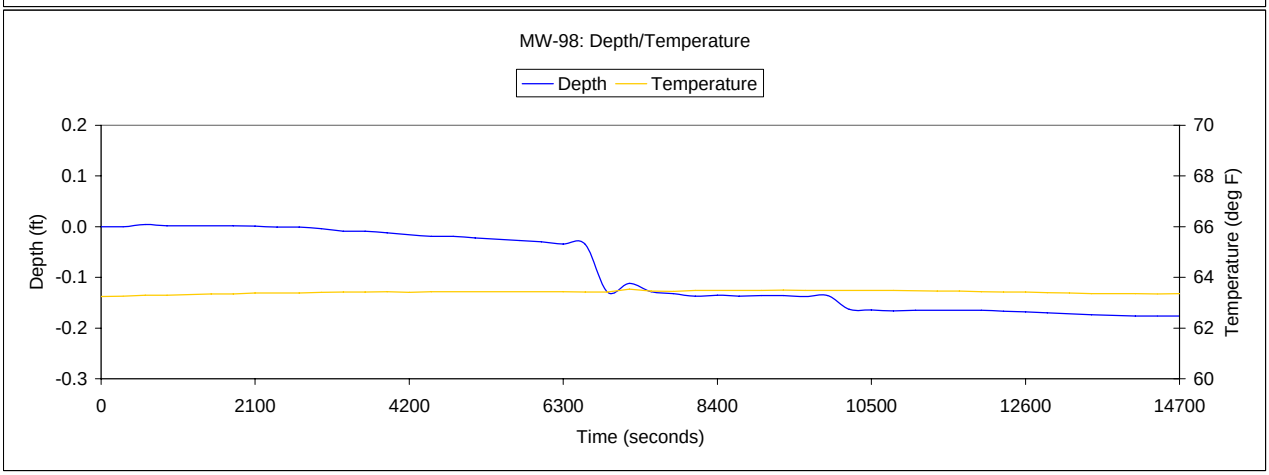
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/11/2006	11:33:00	0	63.24	0	29.651	3.124	-93	6.28	115	1.2151	1225.22	
1/11/2006	11:38:00	300	63.26	0	29.655	3.124	-91	6.28	111	1.174	1225.53	
1/11/2006	11:43:00	600	63.29	0.004	29.66	3.15	-91	6.29	95	1.0082	1225.85	
1/11/2006	11:48:00	900	63.3	0.002	29.657	3.15	-90	6.29	107	1.1321	1225.85	
1/11/2006	11:53:00	1200	63.32	0.002	29.66	3.15	-87	6.29	99	1.049	1222.96	
1/11/2006	11:58:00	1500	63.34	0.002	29.66	3.15	-86	6.29	95	1.0073	1223.6	
1/11/2006	12:03:00	1800	63.34	0.002	29.661	3.15	-84	6.29	91	0.9661	1220.71	
1/11/2006	12:08:00	2100	63.38	0.001	29.661	3.124	-83	6.29	87	0.9243	1217.21	
1/11/2006	12:13:00	2400	63.38	-0.001	29.66	3.124	-85	6.29	99	1.0482	1217.21	
1/11/2006	12:18:00	2700	63.39	-0.001	29.66	3.072	-87	6.29	119	1.2546	1218.8	
1/11/2006	12:23:00	3000	63.41	-0.004	29.662	3.072	-85	6.28	122	1.2952	1218.8	
1/11/2006	12:28:00	3300	63.42	-0.009	29.655	3.124	-85	6.29	99	1.0475	1222.96	
1/11/2006	12:33:00	3600	63.42	-0.009	29.662	3.124	-85	6.28	103	1.0887	1222.95	
1/11/2006	12:38:00	3900	63.43	-0.012	29.658	3.124	-85	6.29	107	1.1302	1221.67	
1/11/2006	12:43:00	4200	63.41	-0.016	29.657	3.124	-86	6.28	103	1.0892	1218.48	
1/11/2006	12:48:00	4500	63.43	-0.019	29.653	3.124	-83	6.29	99	1.0478	1217.2	
1/11/2006	12:53:00	4800	63.43	-0.019	29.654	3.124	-81	6.29	103	1.0892	1217.2	
1/11/2006	12:58:00	5100	63.43	-0.022	29.654	3.098	-79	6.29	115	1.2131	1217.2	
1/11/2006	13:03:00	5400	63.43	-0.025	29.652	3.072	-76	6.29	126	1.3373	1218.16	
1/11/2006	13:08:00	5700	63.44	-0.027	29.654	3.124	-75	6.29	118	1.2544	1218.16	
1/11/2006	13:13:00	6000	63.43	-0.03	29.653	3.124	-74	6.29	115	1.2133	1217.2	
1/11/2006	13:18:00	6300	63.43	-0.034	29.649	3.098	-73	6.29	126	1.3376	1216.88	
1/11/2006	13:23:00	6600	63.42	-0.035	29.65	3.124	-72	6.29	146	1.5444	1215.93	
1/11/2006	13:28:00	6900	63.42	-0.129	29.651	3.124	-74	6.28	87	0.9247	1214.03	
1/11/2006	13:33:00	7200	63.54	-0.112	29.654	3.124	-76	6.28	83	0.8819	1218.47	
1/11/2006	13:38:00	7500	63.46	-0.128	29.659	3.124	-78	6.28	76	0.802	1216.86	
1/11/2006	13:43:00	7800	63.45	-0.132	29.663	3.124	-79	6.28	72	0.7614	1218.13	
1/11/2006	13:48:00	8100	63.48	-0.137	29.663	3.072	-79	6.28	68	0.7199	1218.13	
1/11/2006	13:53:00	8400	63.48	-0.135	29.666	3.124	-79	6.28	68	0.7196	1220.36	
1/11/2006	13:58:00	8700	63.49	-0.137	29.666	3.124	-78	6.28	64	0.678	1220.36	
1/11/2006	14:03:00	9000	63.48	-0.136	29.672	3.072	-77	6.28	60	0.6364	1220.37	
1/11/2006	14:08:00	9300	63.5	-0.136	29.675	3.124	-76	6.28	72	0.7591	1218.46	
1/11/2006	14:13:00	9600	63.49	-0.138	29.676	3.072	-77	6.28	68	0.7174	1213.39	
1/11/2006	14:18:00	9900	63.48	-0.136	29.681	3.124	-81	6.28	76	0.7994	1213.4	
1/11/2006	14:23:00	10200	63.48	-0.163	29.681	3.124	-82	6.28	72	0.7579	1211.19	
1/11/2006	14:28:00	10500	63.48	-0.164	29.685	3.072	-76	6.29	83	0.8816	1213.4	
1/11/2006	14:33:00	10800	63.48	-0.166	29.688	3.124	-76	6.29	83	0.8814	1208.68	
1/11/2006	14:38:00	11100	63.47	-0.165	29.689	3.124	-75	6.28	87	0.9224	1206.49	
1/11/2006	14:43:00	11400	63.46	-0.165	29.694	3.124	-73	6.29	83	0.881	1207.43	
1/11/2006	14:48:00	11700	63.46	-0.165	29.698	3.072	-71	6.29	91	0.9631	1205.56	
1/11/2006	14:53:00	12000	63.44	-0.165	29.698	3.124	-70	6.29	126	1.3343	1198.74	
1/11/2006	14:58:00	12300	63.42	-0.167	29.701	3.124	-69	6.29	138	1.4582	1193.83	
1/11/2006	15:03:00	12600	63.42	-0.168	29.7	3.124	-68	6.29	130	1.3758	1193.22	
1/11/2006	15:08:00	12900	63.4	-0.17	29.704	3.072	-67	6.29	115	1.211	1192.61	
1/11/2006	15:13:00	13200	63.38	-0.172	29.703	3.072	-67	6.29	103	1.0876	1188.97	
1/11/2006	15:18:00	13500	63.36	-0.174	29.704	3.072	-68	6.29	99	1.0463	1184.74	
1/11/2006	15:23:00	13800	63.36	-0.175	29.708	3.124	-67	6.29	80	0.8398	1182.64	
1/11/2006	15:28:00	14100	63.36	-0.176	29.707	3.098	-66	6.29	72	0.7571	1180.54	
1/11/2006	15:33:00	14400	63.35	-0.176	29.71	3.072	-66	6.29	76	0.7981	1179.95	
1/11/2006	15:38:00	14700	63.36	-0.176	29.712	3.124	-66	6.29	83	0.8802	1178.46	

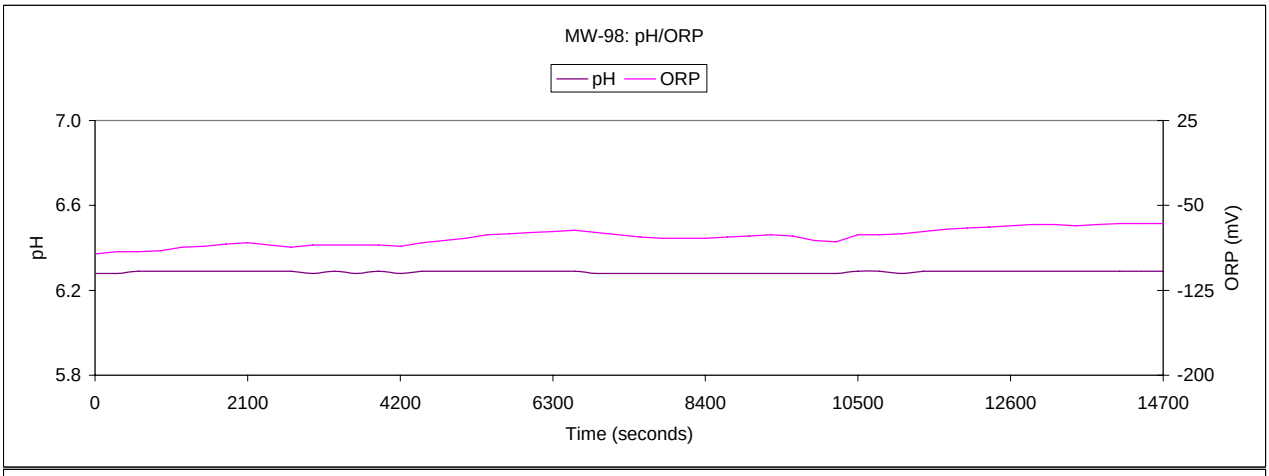
AS Test Performed on DAS-8 / January 11, 2006

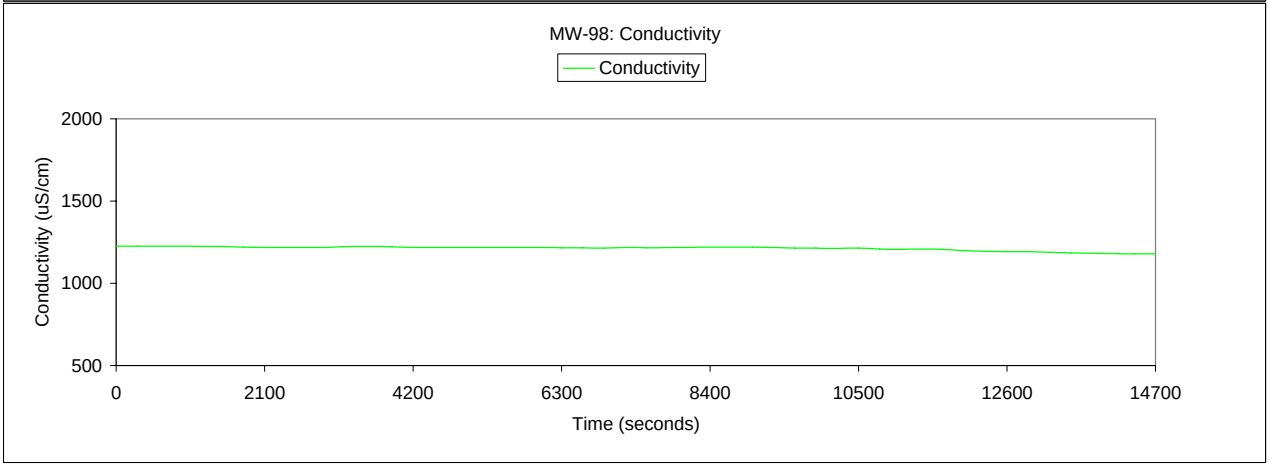
ConocoPhillips Site No. 255353

600 Westlake Avenue N., Seattle, WA









AS Test Performed on DAS-8 / January 11, 2006
Observation Well MW-97

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro		
Report generated:	1/12/2006	14:20:31	
Report from file:	...\SN31426 1999-01-02 234604 mw-97.bin		
Win-Situ Version	4.533		
Serial number:	31426		
Firmware Version	1.55		
Unit name:	MP Troll 9000		
Test name:	mw-97		
Test defined on:	1/2/1999*	23:45:57	*Note: Date and time of Troll unit was not set to actual date.
Test started on:	1/2/1999*	23:46:04	Test was performed on 1/11/2006.
Test stopped on:	1/3/1999*	1:03:01	
Data gathered using Linear testing			
Time between data points:	Seconds.		
Number of data samples:	16		
TOTAL DATA SAMPLES	16		
Channel number [1]			
Measurement type:	Temperature		
Channel name:			
Channel number [2]			
Measurement type:	Pressure		
Channel name:	Pressure		
Sensor Range:	30 PSIG.		
Sensor Offset:	0.000 psi		
Specific gravity:	1		
Mode:	TOC		
User-defined reference:	0	Feet H2O	
Referenced on:	test start		
Pressure head at reference:	5.023	Feet H2O	
Channel number [3]			
Measurement type:	Barometric Pressure		
Channel name:			
Channel number [5]			
Measurement type:	Battery Voltage		
Channel name:			
Channel number [11]			
Measurement type:	ORP		
Channel name:			
Channel number [12]			
Measurement type:	pH		
Channel name:			
Channel number [25]			
Measurement type:	Dissolved Oxygen		
Channel name:			
Channel number [25]			
Measurement type:	Dissolved Oxygen %Saturation		
Channel name:			
Channel number [45]			
Measurement type:	Conductivity, Low Range		
Channel name:			

AS Test Performed on DAS-8 / January 11, 2006
Observation Well MW-97

ConocoPhillips Site No. 255353

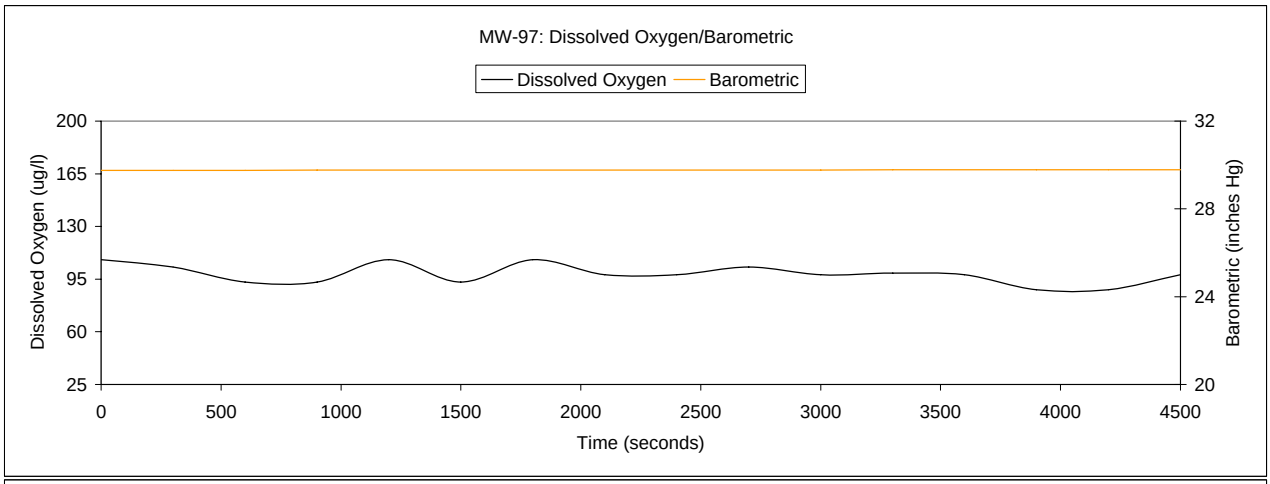
600 Westlake Avenue N., Seattle, WA

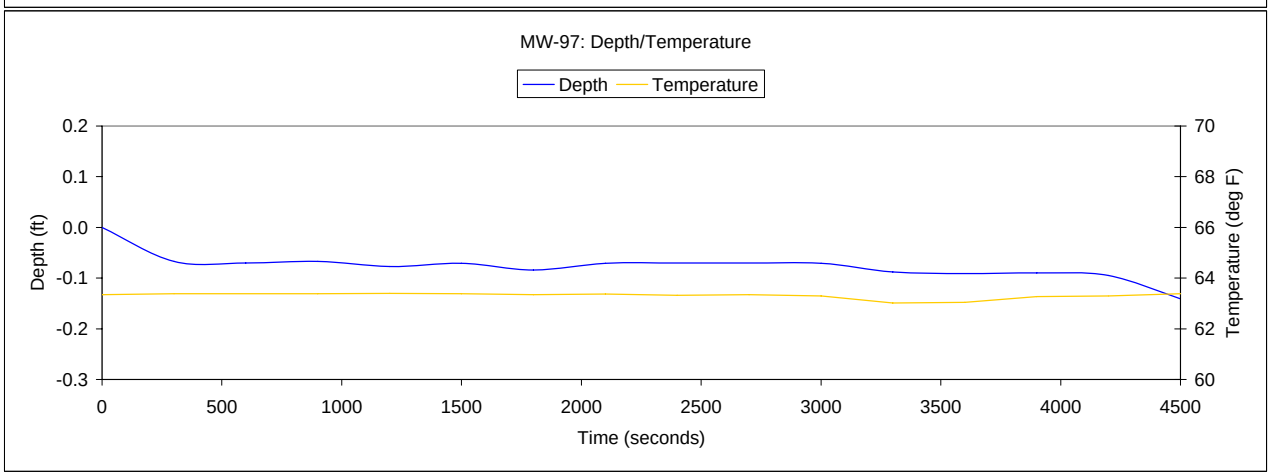
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/2/1999	23:46:04	0	63.34	0	29.756	3.15	-158	6.07	108	1.1333	834.82	
1/2/1999	23:51:04	300	63.38	-0.067	29.758	3.15	-161	6.06	103	1.0835	833.62	
1/2/1999	23:56:04	600	63.38	-0.07	29.759	3.124	-163	6.06	93	0.9813	835.71	
1/3/1999	0:01:04	900	63.38	-0.067	29.764	3.124	-165	6.06	93	0.9809	837.21	
1/3/1999	0:06:04	1200	63.4	-0.077	29.766	3.15	-167	6.06	108	1.1334	836.01	
1/3/1999	0:11:04	1500	63.38	-0.071	29.769	3.124	-168	6.06	93	0.9795	835.11	
1/3/1999	0:16:04	1800	63.34	-0.084	29.77	3.15	-169	6.06	108	1.1333	833.62	
1/3/1999	0:21:04	2100	63.37	-0.071	29.771	3.15	-165	6.06	98	1.0298	833.62	
1/3/1999	0:26:04	2400	63.32	-0.07	29.775	3.072	-167	6.06	98	1.03	832.44	
1/3/1999	0:31:04	2700	63.34	-0.07	29.775	3.124	-167	6.06	103	1.0804	833.92	
1/3/1999	0:36:04	3000	63.3	-0.071	29.776	3.124	-170	6.06	98	1.0295	833.33	
1/3/1999	0:41:04	3300	63.02	-0.088	29.778	3.072	-170	6.07	99	1.0338	828.16	
1/3/1999	0:46:04	3600	63.04	-0.091	29.779	3.124	-169	6.08	98	1.032	827.87	
1/3/1999	0:51:04	3900	63.27	-0.09	29.779	3.072	-174	6.07	88	0.9268	835.12	
1/3/1999	0:56:04	4200	63.29	-0.095	29.78	3.124	-178	6.07	88	0.9289	833.33	
1/3/1999	1:01:04	4500	63.38	-0.141	29.787	3.15	-178	6.08	98	1.0304	837.66	

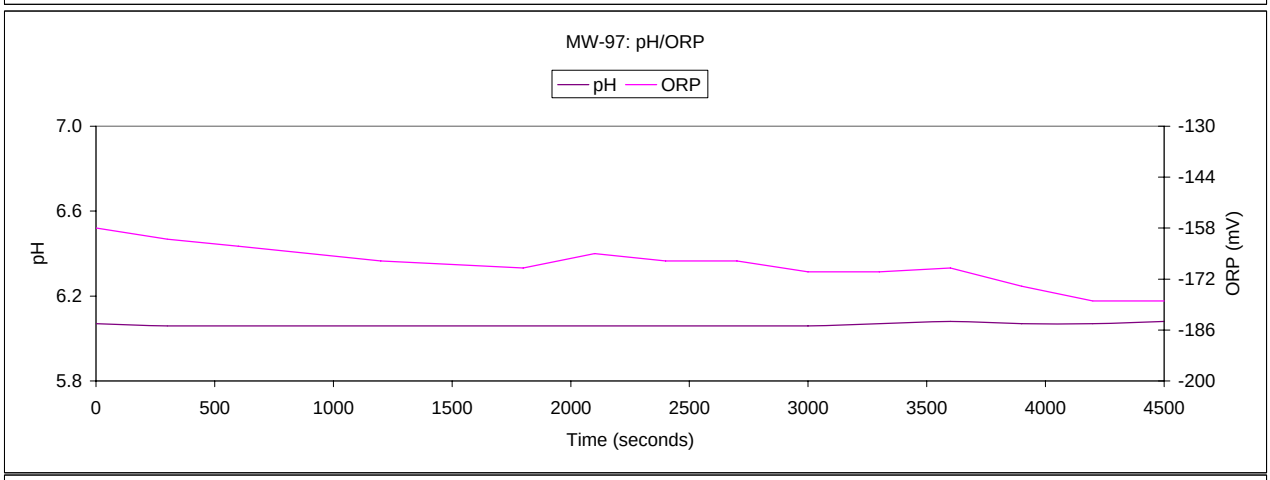
AS Test Performed on DAS-8 / January 11, 2006

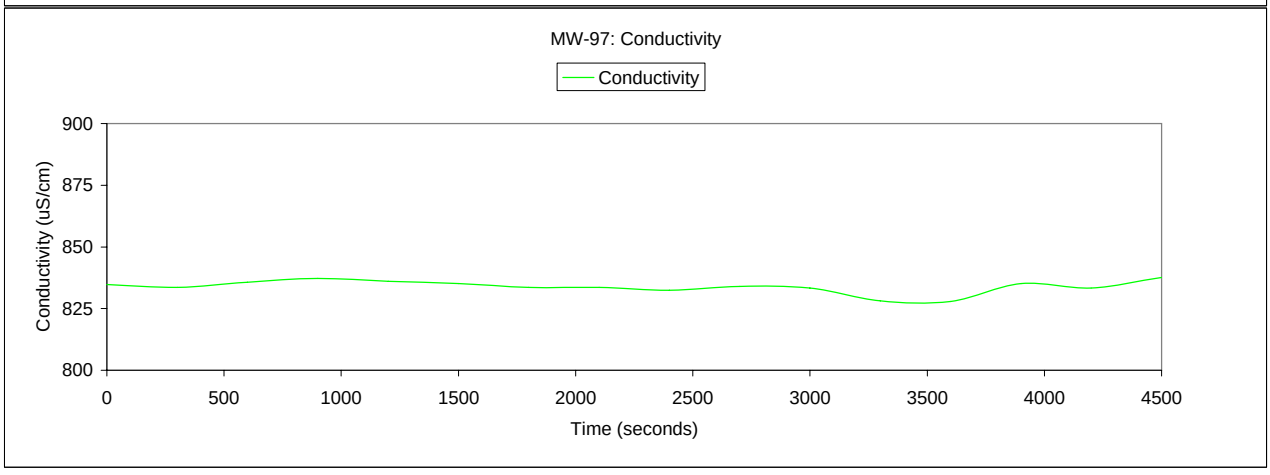
ConocoPhillips Site No. 255353

600 Westlake Avenue N., Seattle, WA









SUPPLEMENTAL AS TEST DATA EVALUATION - TEST WELL DAS-8
JANUARY 12, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Test performed to supplement data from previous 4-hour test, to obtain additional data from MW-34 and MW-98 data-logging transducers which were unable to collect data during a portion of the 4-hour test.

Distance from AS Test Well (DAS-8) to:
MW-34: 16.2 feet
MW-97: 49 feet
MW-98: 34 feet
DAS-12: 29 feet

AS Test Well DAS-8						Observation Wells with Troll Data-Loggers - Field Readings					
						MW-34 (16.2')			MW-98 (34')		
Time (hr:min)	Injection Rate (cfm)	Injection Pressure (psi)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)
0:00	0	0	1.08	18.29	11.23	0.19	18.17	11.17	0.18	16.89	11.02
0:30	5	17	--	--	--	--	--	--	--	--	--
1:00	5	17	--	--	--	--	--	--	--	--	--
1:30	5	17	--	--	--	--	--	--	--	--	--
2:00	5	17	--	--	--	--	--	10.10	--	--	10.92
Final:	0	0	--	--	--	1.52	17.67	11.11	0.42	17.10	11.05

AS Test Well DAS-8						Observation Wells w/o Troll Data-Loggers - Field Readings					
						DAS-12 (29')			MW-97 (49')		
Time (hr:min)	Injection Rate (cfm)	Injection Pressure (psi)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)
0:00	0	0	1.08	18.29	11.23	0.20	18.02	11.02	0.13	16.73	10.72
0:30	5	17	--	--	--	--	--		0.20	17.16	10.70
1:00	5	17	--	--	--	0.20	17.88	10.40	0.19	17.14	10.69
1:30	5	17	--	--	--	--	--	--	--	--	--
2:00	5	17	--	--	--	--	--	--	--	--	--
Final:	0	0	--	--	--	--	--	--	--	--	--

Notes:

D.O. = dissolved oxygen
Temp. = temperature
DTW = depth to water, measured from top of well casing
cfm = cubic feet per minute
psi = pounds per sqare inch
mg/l = milligrams per liter
deg. C = degrees celcius
"--" = not measured

AS Test Performed on DAS-8 / January 12, 2006
Observation Well MW-34

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro XP	
Report generated:	1/13/2006	13:58:54
Report from file:	...\SN31431 2006-01-12 101228 Test #2 mw-34.bin	
Win-Situ Version	4.533	
Serial number:	31431	
Firmware Version	1.55	
Unit name:	MP Troll 9000	
Test name:	Test #2 mw-34	
Test defined on:	1/12/2006	10:12:21
Test started on:	1/12/2006	10:12:28
Test stopped on:	1/12/2006	12:09:07

Data gathered using Linear testing

Time between data points:	300.0 Seconds.	
Number of data samples:	24	
TOTAL DATA SAMPLES	24	

Channel number [1]

Measurement type:	Temperature	
Channel name:		

Channel number [2]

Measurement type:	Pressure	
Channel name:	Pressure	
Sensor Range:	30 PSIG.	
Sensor Offset:	0.000 psi	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0	Feet H2O
Referenced on:	test start	
Pressure head at reference:	6.565	Feet H2O

Channel number [3]

Measurement type:	Barometric Pressure
Channel name:	

Channel number [5]

Measurement type:	Battery Voltage
Channel name:	

Channel number [11]

Measurement type:	ORP
Channel name:	

Channel number [12]

Measurement type:	pH
Channel name:	

Channel number [25]

Measurement type:	Dissolved Oxygen
Channel name:	

Channel number [25]

Measurement type:	Dissolved Oxygen %Saturation
Channel name:	

Channel number [45]

Measurement type:	Conductivity, Low Range
Channel name:	

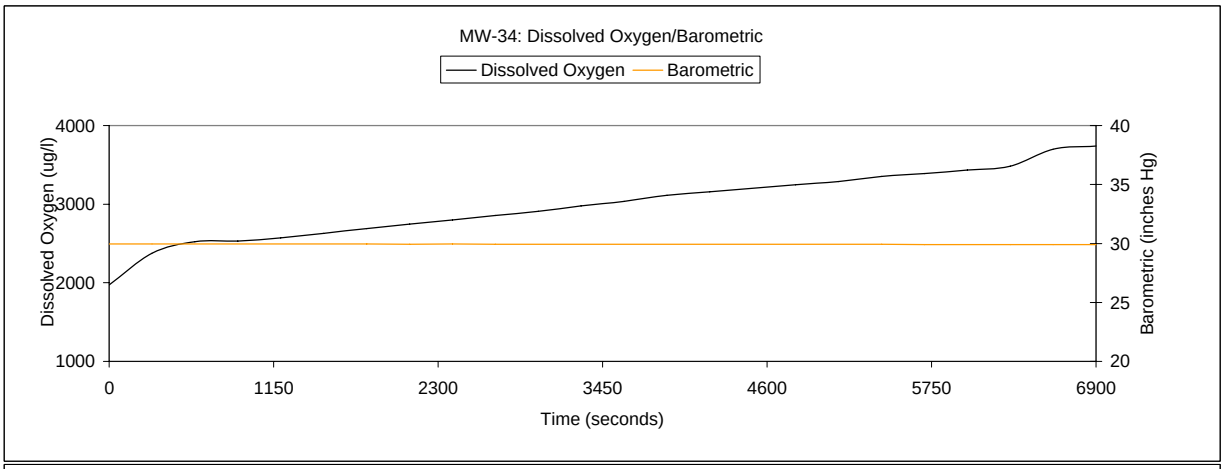
AS Test Performed on DAS-8 / January 12, 2006
Observation Well MW-34

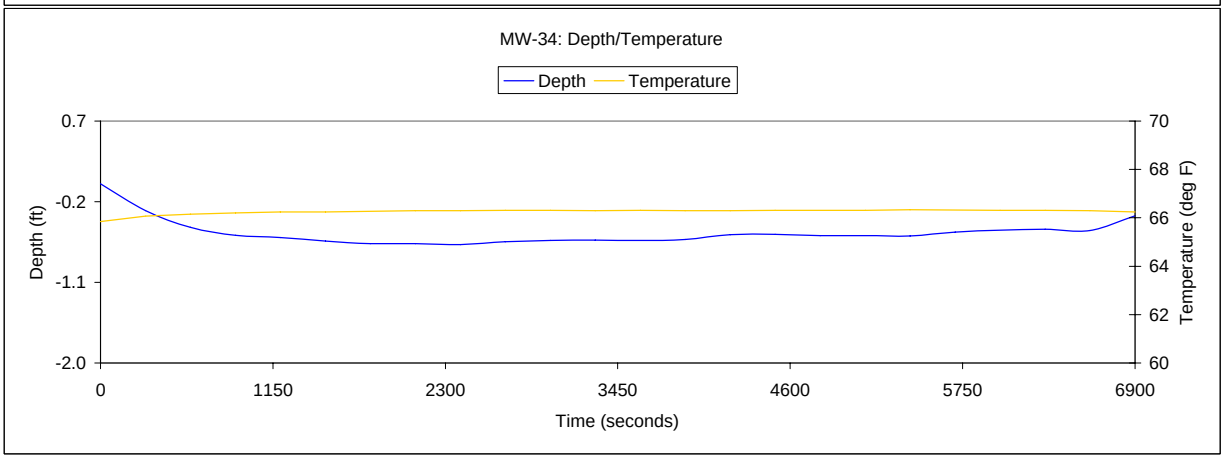
ConocoPhillips Site No. 255353

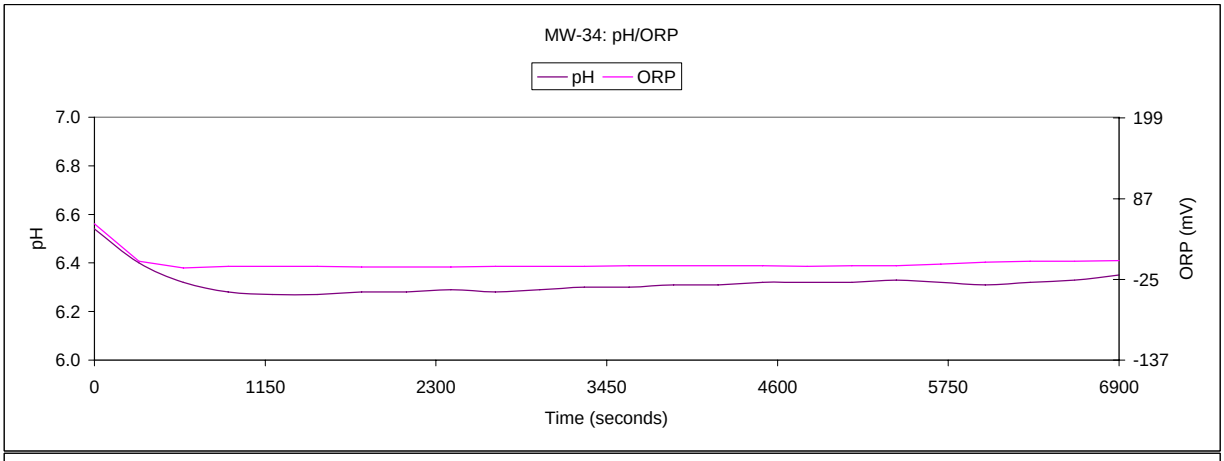
600 Westlake Avenue N., Seattle, WA

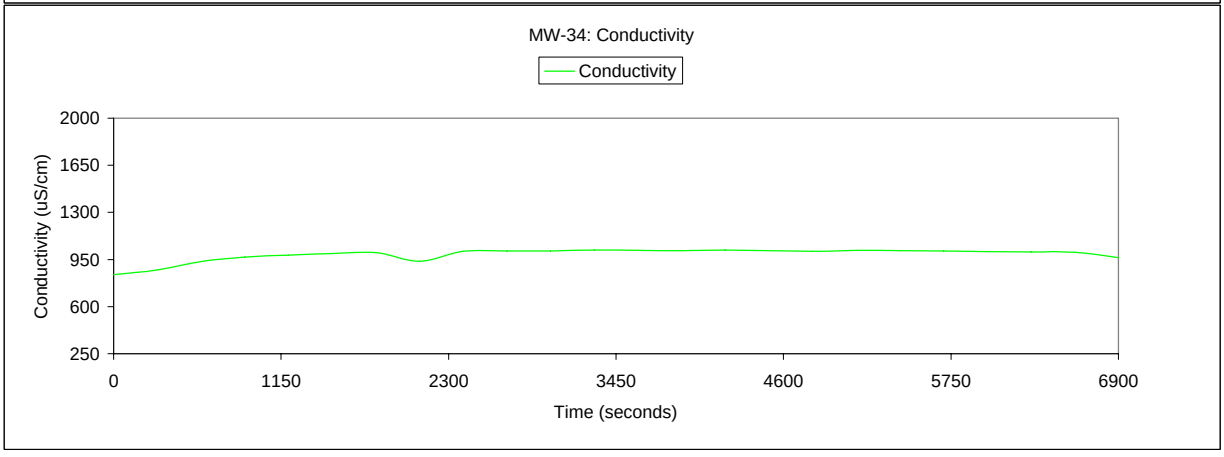
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/12/2006	10:12:28	0	65.84	0	29.957	3.098	52	6.54	1971	21.1933	837.73	
1/12/2006	10:17:28	300	66.07	-0.3	29.956	3.072	0	6.4	2375	25.6098	872.34	
1/12/2006	10:22:28	600	66.15	-0.487	29.955	3.072	-9	6.32	2521	27.2113	934.13	
1/12/2006	10:27:28	900	66.21	-0.574	29.955	3.072	-7	6.28	2532	27.3577	967.55	
1/12/2006	10:32:28	1200	66.24	-0.6	29.954	3.072	-7	6.27	2571	27.7946	982.75	
1/12/2006	10:37:28	1500	66.25	-0.639	29.951	3.072	-7	6.27	2629	28.4173	993.3	
1/12/2006	10:42:28	1800	66.27	-0.669	29.948	3.072	-8	6.28	2688	29.0665	1001.77	
1/12/2006	10:47:28	2100	66.29	-0.669	29.945	3.072	-8	6.28	2747	29.7074	937.04	
1/12/2006	10:52:28	2400	66.29	-0.679	29.946	3.072	-8	6.29	2801	30.3028	1011.24	
1/12/2006	10:57:28	2700	66.31	-0.645	29.94	3.072	-7	6.28	2857	30.9184	1012.52	
1/12/2006	11:02:28	3000	66.31	-0.633	29.941	3.072	-7	6.29	2908	31.4703	1013.16	
1/12/2006	11:07:28	3300	66.3	-0.627	29.94	3.072	-7	6.3	2978	32.2348	1020.02	
1/12/2006	11:12:28	3600	66.31	-0.633	29.939	3.072	-6	6.3	3035	32.8513	1017.87	
1/12/2006	11:17:28	3900	66.3	-0.62	29.937	3.072	-6	6.31	3113	33.6894	1015.29	
1/12/2006	11:22:28	4200	66.3	-0.567	29.935	3.072	-6	6.31	3157	34.1744	1020.24	
1/12/2006	11:27:28	4500	66.31	-0.565	29.932	3.072	-6	6.32	3204	34.689	1015.93	
1/12/2006	11:32:28	4800	66.31	-0.58	29.929	3.072	-7	6.32	3245	35.1394	1011.24	
1/12/2006	11:37:28	5100	66.31	-0.578	29.924	3.072	-6	6.32	3287	35.597	1018.3	
1/12/2006	11:42:28	5400	66.33	-0.583	29.92	3.072	-6	6.33	3352	36.3149	1015.72	
1/12/2006	11:47:28	5700	66.32	-0.541	29.916	3.072	-4	6.32	3391	36.7383	1013.37	
1/12/2006	11:52:28	6000	66.31	-0.518	29.911	3.046	-1	6.31	3434	37.1993	1007.43	
1/12/2006	11:57:28	6300	66.31	-0.508	29.906	3.046	0	6.32	3485	37.7609	1005.33	
1/12/2006	12:02:28	6600	66.3	-0.521	29.901	3.072	0	6.33	3699	40.0864	1004.28	
1/12/2006	12:07:28	6900	66.24	-0.356	29.898	3.046	1	6.35	3739	40.4812	963.48	

AS Test Performed on DAS-8 / January 12, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA









AS Test Performed on DAS-8 / January 12, 2006
Observation Well MW-98

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro	
Report generated:	1/13/2006	13:53:33
Report from file:	...\SN31745 2006-01-12 100941 Test #2 mw-98.bin	
Win-Situ Version	4.533	
Serial number:	31745	
Firmware Version	1.55	
Unit name:	MP Troll 9000	
Test name:	Test #2 mw-98	
Test defined on:	1/12/2006	10:09:34
Test started on:	1/12/2006	10:09:41
Test stopped on:	1/12/2006	12:12:41
Data gathered using Linear testing		
Time between data points:	Seconds.	
Number of data samples:	25	
TOTAL DATA SAMPLES	25	
Channel number [1]		
Measurement type:	Temperature	
Channel name:		
Channel number [2]		
Measurement type:	Pressure	
Channel name:	Pressure	
Sensor Range:	30 PSIG.	
Sensor Offset:	0.000 psi	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0	Feet H2O
Referenced on:	test start	
Pressure head at reference:	7.509	Feet H2O
Channel number [3]		
Measurement type:	Barometric Pressure	
Channel name:		
Channel number [5]		
Measurement type:	Battery Voltage	
Channel name:		
Channel number [11]		
Measurement type:	ORP	
Channel name:		
Channel number [12]		
Measurement type:	pH	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen %Saturation	
Channel name:		
Channel number [45]		
Measurement type:	Conductivity, Low Range	
Channel name:		

AS Test Performed on DAS-8 / January 12, 2006
Observation Well MW-98

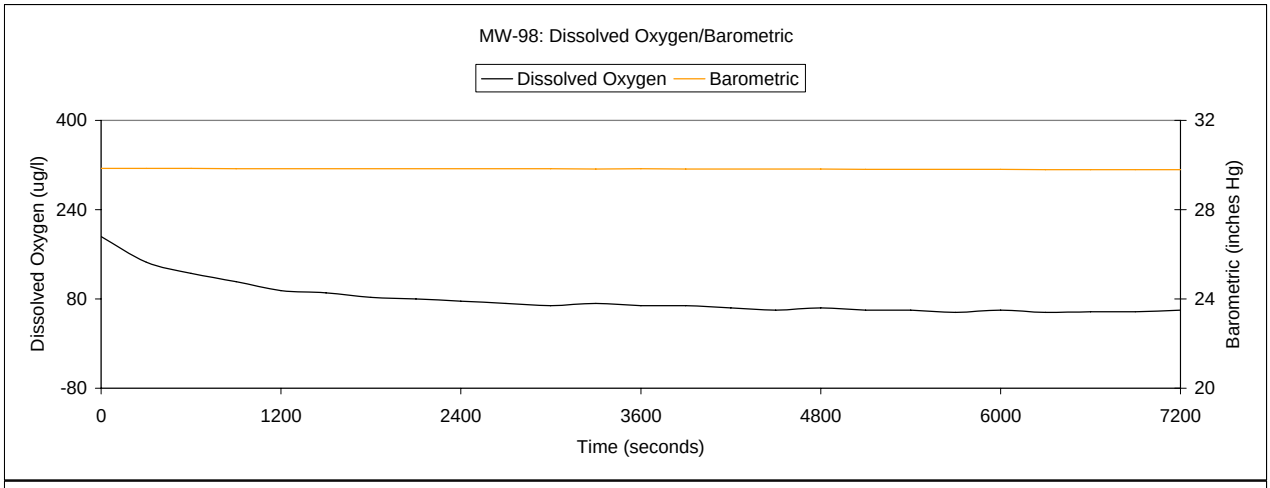
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

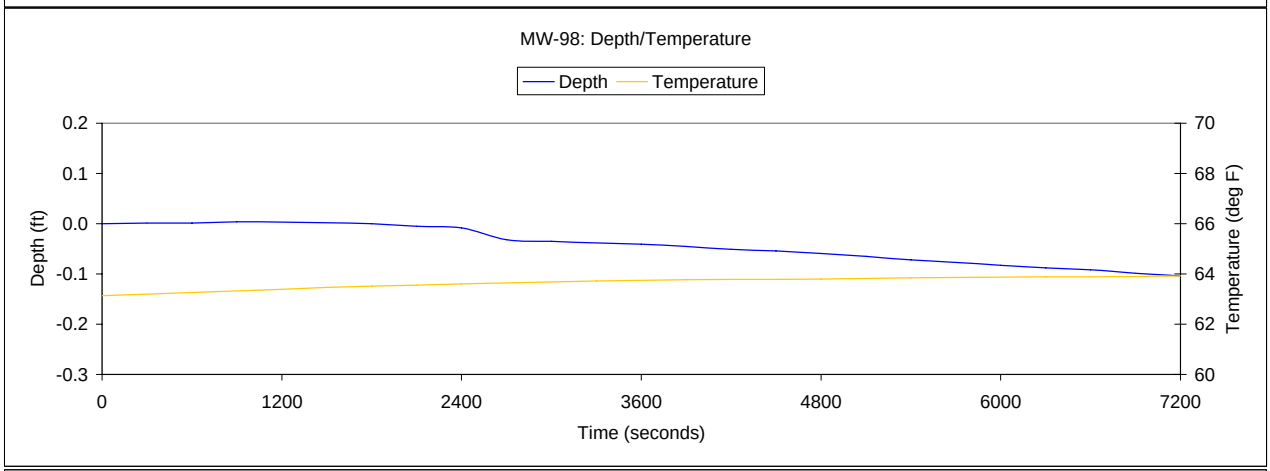
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/12/2006	10:09:41	0	63.13	0	29.846	3.098	-76	6.29	192	2.0162	1121.36	
1/12/2006	10:14:41	300	63.2	0.001	29.843	3.072	-78	6.29	146	1.5287	1122.64	
1/12/2006	10:19:41	600	63.26	0.001	29.845	3.072	-80	6.29	126	1.3263	1124.49	
1/12/2006	10:24:41	900	63.33	0.004	29.841	3.098	-82	6.3	111	1.1635	1126.1	
1/12/2006	10:29:41	1200	63.39	0.003	29.841	3.072	-83	6.29	95	1.0002	1127.44	
1/12/2006	10:34:41	1500	63.46	0.002	29.839	3.098	-85	6.29	91	0.9598	1128.52	
1/12/2006	10:39:41	1800	63.51	0	29.837	3.098	-86	6.29	83	0.8787	1130.42	
1/12/2006	10:44:41	2100	63.56	-0.005	29.833	3.098	-86	6.29	80	0.8383	1130.96	
1/12/2006	10:49:41	2400	63.6	-0.008	29.831	3.098	-87	6.3	76	0.7981	1132.32	
1/12/2006	10:54:41	2700	63.64	-0.032	29.829	3.072	-88	6.29	72	0.7576	1132.32	
1/12/2006	10:59:41	3000	63.68	-0.035	29.829	3.046	-89	6.29	68	0.7171	1133.41	
1/12/2006	11:04:41	3300	63.72	-0.038	29.826	3.072	-89	6.3	72	0.7582	1134.51	
1/12/2006	11:09:41	3600	63.74	-0.041	29.828	3.046	-90	6.3	68	0.7178	1136.16	
1/12/2006	11:14:41	3900	63.77	-0.045	29.824	3.072	-90	6.29	68	0.7181	1136.16	
1/12/2006	11:19:41	4200	63.78	-0.051	29.823	3.098	-90	6.29	64	0.6777	1137.26	
1/12/2006	11:24:41	4500	63.78	-0.054	29.818	3.072	-90	6.29	60	0.6375	1137.53	
1/12/2006	11:29:41	4800	63.8	-0.059	29.818	3.072	-91	6.29	64	0.6786	1137.81	
1/12/2006	11:34:41	5100	63.82	-0.065	29.812	3.098	-91	6.3	60	0.6381	1137.8	
1/12/2006	11:39:41	5400	63.85	-0.072	29.808	3.098	-91	6.29	60	0.6382	1138.08	
1/12/2006	11:44:41	5700	63.86	-0.077	29.807	3.072	-92	6.29	56	0.5977	1139.47	
1/12/2006	11:49:41	6000	63.87	-0.083	29.802	3.098	-91	6.29	60	0.6388	1138.91	
1/12/2006	11:54:41	6300	63.89	-0.088	29.795	3.072	-92	6.29	56	0.5983	1138.91	
1/12/2006	11:59:41	6600	63.89	-0.092	29.791	3.072	-92	6.29	57	0.5985	1140.58	
1/12/2006	12:04:41	6900	63.9	-0.099	29.787	3.02	-92	6.29	57	0.5987	1140.29	
1/12/2006	12:09:41	7200	63.92	-0.104	29.786	3.072	-92	6.29	60	0.6394	1140.01	

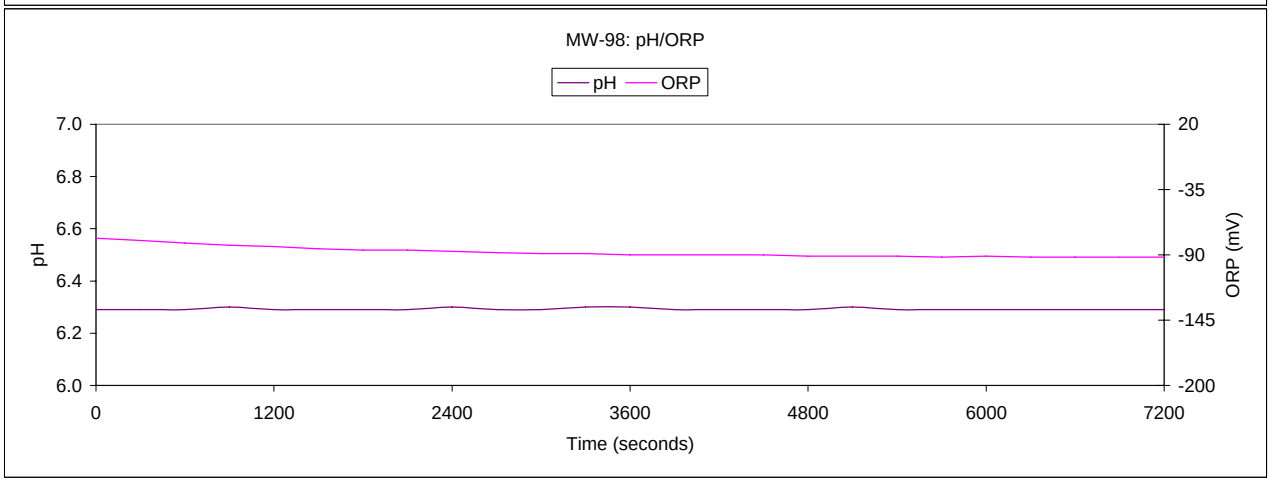
AS Test Performed on DAS-8 / January 12, 2006

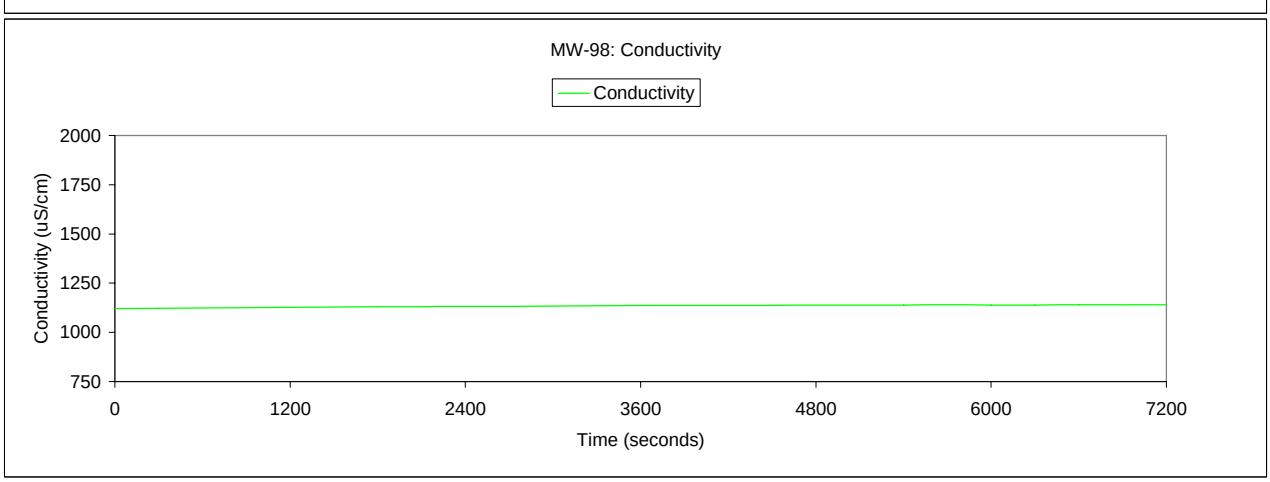
ConocoPhillips Site No. 255353

600 Westlake Avenue N., Seattle, WA









AS TEST DATA EVALUATION - TEST WELL DAS-12
JANUARY 12, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

Test performed to obtain additional information with respect to air sparging at the site.

Troll data-logging transducers were placed in MW-58 and MW-97 to collect data automatically during the test.

Distance from AS Test Well (DAS-12) to: MW-58: 36 feet
MW-97: 28 feet

AS Test Well DAS-12						Observation Wells with Troll Data-Loggers - Field Readings					
						MW-97 (28')			MW-58 (36')		
Time (hr:min)	Injection Rate (cfm)	Injection Pressure (psi)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)	D.O. (mg/l)	Temp. (deg. C)	DTW (feet)
0:00	0	0	--	--	--	0.32	16.50	11.65	0.38	17.69	10.72
0:30	5	17	--	--	--	--	--	--	--	--	--
1:00	5	17	--	--	--	--	--	--	--	--	--
1:30	5	17	--	--	--	--	--	--	--	--	--
2:00	5	17	--	--	--	--	--	--	--	--	--
Final:	0	0	--	--	--	0.48	16.25	10.60	0.25	18.29	10.72

Notes:

D.O. = dissolved oxygen
Temp. = temperature
DTW = depth to water, measured from top of well casing

cfm = cubic feet per minute
psi = pounds per sqare inch
mg/l = milligrams per liter
deg. C = degrees celcius
"--" = not measured

AS Test Performed on DAS-12 / January 12, 2006
Observation Well MW-97

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

In-Situ Inc.	Troll 9000 Pro	
Report generated:	1/13/2006	13:50:10
Report from file:	...\SN31426 2006-01-12 124453 Test #2 MW-97.bin	
Win-Situ Version	4.533	
Serial number:	31426	
Firmware Version	1.55	
Unit name:	MP Troll 9000	
Test name:	Test #2 MW-97	
Test defined on:	1/12/2006	12:44:40
Test started on:	1/12/2006	12:44:53
Test stopped on:	1/12/2006	14:53:04
Data gathered using Linear testing		
Time between data points:	Seconds.	
Number of data samples:	26	
TOTAL DATA SAMPLES	26	
Channel number [1]		
Measurement type:	Temperature	
Channel name:		
Channel number [2]		
Measurement type:	Pressure	
Channel name:	Pressure	
Sensor Range:	30 PSIG.	
Sensor Offset:	0.000 psi	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0	Feet H2O
Referenced on:	test start	
Pressure head at reference:	8.923	Feet H2O
Channel number [3]		
Measurement type:	Barometric Pressure	
Channel name:		
Channel number [5]		
Measurement type:	Battery Voltage	
Channel name:		
Channel number [11]		
Measurement type:	ORP	
Channel name:		
Channel number [12]		
Measurement type:	pH	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen %Saturation	
Channel name:		
Channel number [45]		
Measurement type:	Conductivity, Low Range	
Channel name:		

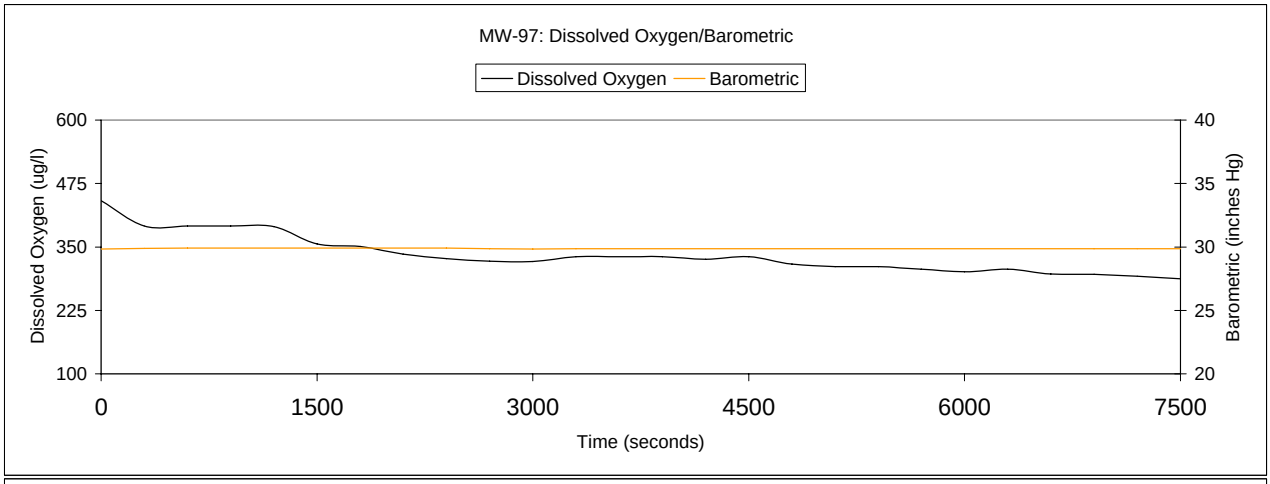
AS Test Performed on DAS-12 / January 12, 2006
Observation Well MW-97
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

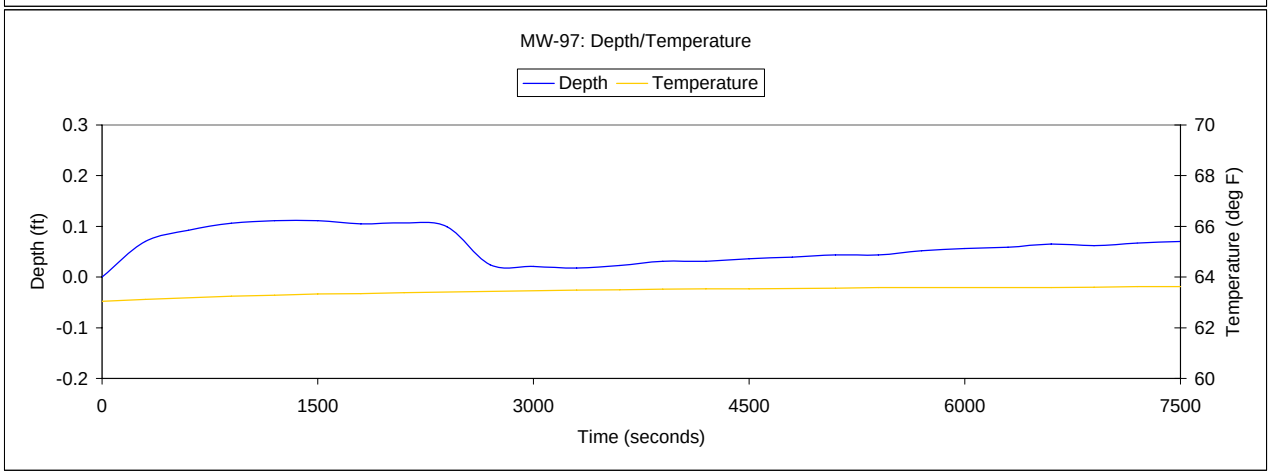
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/12/2006	12:44:53	0	63.04	0	29.834	3.072	-99	6.09	441	4.6061	555.47	
1/12/2006	12:49:53	300	63.12	0.07	29.887	3.098	-102	6.09	391	4.0855	550.1	
1/12/2006	12:54:53	600	63.18	0.092	29.906	3.098	-104	6.09	391	4.0828	545.98	
1/12/2006	12:59:53	900	63.24	0.106	29.917	3.098	-106	6.1	391	4.0807	542.93	
1/12/2006	13:04:53	1200	63.28	0.111	29.923	3.098	-108	6.1	390	4.0794	540.67	
1/12/2006	13:09:53	1500	63.33	0.111	29.924	3.072	-109	6.1	356	3.7219	539.1	
1/12/2006	13:14:53	1800	63.35	0.105	29.922	3.098	-111	6.1	351	3.6718	537.61	
1/12/2006	13:19:53	2100	63.39	0.107	29.923	3.098	-113	6.1	336	3.5182	536.44	
1/12/2006	13:24:53	2400	63.41	0.099	29.916	3.072	-115	6.1	327	3.4172	535.64	
1/12/2006	13:29:53	2700	63.44	0.024	29.851	3.098	-117	6.1	322	3.3735	534.9	
1/12/2006	13:34:53	3000	63.46	0.021	29.846	3.098	-119	6.1	321	3.3735	534.1	
1/12/2006	13:39:53	3300	63.49	0.018	29.849	3.098	-121	6.1	331	3.4744	533.49	
1/12/2006	13:44:53	3600	63.5	0.023	29.851	3.072	-124	6.1	331	3.4737	532.88	
1/12/2006	13:49:53	3900	63.52	0.031	29.854	3.072	-127	6.1	331	3.4735	532.46	
1/12/2006	13:54:53	4200	63.53	0.031	29.854	3.046	-130	6.1	326	3.4224	532.03	
1/12/2006	13:59:53	4500	63.54	0.036	29.857	3.072	-134	6.1	331	3.4724	531.61	
1/12/2006	14:04:53	4800	63.55	0.039	29.86	3.072	-137	6.1	316	3.3194	531.31	
1/12/2006	14:09:53	5100	63.56	0.044	29.863	3.072	-141	6.1	311	3.2679	530.94	
1/12/2006	14:14:53	5400	63.58	0.044	29.865	3.098	-145	6.1	311	3.2674	530.58	
1/12/2006	14:19:53	5700	63.58	0.052	29.865	3.072	-149	6.1	306	3.2164	530.28	
1/12/2006	14:24:53	6000	63.59	0.056	29.866	3.098	-152	6.1	301	3.1654	529.98	
1/12/2006	14:29:53	6300	63.59	0.059	29.868	3.02	-155	6.1	306	3.2162	529.68	
1/12/2006	14:34:53	6600	63.59	0.065	29.87	3.046	-158	6.1	297	3.1143	529.44	
1/12/2006	14:39:53	6900	63.6	0.062	29.87	3.098	-162	6.1	296	3.1141	529.2	
1/12/2006	14:44:53	7200	63.62	0.067	29.871	3.046	-165	6.1	292	3.0626	528.96	
1/12/2006	14:49:53	7500	63.62	0.07	29.873	3.046	-167	6.1	287	3.0116	528.72	

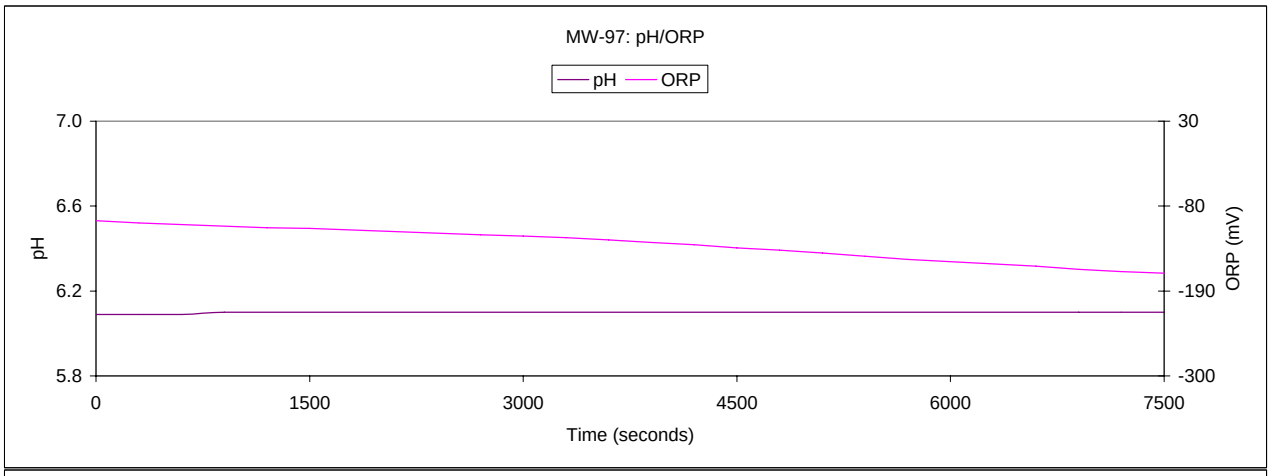
AS Test Performed on DAS-12 / January 12, 2006

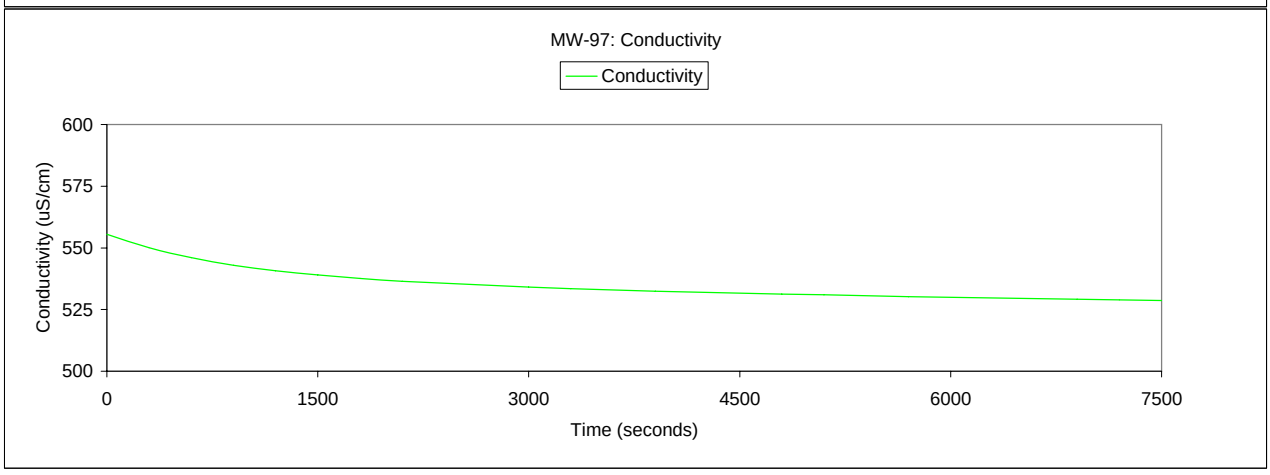
ConocoPhillips Site No. 255353

600 Westlake Avenue N., Seattle, WA









AS Test Performed on DAS-12 / January 12, 2006
Observation Well MW-58

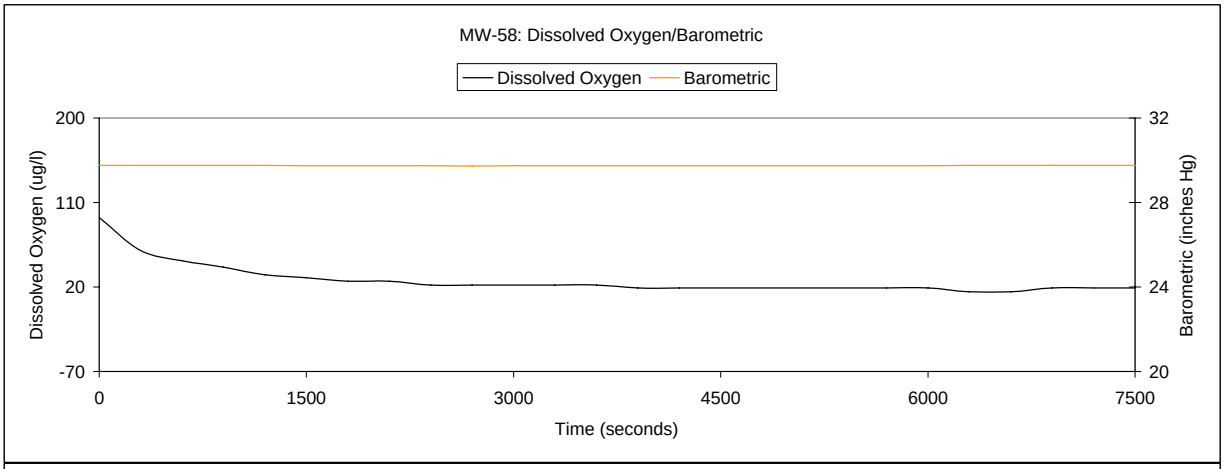
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

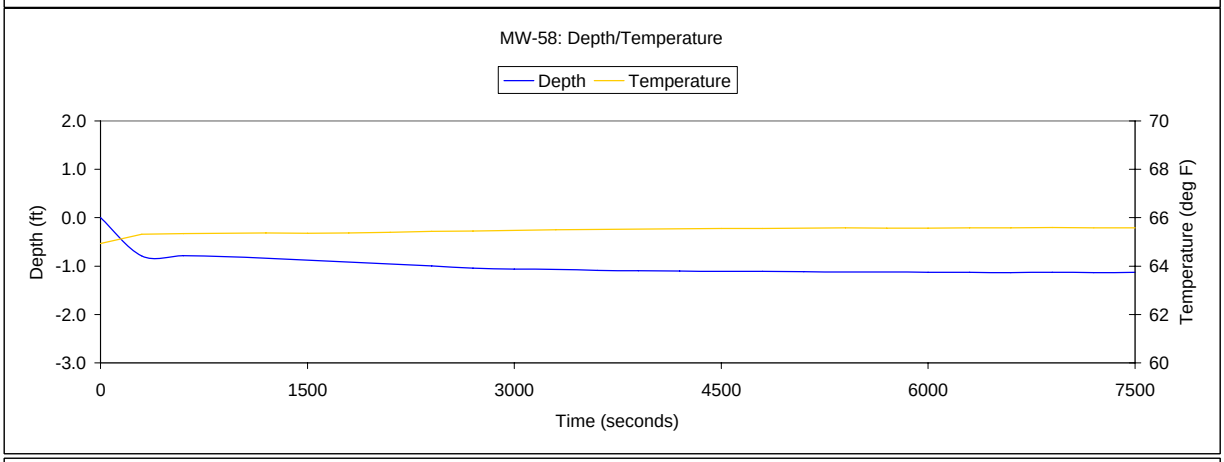
In-Situ Inc.	Troll 9000 Pro	
Report generated:	1/13/2006	13:55:42
Report from file:	...\SN34013 2006-01-12 124853 Test #2 MW-58.bin	
Win-Situ Version	4.533	
Serial number:	34013	
Firmware Version	1.55	
Unit name:	MP Troll 9000	
Test name:	Test #2 MW-58	
Test defined on:	1/12/2006	12:48:42
Test started on:	1/12/2006	12:48:53
Test stopped on:	1/12/2006	14:58:14
Data gathered using Linear testing		
Time between data points:	Seconds.	
Number of data samples:	26	
TOTAL DATA SAMPLES	26	
Channel number [1]		
Measurement type:	Temperature	
Channel name:		
Channel number [2]		
Measurement type:	Pressure	
Channel name:	Pressure	
Sensor Range:	30 PSIG.	
Sensor Offset:	0.000 psi	
Specific gravity:	1	
Mode:	TOC	
User-defined reference:	0	Feet H2O
Referenced on:	test start	
Pressure head at reference:	8.149	Feet H2O
Channel number [3]		
Measurement type:	Barometric Pressure	
Channel name:		
Channel number [5]		
Measurement type:	Battery Voltage	
Channel name:		
Channel number [11]		
Measurement type:	ORP	
Channel name:		
Channel number [12]		
Measurement type:	pH	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen	
Channel name:		
Channel number [25]		
Measurement type:	Dissolved Oxygen %Saturation	
Channel name:		
Channel number [45]		
Measurement type:	Conductivity, Low Range	
Channel name:		

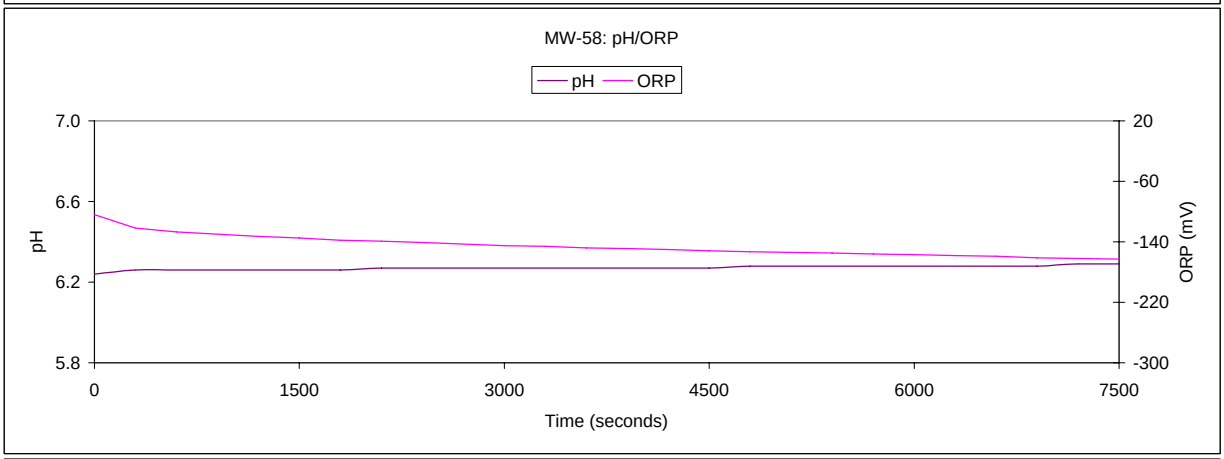
AS Test Performed on DAS-12 / January 12, 2006
Observation Well MW-58
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

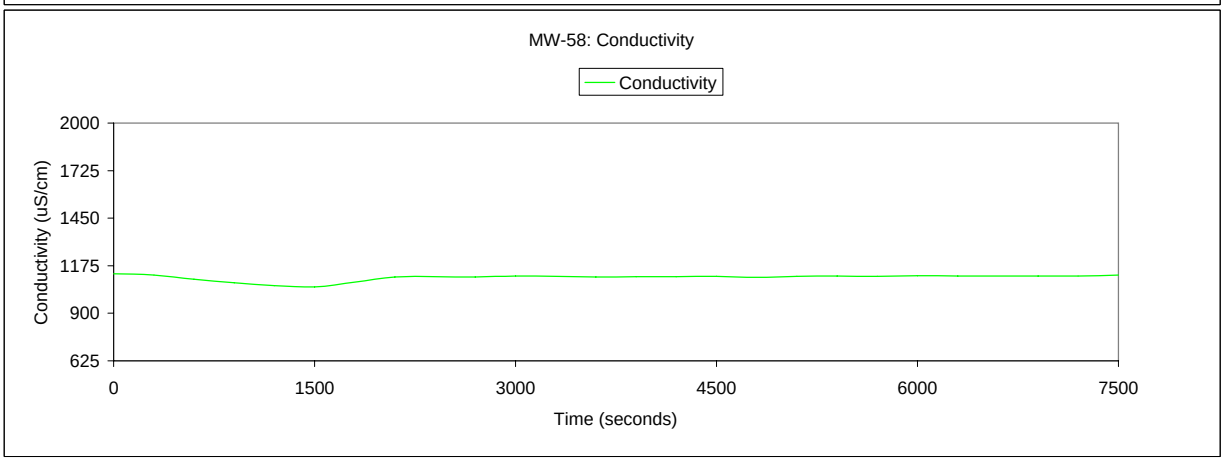
Date	Time	ET (sec)	Chan[1] Temperature Fahrenheit	Chan[2] Pressure Feet H2O	Chan[3] Barometric Inches Hg	Chan[5] Battery Volts	Chan[11] ORP millivolts	Chan[12] pH pH	Chan[25] Clark DO micrograms/L	Chan[25] Clark DO Sat %Saturation	Chan[45] Conductivity microSiemens/cm	Actual Conductivity
1/12/2006	12:48:53	0	64.94	0	29.765	3.098	-104	6.24	94	1.0051	1127.58	
1/12/2006	12:53:53	300	65.32	-0.788	29.763	3.098	-122	6.26	59	0.6402	1121.34	
1/12/2006	12:58:53	600	65.34	-0.782	29.759	3.098	-127	6.26	48	0.5224	1096.96	
1/12/2006	13:03:53	900	65.36	-0.803	29.757	3.098	-130	6.26	41	0.4422	1077.09	
1/12/2006	13:08:53	1200	65.37	-0.837	29.753	3.098	-133	6.26	33	0.3606	1060.54	
1/12/2006	13:13:53	1500	65.36	-0.876	29.75	3.098	-135	6.26	30	0.3204	1053.41	
1/12/2006	13:18:53	1800	65.37	-0.915	29.749	3.098	-138	6.26	26	0.28	1079.55	
1/12/2006	13:23:53	2100	65.4	-0.958	29.745	3.098	-139	6.27	26	0.2811	1109.11	
1/12/2006	13:28:53	2400	65.44	-0.994	29.743	3.098	-141	6.27	22	0.2402	1111.73	
1/12/2006	13:33:53	2700	65.45	-1.043	29.731	3.046	-143	6.27	22	0.2413	1109.89	
1/12/2006	13:38:53	3000	65.48	-1.064	29.735	3.072	-145	6.27	22	0.2418	1114.89	
1/12/2006	13:43:53	3300	65.5	-1.072	29.737	3.072	-146	6.27	22	0.2423	1112.78	
1/12/2006	13:48:53	3600	65.52	-1.088	29.739	3.098	-148	6.27	22	0.2426	1109.1	
1/12/2006	13:53:53	3900	65.53	-1.097	29.741	3.072	-149	6.27	19	0.2013	1112.51	
1/12/2006	13:58:53	4200	65.54	-1.103	29.743	3.098	-150	6.27	19	0.2016	1110.93	
1/12/2006	14:03:53	4500	65.55	-1.107	29.745	3.098	-152	6.27	19	0.2018	1113.57	
1/12/2006	14:08:53	4800	65.55	-1.111	29.748	3.098	-153	6.28	19	0.202	1108.83	
1/12/2006	14:13:53	5100	65.57	-1.116	29.75	3.072	-154	6.28	19	0.2022	1113.04	
1/12/2006	14:18:53	5400	65.58	-1.122	29.75	3.072	-155	6.28	19	0.2023	1114.89	
1/12/2006	14:23:53	5700	65.57	-1.124	29.75	3.098	-156	6.28	19	0.2026	1113.04	
1/12/2006	14:28:53	6000	65.57	-1.126	29.75	3.072	-157	6.28	19	0.2027	1116.74	
1/12/2006	14:33:53	6300	65.58	-1.128	29.753	3.098	-158	6.28	15	0.1612	1115.68	
1/12/2006	14:38:53	6600	65.58	-1.132	29.755	3.072	-159	6.28	15	0.1613	1114.88	
1/12/2006	14:43:53	6900	65.6	-1.13	29.756	3.046	-161	6.28	19	0.2029	1116.21	
1/12/2006	14:48:53	7200	65.58	-1.136	29.756	3.098	-162	6.29	19	0.203	1116.21	
1/12/2006	14:53:53	7500	65.58	-1.126	29.754	3.072	-163	6.29	19	0.2032	1120.47	

AS Test Performed on DAS-12 / January 12, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA









APPENDIX B

SOIL VAPOR EXTRACTION TESTING DATA

SVE DATA EVALUATION - TEST WELL MW-98
FEBRUARY 7, 2006
COP Site No. 255353
600 Westlake Avenue N.
Seattle, Washington

SVE Test Well **MW-98**

Extraction Well Parameters				Vacuum Influence Observation Wells									
				MW-34 (48')		MW-61 (41.5')		MW-62 (58.5')		MW-97 (50')		MW-105 (65')	
Total Time (Minutes)	PID Conc. (ppm)	Applied Vacuum (in H2O)	Flow Rate (CFM)	Observed Infl (In H2O)	Normalized Vacuum	Observed Infl (In H2O)	Normalized Vacuum	Observed Infl (In H2O)	Normalized Vacuum	Observed Infl (In H2O)	Normalized Vacuum	Observed Infl (In H2O)	Normalized Vacuum
0	296	12	26	0.00	0.0000	NM	--	NM	--	0.31	0.026	0.06	0.0050
5	254	26	26	NM	--	NM	--	NM	--	NM	--	NM	--
10	268	30	26	0.04	0.0013	0.10	0.0033	0.10	0.0033	0.38	0.013	0.08	0.0027
20	299	30	26	0.035	0.0012	0.14	0.0047	0.12	0.0040	0.36	0.012	0.07	0.0023
25	292	30	26	0.04	0.0013	0.12	0.0040	0.11	0.0037	0.32	0.011	0.06	0.0020
40	286	30	26	0.035	0.0012	0.12	0.0040	0.10	0.0033	0.31	0.010	0.07	0.0023
55	288	30	24	0.03	0.0010	0.11	0.0037	0.10	0.0033	0.30	0.010	0.06	0.0020
70	290	35	26	0.03	0.0009	0.10	0.0029	0.08	0.0023	0.30	0.009	0.065	0.0019
85	271	35	26	0.025	0.0007	0.10	0.0029	0.09	0.0026	0.30	0.009	0.065	0.0019
100	260	20	22	0.01	0.0005	0.05	0.0025	0.04	0.0020	0.15	0.008	0.03	0.0015
115	311	20	17	0.01	0.0005	0.05	0.0025	0.03	0.0015	0.12	0.006	0.025	0.0013
130	297	20	22	0.01	0.0005	0.05	0.0025	0.04	0.0020	0.13	0.007	0.025	0.0013
145	294	19	17	0.01	0.0005	0.05	0.0026	0.03	0.0016	0.13	0.007	0.03	0.0016
155	295	26	22	0.025	0.0010	0.06	0.0023	0.06	0.0023	0.18	0.007	0.035	0.0013
175	292	26.5	22	0.025	0.0009	0.06	0.0023	0.05	0.0019	0.19	0.007	0.03	0.0011

Notes:
ppm = parts per million
in H2O = inches of water column
PID = Photoionization detector
CFM = Cubic feet per minute
Distance from SVE Test Well to MW-34 = 48 ft
Distance from SVE Test Well to MW-61 = 41.5 ft
Distance from SVE Test Well to MW-62 = 58.5 ft
Distance from SVE Test Well to MW-97 = 50 ft
Distance from SVE Test Well to MW-105 = 65 ft

@ 20 in. H20 avg flowrate (CFM): 20
@ 26 in. H20 avg flowrate (CFM): 23
@ 30 in. H20 avg flowrate (CFM): 26
@ 35 in. H20 avg flowrate (CFM): 26

Permeability Analysis
SVE Test Well MW-98
February 7, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue North
Seattle, Washington

I. General System Parameters

Customary Units

perm(darcy)	visc(cp)	Rwell(in)	Rinfl(ft)	H(ft)
16.0	0.02	1.0	15.000	6.0

SI Units

perm(cm2)	visc(kg/m*s)	Rwell(m)	Rinfl(m)	H(m)
1.60E-07	0.00002	0.025	4.57	1.82

II. Flowrate vs. Exerted Vacuum

Pwell (Pa abs)	Pwell (in H2O)	Theoretical Q (cfm)	Experimental Q (cfm)
101325.0	0.0	0.0	
96343.6	20.0	18.1	19.6
94849.1	26.0	23.4	23.3
93852.9	30.0	26.9	25.7

Notes:

perm	permeability of the soil
visc	viscosity of the air
Rwell	radius of the extraction well
Rinfl	radius of influence for the extraction well
H	height of screened interval for the extraction well
Pwell (Pa abs)	absolute vacuum at the extraction well
Pwell (in H2O)	applied vacuum at the extraction well
Q	flowrate at the extraction well
cfm	cubic feet per minute

APPENDIX C

ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION FOR SVE AND BIORESPIRATION VAPOR SAMPLES

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

22 February 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: 600 Westlake Avenue North

Enclosed are the results of analyses for samples received by the laboratory on 02/08/06 15:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:26

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SVE EFFL MW-98	B6B0173-01	Air	02/07/06 15:30	02/08/06 15:40

North Creek Analytical - Bothell

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

Kortland Orr, PM

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:26

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SVE EFFL MW-98 (B6B0173-01) Air	**Sampled: 02/07/06 15:30**		**Received: 02/08/06 15:40**						
Gasoline Range Hydrocarbons	**10400**	250	mg/m³ Air	25	6B08020	02/08/06	02/08/06	NWTPH Modified	
Benzene	**186**	2.50	"	"	"	"	"	"	
Toluene	**268**	2.50	"	"	"	"	"	"	
Ethylbenzene	**102**	2.50	"	"	"	"	"	"	
Xylenes (total)	**411**	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*112 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*85.8 %*	*75-133*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**2460**	59.0	ppmv	25	"	"	"	"	
Benzene (v/v)	**57.2**	0.770	"	"	"	"	"	"	
Toluene (v/v)	**70.2**	0.652	"	"	"	"	"	"	
Ethylbenzene (v/v)	**23.1**	0.568	"	"	"	"	"	"	
Xylenes, total (v/v)	**93.2**	1.14	"	"	"	"	"	"	

North Creek Analytical - Bothell

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

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:26

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B08020: Prepared 02/08/06 Using EPA 5030B (P/T)										
Blank (6B08020-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (FID)	*10.7*		*"*	*12.0*		*89.2*	*50-150*			
Surrogate: 4-BFB (PID)	*11.8*		*"*	*12.0*		*98.3*	*75-133*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6B08020-BS1)										
Gasoline Range Hydrocarbons	76.8	10.0	mg/m³ Air	100		76.8	50-150			
Surrogate: 4-BFB (FID)	*10.1*		*"*	*12.0*		*84.2*	*50-150*			
LCS (6B08020-BS2)										
Benzene	1.69	0.100	mg/m³ Air	2.00		84.5	50-150			
Toluene	1.71	0.100	"	2.00		85.5	50-150			
Ethylbenzene	1.65	0.100	"	2.00		82.5	50-150			
Xylenes (total)	4.90	0.200	"	6.00		81.7	50-150			
Surrogate: 4-BFB (PID)	*11.9*		*"*	*12.0*		*99.2*	*75-133*			
LCS Dup (6B08020-BSD1)										
Gasoline Range Hydrocarbons	78.5	10.0	mg/m³ Air	100		78.5	50-150	2.19	50	
Surrogate: 4-BFB (FID)	*11.4*		*"*	*12.0*		*95.0*	*50-150*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:26

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B08020: Prepared 02/08/06 Using EPA 5030B (P/T)										
LCS Dup (6B08020-BSD2)										
Benzene	1.66	0.100	mg/m³ Air	2.00		83.0	50-150	1.79	50	
Toluene	1.66	0.100	"	2.00		83.0	50-150	2.97	50	
Ethylbenzene	1.62	0.100	"	2.00		81.0	50-150	1.83	50	
Xylenes (total)	4.78	0.200	"	6.00		79.7	50-150	2.48	50	
Surrogate: 4-BFB (PID)	*11.9*		*"*	*12.0*		*99.2*	*75-133*			
Duplicate (6B08020-DUP1)					**Source: B6B0174-01**					
Gasoline Range Hydrocarbons	51.7	10.0	mg/m³ Air		67.2			26.1	30	
Surrogate: 4-BFB (FID)	*11.3*		*"*	*12.0*		*94.2*	*50-150*			
Duplicate (6B08020-DUP2)					**Source: B6B0120-01**					
Gasoline Range Hydrocarbons	751	25.0	mg/m³ Air		783			4.17	30	
Surrogate: 4-BFB (FID)	*14.4*		*"*	*12.0*		*120*	*50-150*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:26

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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

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- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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WORK ORDER #: 0602242

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6B0173
DATE RECEIVED:	02/10/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	02/21/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6B0173-01	Modified ASTM D-1946	Tedlar Bag
02A	Lab Blank	Modified ASTM D-1946	NA
03A	LCS	Modified ASTM D-1946	NA
03B	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda D. Fruman DATE: 02/21/06

Laboratory Director

Certfication numbers: AR DEQ - 03-084-0, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0602242

One 1 Liter Tedlar Bag sample was received on February 10, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 30% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Sample B6B0173-01 was transferred from a Tedlar bag into a summa canister to extend the hold time from 72 hours to 14 days. Canister pressurization resulted in a dilution factor which was applied to all analytical results.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6B0173-01

Lab ID#: 0602242-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	12
Nitrogen	0.21	80
Methane	0.00021	1.1
Carbon Dioxide	0.021	6.5

AIR TOXICS LTD.

Client Sample ID: B6B0173-01

Lab ID#: 0602242-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021028**	**Date of Collection: 2/7/06**	
Dil. Factor:	**2.09**	**Date of Analysis: 2/10/06 08:04 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.21	12
Nitrogen	0.21	80
Carbon Monoxide	0.021	Not Detected
Methane	0.00021	1.1
Carbon Dioxide	0.021	6.5

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

Client Sample ID: Lab Blank

Lab ID#: 0602242-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/10/06 07:46 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0602242-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021032b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/10/06 10:07 PM**	

Compound	%Recovery
Oxygen	100
Nitrogen	100
Carbon Monoxide	95
Carbon Dioxide	102

Container Type: NA - Not Applicable

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0602242-03B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021031**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/10/06 09:45 PM**	

Compound	%Recovery
Methane	106

Container Type: NA - Not Applicable

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B6B0173

NCA CLIENT: Conoco Phillips

REPORT TO: Eric Larsen % elarsen@deltaenv.com
ADDRESS: 4006 148th Ave NE
Redmond, WA 98052
PHONE: 425-498-7718 FAX: 425-869-1892

INVOICE TO: Conoco Phillips

P.O. NUMBER: 1396 DEL021

PROJECT NAME: COP Westlake

PROJECT NUMBER: WA255-3521-1

SAMPLED BY: T. Seeds

TURNAROUND REQUEST
In Business Days *
Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TPH-G (8015M)	BTEX/MTBE (8021)	Nitrogen	Methane	CO2	CO	O2	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1 SVE EFFL MW-98	2-7-06 / 1530	X	X	X	X	X	X	X				-01
2												
3												
4												
5												
6												
7												
8												
9												
10												

ASTM D-1946 Fixed Gas Analysis

RELEASED BY: Jena Seeds DATE: 2-8-06
PRINT NAME: Tena Seeds FIRM: Delta TIME: 1515

RECEIVED BY: Tom Blankinship DATE: 2/8/06
PRINT NAME: Blankinship FIRM: NCA TIME: 1515

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

2/6 15:40

TEMP: 22.3°

COC REV 09/04

PAGE 1 OF 1

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425.420.9200 fax 425.420.9210
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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

22 February 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: 600 Westlake Avenue North

Enclosed are the results of analyses for samples received by the laboratory on 02/08/06 16:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SVETest MW-51	B6B0174-01	Air	02/08/06 14:35	02/08/06 16:00

North Creek Analytical - Bothell

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

Kortland Orr, PM

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:28

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
SVETest MW-51 (B6B0174-01) Air Sampled: 02/08/06 14:35 Received: 02/08/06 16:00									
Gasoline Range Hydrocarbons	**67.2**	10.0	mg/m³ Air	1	6B08020	02/08/06	02/08/06	NWTPH Modified	
Benzene	**1.80**	0.100	"	"	"	"	"	"	
Toluene	**0.713**	0.100	"	"	"	"	"	"	
Ethylbenzene	**0.648**	0.100	"	"	"	"	"	"	
Xylenes (total)	**3.71**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*94.2 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*100 %*	*75-133*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**15.8**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.554**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.186**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.147**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.842**	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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

Kortland Orr, PM

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:28

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B08020: Prepared 02/08/06 Using EPA 5030B (P/T)										
Blank (6B08020-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (FID)	*10.7*		*"*	*12.0*		*89.2*	*50-150*			
Surrogate: 4-BFB (PID)	*11.8*		*"*	*12.0*		*98.3*	*75-133*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6B08020-BS1)										
Gasoline Range Hydrocarbons	76.8	10.0	mg/m³ Air	100		76.8	50-150			
Surrogate: 4-BFB (FID)	*10.1*		*"*	*12.0*		*84.2*	*50-150*			
LCS (6B08020-BS2)										
Benzene	1.69	0.100	mg/m³ Air	2.00		84.5	50-150			
Toluene	1.71	0.100	"	2.00		85.5	50-150			
Ethylbenzene	1.65	0.100	"	2.00		82.5	50-150			
Xylenes (total)	4.90	0.200	"	6.00		81.7	50-150			
Surrogate: 4-BFB (PID)	*11.9*		*"*	*12.0*		*99.2*	*75-133*			
LCS Dup (6B08020-BSD1)										
Gasoline Range Hydrocarbons	78.5	10.0	mg/m³ Air	100		78.5	50-150	2.19	50	
Surrogate: 4-BFB (FID)	*11.4*		*"*	*12.0*		*95.0*	*50-150*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:28

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B08020: Prepared 02/08/06 Using EPA 5030B (P/T)										
LCS Dup (6B08020-BSD2)										
Benzene	1.66	0.100	mg/m³ Air	2.00		83.0	50-150	1.79	50	
Toluene	1.66	0.100	"	2.00		83.0	50-150	2.97	50	
Ethylbenzene	1.62	0.100	"	2.00		81.0	50-150	1.83	50	
Xylenes (total)	4.78	0.200	"	6.00		79.7	50-150	2.48	50	
Surrogate: 4-BFB (PID)	*11.9*		*"*	*12.0*		*99.2*	*75-133*			
Duplicate (6B08020-DUP1)					**Source: B6B0174-01**					
Gasoline Range Hydrocarbons	51.7	10.0	mg/m³ Air		67.2			26.1	30	
Surrogate: 4-BFB (FID)	*11.3*		*"*	*12.0*		*94.2*	*50-150*			
Duplicate (6B08020-DUP2)					**Source: B6B0120-01**					
Gasoline Range Hydrocarbons	751	25.0	mg/m³ Air		783			4.17	30	
Surrogate: 4-BFB (FID)	*14.4*		*"*	*12.0*		*120*	*50-150*			

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Delta Environmental	Project:	600 Westlake Avenue North	
4006 148th Ave NE	Project Number:	WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager:	Eric Larsen	02/22/06 15:28

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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

Kortland Orr, PM

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

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Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0602243

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6B0174
DATE RECEIVED:	02/10/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	02/14/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6B0174-01	Modified ASTM D-1946	Tedlar Bag
01AA	B6B0174-01 Duplicate	Modified ASTM D-1946	Tedlar Bag
02A	Lab Blank	Modified ASTM D-1946	NA
03A	LCS	Modified ASTM D-1946	NA
03B	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda L. Fruman DATE: 02/14/06

Laboratory Director

Certfication numbers: AR DEQ - 03-084-0, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
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LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0602243

One 1 Liter Tedlar Bag sample was received on February 10, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Since Nitrogen is used to pressurize samples, the reported Nitrogen values are calculated by adding all the sample components and subtracting from 100%.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 30% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

Sample B6B0174-01 was transferred from a Tedlar bag into a summa canister to extend the hold time from 72 hours to 14 days. Canister pressurization resulted in a dilution factor which was applied to all analytical results.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6B0174-01

Lab ID#: 0602243-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	10
Nitrogen	0.22	77
Methane	0.00022	2.6
Carbon Dioxide	0.022	10

Client Sample ID: B6B0174-01 Duplicate

Lab ID#: 0602243-01AA

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	10
Nitrogen	0.22	77
Methane	0.00022	2.6
Carbon Dioxide	0.022	10

AIR TOXICS LTD.

Client Sample ID: B6B0174-01

Lab ID#: 0602243-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021026**	**Date of Collection: 2/8/06**	
Dil. Factor:	**2.20**	**Date of Analysis: 2/10/06 07:15 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	10
Nitrogen	0.22	77
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	2.6
Carbon Dioxide	0.022	10

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

Client Sample ID: B6B0174-01 Duplicate

Lab ID#: 0602243-01AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021027**	**Date of Collection: 2/8/06**	
Dil. Factor:	**2.20**	**Date of Analysis: 2/10/06 07:42 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.22	10
Nitrogen	0.22	77
Carbon Monoxide	0.022	Not Detected
Methane	0.00022	2.6
Carbon Dioxide	0.022	10

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

Client Sample ID: Lab Blank

Lab ID#: 0602243-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021003**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/10/06 07:46 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0602243-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021032b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/10/06 10:07 PM**	

Compound	%Recovery
Oxygen	100
Nitrogen	100
Carbon Monoxide	95
Carbon Dioxide	102

Container Type: NA - Not Applicable

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0602243-03B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021031**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/10/06 09:45 PM**	

Compound	%Recovery
Methane	106

Container Type: NA - Not Applicable

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B6B0174

NCA CLIENT: Conoco Phillips
REPORT TO: Eric Larson c/o Delta
ADDRESS: 4006 148th Ave. NE Redmond, WA 98052
PHONE: (425) 498-7718 FAX: (425) 869-1892

INVOICE TO: Conoco Phillips
P.O. NUMBER: 1396 DELOZI

PROJECT NAME: COP Westlake
PROJECT NUMBER: WA255-3521-1
SAMPLED BY: A. Frohman

TURNAROUND REQUEST in Business Days *
Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	(8015) TPH-G	8021 BTEX/MTBE	Ni Trogen	Methane	CO_2	CO	O_2	H_2S	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1 SVE Test MW-51	2-8-06/14:35		X	X	X	X	X	X	X	X				-01
2														
3														
4														
5														
6														
7														
8														
9														
10														

REQUESTED ANALYSES

ASTM Method D-1946 "Fixed Gas Analysis"

RELEASED BY:		DATE: 2/8/06	RECEIVED BY: Cathy Crumble	DATE: 2/8/06	
PRINT NAME: Aric Frohman	FIRM: Delta	TIME: 4:00	PRINT NAME: Cathy Crumble	FIRM: NCA	TIME: 16:00
RELEASED BY:		DATE:	RECEIVED BY:	DATE:	
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:

TEMP: 21.2°

w/o

COC REV 09/04

PAGE OF

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907.563.9200 fax 907.563.9210

22 February 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: 600 Westlake Avenue North

Enclosed are the results of analyses for samples received by the laboratory on 02/15/06 15:41. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW98	B6B0324-01	Air	02/15/06 09:40	02/15/06 15:41
MW51	B6B0324-02	Air	02/15/06 10:00	02/15/06 15:41

North Creek Analytical - Bothell

Kortland Orr, PM

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

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:29

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW98 (B6B0324-01) Air Sampled: 02/15/06 09:40 Received: 02/15/06 15:41									
Gasoline Range Hydrocarbons	**22200**	1000	mg/m³ Air	100	6B15063	02/16/06	02/16/06	NWTPH Modified	
Benzene	**477**	10.0	"	"	"	"	"	"	
Toluene	**924**	10.0	"	"	"	"	"	"	
Ethylbenzene	**248**	10.0	"	"	"	"	"	"	
Xylenes (total)	**1010**	20.0	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.8 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*95.0 %*	*75-133*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**5220**	236	ppmv	100	"	"	"	"	
Benzene (v/v)	**147**	3.08	"	"	"	"	"	"	
Toluene (v/v)	**241**	2.61	"	"	"	"	"	"	
Ethylbenzene (v/v)	**56.3**	2.27	"	"	"	"	"	"	
Xylenes, total (v/v)	**229**	4.54	"	"	"	"	"	"	
MW51 (B6B0324-02) Air Sampled: 02/15/06 10:00 Received: 02/15/06 15:41									
Gasoline Range Hydrocarbons	**54.2**	10.0	mg/m³ Air	1	6B15063	02/16/06	02/16/06	NWTPH Modified	
Benzene	**0.470**	0.100	"	"	"	"	"	"	
Toluene	**2.07**	0.100	"	"	"	"	"	"	
Ethylbenzene	**1.20**	0.100	"	"	"	"	"	"	
Xylenes (total)	**6.46**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*95.0 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*104 %*	*75-133*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**12.8**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.145**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.541**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.273**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**1.46**	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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

Kortland Orr, PM

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:29

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B15063: Prepared 02/15/06 Using EPA 5030B (P/T)										
Blank (6B15063-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (FID)	*10.9*		*"*	*12.0*		*90.8*	*50-150*			
Surrogate: 4-BFB (PID)	*11.8*		*"*	*12.0*		*98.3*	*75-133*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6B15063-BS1)										
Gasoline Range Hydrocarbons	67.8	10.0	mg/m³ Air	100		67.8	50-150			
Surrogate: 4-BFB (FID)	*11.2*		*"*	*12.0*		*93.3*	*50-150*			
LCS (6B15063-BS2)										
Benzene	1.82	0.100	mg/m³ Air	2.00		91.0	50-150			
Toluene	1.84	0.100	"	2.00		92.0	50-150			
Ethylbenzene	1.75	0.100	"	2.00		87.5	50-150			
Xylenes (total)	5.23	0.200	"	6.00		87.2	50-150			
Surrogate: 4-BFB (PID)	*12.5*		*"*	*12.0*		*104*	*75-133*			
LCS Dup (6B15063-BSD1)										
Gasoline Range Hydrocarbons	75.4	10.0	mg/m³ Air	100		75.4	50-150	10.6	50	
Surrogate: 4-BFB (FID)	*11.1*		*"*	*12.0*		*92.5*	*50-150*			

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:29

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B15063: Prepared 02/15/06 Using EPA 5030B (P/T)										
LCS Dup (6B15063-BSD2)										
Benzene	1.70	0.100	mg/m³ Air	2.00		85.0	50-150	6.82	50	
Toluene	1.70	0.100	"	2.00		85.0	50-150	7.91	50	
Ethylbenzene	1.63	0.100	"	2.00		81.5	50-150	7.10	50	
Xylenes (total)	4.84	0.200	"	6.00		80.7	50-150	7.75	50	
Surrogate: 4-BFB (PID)	*12.4*		*"*	*12.0*		*103*	*75-133*			
Duplicate (6B15063-DUP1)					**Source: B6B0324-01**					
Gasoline Range Hydrocarbons	21900	2000	mg/m³ Air		22200			1.36	30	
Surrogate: 4-BFB (FID)	*11.6*		*"*	*12.0*		*96.7*	*50-150*			

North Creek Analytical - Bothell

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3515-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/22/06 15:29

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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

Kortland Orr, PM

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0602395

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6B0324
DATE RECEIVED:	02/17/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	02/21/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6B0324-01	Modified ASTM D-1946	Tedlar Bag
02A	B6B0324-02	Modified ASTM D-1946	Tedlar Bag
03A	Lab Blank	Modified ASTM D-1946	NA
04A	LCS	Modified ASTM D-1946	NA
04B	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda D. Fruman DATE: 02/21/06

Laboratory Director

Certfication numbers: AR DEQ - 03-084-0, CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0602395

Two 1 Liter Tedlar Bag samples were received on February 17, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 30% RPD for detections > 5 X's the RL.

Receiving Notes

The Chain of Custody was not relinquished properly. The discrepancy was noted in the Sample Receipt Confirmation email/fax.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

AIR TOXICS LTD.

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6B0324-01

Lab ID#: 0602395-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	2.7
Nitrogen	0.10	82
Methane	0.00010	1.7
Carbon Dioxide	0.010	13

Client Sample ID: B6B0324-02

Lab ID#: 0602395-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	1.2
Nitrogen	0.10	74
Methane	0.00010	7.8
Carbon Dioxide	0.010	17

AIR TOXICS LTD.

Client Sample ID: B6B0324-01

Lab ID#: 0602395-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021715**	**Date of Collection: 2/15/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/17/06 12:46 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	2.7
Nitrogen	0.10	82
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	1.7
Carbon Dioxide	0.010	13

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

Client Sample ID: B6B0324-02

Lab ID#: 0602395-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021716**	**Date of Collection: 2/15/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/17/06 01:16 PM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	1.2
Nitrogen	0.10	74
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	7.8
Carbon Dioxide	0.010	17

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

Client Sample ID: Lab Blank

Lab ID#: 0602395-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021704**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/17/06 07:44 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0602395-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021734b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 2/17/06 09:09 PM**	

Compound	%Recovery
Oxygen	100
Nitrogen	100
Carbon Monoxide	98
Carbon Dioxide	102

Container Type: NA - Not Applicable

AIR TOXICS LTD.

Client Sample ID: LCS

Lab ID#: 0602395-04B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9021735**	**Date of Collection: NA**
Dil. Factor:	**1.00**	**Date of Analysis: 2/17/06 09:32 PM**

Compound	%Recovery
Methane	97

Container Type: NA - Not Applicable

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CHAIN OF CUSTODY REPORT

Work Order #: B602324

NCA CLIENT: COP

REPORT TO: Eric Larson c/o elarson@deltaenv.com

ADDRESS: 4006 14th Ave NE, Redmond, 98052

PHONE: 425 498 7718 FAX: 425 869 1892

INVOICE TO: COP

P.O. NUMBER: 1396 DELOZI

PROJECT NAME: COP Westlake

PROJECT NUMBER: WA2553521

SAMPLED BY: TS

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: X STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NWTPH-G	Benzene	BTEX	MTBE	Naphthalene	Methane	CO_2	CO	O_2	ASTM D1946	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	MW98	2/15/06, 9:40	X		X							X	Aq	1		-01
2	MW51	2/15/06, 10:00	X		X							X	Aq	1		-02
3																
4																
5																
6																
7																
8																
9																
10																

RELEASED BY: Aric Fohrman DATE: 2/15/06

PRINT NAME: Aric Fohrman FIRM: Delta TIME: 3:41 pm

RECEIVED BY: Tom Blankinship DATE: 2/15/06

PRINT NAME: Blankinship FIRM: NCA TIME: 1541

RELEASED BY: DATE:

PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:

PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

TEMP: 20.3

COC REV 09/04

PAGE OF

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16 March 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: COP 25535221 Seattle

Enclosed are the results of analyses for samples received by the laboratory on 02/24/06 17:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/16/06 14:01

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-98	B6B0507-01	Air	02/24/06 11:10	02/24/06 17:40
MW-51	B6B0507-02	Air	02/24/06 11:30	02/24/06 17:40

North Creek Analytical - Bothell

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

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/16/06 14:01

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-98 (B6B0507-01) Air Sampled: 02/24/06 11:10 Received: 02/24/06 17:40									
Gasoline Range Hydrocarbons	**21600**	250	mg/m³ Air	25	6B25002	02/25/06	02/25/06	NWTPH Modified	
Benzene	**439**	2.50	"	"	"	"	"	"	
Ethylbenzene	**110**	2.50	"	"	"	"	"	"	
Xylenes (total)	**529**	5.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*111 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*82.2 %*	*75-133*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**5100**	59.0	ppmv	25	"	"	"	"	
Benzene (v/v)	**135**	0.770	"	"	"	"	"	"	
Ethylbenzene (v/v)	**24.9**	0.568	"	"	"	"	"	"	
Xylenes, total (v/v)	**120**	1.14	"	"	"	"	"	"	
MW-98 (B6B0507-01RE1) Air Sampled: 02/24/06 11:10 Received: 02/24/06 17:40									
Toluene	**516**	5.00	mg/m³ Air	50	6B25002	02/25/06	02/25/06	NWTPH Modified	
Surrogate: 4-BFB (PID)	*74.3 %*	*75-133*			"	"	"	"	*SR-4*
Toluene (v/v)	**135**	1.30	ppmv	50	"	"	"	"	
MW-51 (B6B0507-02) Air Sampled: 02/24/06 11:30 Received: 02/24/06 17:40									
Gasoline Range Hydrocarbons	**30.7**	10.0	mg/m³ Air	1	6B25002	02/25/06	02/25/06	NWTPH Modified	
Benzene	**0.229**	0.100	"	"	"	"	"	"	
Toluene	**0.376**	0.100	"	"	"	"	"	"	
Ethylbenzene	**0.322**	0.100	"	"	"	"	"	"	
Xylenes (total)	**1.65**	0.200	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*90.8 %*	*50-150*			"	"	"	"	
Surrogate: 4-BFB (PID)	*92.5 %*	*75-133*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**7.23**	2.36	ppmv	"	"	"	"	"	
Benzene (v/v)	**0.0705**	0.0308	"	"	"	"	"	"	
Toluene (v/v)	**0.0981**	0.0261	"	"	"	"	"	"	
Ethylbenzene (v/v)	**0.0731**	0.0227	"	"	"	"	"	"	
Xylenes, total (v/v)	**0.373**	0.0454	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/16/06 14:01

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B25002: Prepared 02/25/06 Using EPA 5030B (P/T)										
Blank (6B25002-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (FID)	*11.8*		*"*	*12.0*		*98.3*	*50-150*			
Surrogate: 4-BFB (PID)	*11.7*		*"*	*12.0*		*97.5*	*75-133*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6B25002-BS1)										
Gasoline Range Hydrocarbons	71.6	10.0	mg/m³ Air	100		71.6	50-150			
Surrogate: 4-BFB (FID)	*12.1*		*"*	*12.0*		*101*	*50-150*			
LCS (6B25002-BS2)										
Benzene	1.62	0.100	mg/m³ Air	2.00		81.0	50-150			
Toluene	1.59	0.100	"	2.00		79.5	50-150			
Ethylbenzene	1.51	0.100	"	2.00		75.5	50-150			
Xylenes (total)	4.57	0.200	"	6.00		76.2	50-150			
Surrogate: 4-BFB (PID)	*12.2*		*"*	*12.0*		*102*	*75-133*			
LCS Dup (6B25002-BSD1)										
Gasoline Range Hydrocarbons	70.8	10.0	mg/m³ Air	100		70.8	50-150	1.12	50	
Surrogate: 4-BFB (FID)	*11.4*		*"*	*12.0*		*95.0*	*50-150*			

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/16/06 14:01

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B25002: Prepared 02/25/06 Using EPA 5030B (P/T)										
LCS Dup (6B25002-BSD2)										
Benzene	1.62	0.100	mg/m³ Air	2.00		81.0	50-150	0.00	50	
Toluene	1.52	0.100	"	2.00		76.0	50-150	4.50	50	
Ethylbenzene	1.51	0.100	"	2.00		75.5	50-150	0.00	50	
Xylenes (total)	4.51	0.200	"	6.00		75.2	50-150	1.32	50	
Surrogate: 4-BFB (PID)	*12.1*		*"*	*12.0*		*101*	*75-133*			
Duplicate (6B25002-DUP1)					**Source: B6B0507-02**					
Gasoline Range Hydrocarbons	25.7	10.0	mg/m³ Air		30.7			17.7	30	
Surrogate: 4-BFB (FID)	*11.2*		*"*	*12.0*		*93.3*	*50-150*			
Batch 6B27029: Prepared 02/27/06 Using EPA 5030B (P/T)										
Blank (6B27029-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (FID)	*9.85*		*"*	*12.0*		*82.1*	*50-150*			
Surrogate: 4-BFB (PID)	*12.1*		*"*	*12.0*		*101*	*75-133*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6B27029-BS1)										
Benzene	2.06	0.100	mg/m³ Air	2.00		103	50-150			
Toluene	2.07	0.100	"	2.00		104	50-150			
Ethylbenzene	2.04	0.100	"	2.00		102	50-150			
Xylenes (total)	6.04	0.200	"	6.00		101	50-150			
Surrogate: 4-BFB (PID)	*12.8*		*"*	*12.0*		*107*	*75-133*			

Kortland Orr, PM

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/16/06 14:01

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B27029: Prepared 02/27/06 Using EPA 5030B (P/T)										
LCS (6B27029-BS2)										
Gasoline Range Hydrocarbons	80.7	10.0	mg/m³ Air	100		80.7	50-150			
Surrogate: 4-BFB (FID)	*11.4*		"	*12.0*		*95.0*	*50-150*			
LCS Dup (6B27029-BSD1)										
Benzene	1.81	0.100	mg/m³ Air	2.00		90.5	50-150	12.9	50	
Toluene	1.81	0.100	"	2.00		90.5	50-150	13.4	50	
Ethylbenzene	1.77	0.100	"	2.00		88.5	50-150	14.2	50	
Xylenes (total)	5.28	0.200	"	6.00		88.0	50-150	13.4	50	
Surrogate: 4-BFB (PID)	*12.4*		"	*12.0*		*103*	*75-133*			
LCS Dup (6B27029-BSD2)										
Gasoline Range Hydrocarbons	66.2	10.0	mg/m³ Air	100		66.2	50-150	19.7	50	
Surrogate: 4-BFB (FID)	*10.1*		"	*12.0*		*84.2*	*50-150*			
Duplicate (6B27029-DUP1)					**Source: B6B0507-02RE1**					
Gasoline Range Hydrocarbons	20.0	10.0	mg/m³ Air		20.3			1.49	30	
Surrogate: 4-BFB (FID)	*10.8*		"	*12.0*		*90.0*	*50-150*			
Duplicate (6B27029-DUP2)					**Source: B6B0536-03**					
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air		32.4			140	30	
Surrogate: 4-BFB (FID)	*10.2*		"	*12.0*		*85.0*	*50-150*			

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Delta Environmental	Project:	COP 25535221 Seattle	
4006 148th Ave NE	Project Number:	WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager:	Eric Larsen	03/16/06 14:01

Notes and Definitions

Q-06	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
SR-4	Due to sample matrix effects, the surrogate recovery was outside laboratory control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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Hours 8:00 A.M to 6:00 P.M. Pacific

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WORK ORDER #: 0602652

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6B0507
DATE RECEIVED:	02/28/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	03/11/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6B0507-01	Modified ASTM D-1946	Tedlar Bag
02A	B6B0507-02	Modified ASTM D-1946	Tedlar Bag
02AA	B6B0507-02 Duplicate	Modified ASTM D-1946	Tedlar Bag
03A	Lab Blank	Modified ASTM D-1946	NA
04A	LCS	Modified ASTM D-1946	NA
04B	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda D. Fruman DATE: 03/11/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0602652

Two 1 Liter Tedlar Bag samples were received on February 28, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

Samples were received past the recommended hold time of 3 days. The discrepancy was noted in the Sample Receipt Confirmation email/fax and the analysis proceeded.

The Chain of Custody contained incorrect method information. ATL proceeded with the analysis as per the original contract or verbal agreement.

Analytical Notes

Sample B6B0507-01 did not pass the instrument leak check, indicating a possible leak in the sample container. As a result, the sample was loaded using a syringe rather than using a direct sample loop introduction technique. Results for Nitrogen and Oxygen acquired using a syringe load may not be accurate since ambient air concentrations of these compounds are high.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6B0507-01

Lab ID#: 0602652-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	3.9
Nitrogen	0.10	81
Methane	0.0010	2.0
Carbon Dioxide	0.010	11

Client Sample ID: B6B0507-02

Lab ID#: 0602652-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	1.5
Nitrogen	0.10	72
Methane	0.0010	9.5
Carbon Dioxide	0.010	17

Client Sample ID: B6B0507-02 Duplicate

Lab ID#: 0602652-02AA

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	1.5
Nitrogen	0.10	72
Methane	0.0010	9.4
Carbon Dioxide	0.010	17

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Client Sample ID: B6B0507-01

Lab ID#: 0602652-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030117**	**Date of Collection: 2/24/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/1/06 05:17 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	3.9
Nitrogen	0.10	81
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	2.0
Carbon Dioxide	0.010	11

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: B6B0507-02

Lab ID#: 0602652-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030115**	**Date of Collection: 2/24/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/1/06 04:31 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	1.5
Nitrogen	0.10	72
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	9.5
Carbon Dioxide	0.010	17

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6B0507-02 Duplicate

Lab ID#: 0602652-02AA

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030116**	**Date of Collection: 2/24/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/1/06 04:53 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	1.5
Nitrogen	0.10	72
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	9.4
Carbon Dioxide	0.010	17

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0602652-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030105**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/1/06 08:24 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0602652-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030126b**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/1/06 10:08 PM**	

Compound	%Recovery
Oxygen	100
Nitrogen	99
Carbon Monoxide	97
Carbon Dioxide	102

Container Type: NA - Not Applicable

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0602652-04B

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030127**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/1/06 10:30 PM**	

Compound	**%Recovery**
Methane	100

Container Type: NA - Not Applicable

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: BUB0507

NCA CLIENT: ConocoPhillips

REPORT TO: Eric Larsen

ADDRESS: Delta - 4006 148th Ave NE Redmond, WA 98052

PHONE: 425-498-7718 FAX: 425-869-

INVOICE TO: ConocoPhillips

P.O. NUMBER: VS 1396 DEL021

PROJECT NAME: COP Westlake

PROJECT NUMBER: WA255-3521-1

SAMPLED BY: T. Seeds

TURNAROUND REQUEST

In Business Days *

Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TPH-G (8015)	BTEX/MTBE	Nitrogen &	Methane	CO_2	O_2	CO	H_2S	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	MW-98	2/24/06 1110	X	X	X	X	X	X	X	X				01
2	MW-51	2/24/06 1130	X	X	X	X	X	X	X	X				02
3														
4														
5														
6														
7														
8														
9														
10														

Fixed Gas Analysis Method ASTM D-1946

RELEASED BY: Tena Seeds		DATE: 2/24/06	RECEIVED BY: Tom Blankinship		DATE: 2/24/06
PRINT NAME: Tena Seeds	FIRM: Delta	TIME: 1227	PRINT NAME: Blankinship	FIRM: NCA	TIME: 1227
RELEASED BY:		DATE:	RECEIVED BY:		DATE:
PRINT NAME:	FIRM:	TIME:	PRINT NAME:	FIRM:	TIME:

ADDITIONAL REMARKS:

@lab 1740 w/o

TEMP: 18.4

COC REV 09/04

PAGE OF

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907.563.9200 fax 907.563.9210

10 March 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: 600 Westlake Avenue North

Enclosed are the results of analyses for samples received by the laboratory on 03/02/06 17:45. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-51	B6C0055-01	Air	03/02/06 08:45	03/02/06 17:45
MW-98	B6C0055-02	Air	03/02/06 09:45	03/02/06 17:45

North Creek Analytical - Bothell

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

Kortland Orr, PM

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-51 (B6C0055-01) Air Sampled: 03/02/06 08:45 Received: 03/02/06 17:45									
Gasoline Range Hydrocarbons	**18.0**	10.0	mg/m³ Air	1	6C03034	03/03/06	03/03/06	NWTPH Modified	
Surrogate: 4-BFB (FID)	*91.7 %*	*50-150*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**4.23**	2.36	ppmv	"	"	"	"	"	
MW-98 (B6C0055-02) Air Sampled: 03/02/06 09:45 Received: 03/02/06 17:45									
Gasoline Range Hydrocarbons	**24000**	500	mg/m³ Air	50	6C03034	03/03/06	03/03/06	NWTPH Modified	
Surrogate: 4-BFB (FID)	*102 %*	*50-150*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**5670**	118	ppmv	50	"	"	"	"	

North Creek Analytical - Bothell

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-51 (B6C0055-01) Air Sampled: 03/02/06 08:45 Received: 03/02/06 17:45									
Benzene	ND	2.00	ug/l Air	1	6C03053	03/03/06	03/03/06	EPA 8260B	
Ethylbenzene	ND	2.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	2.00	"	"	"	"	"	"	
m,p-Xylene	ND	4.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*92.4 %*	*69-131*			"	"	"	"	
Surrogate: Toluene-d8	*93.9 %*	*72-131*			"	"	"	"	
Surrogate: 4-BFB	*102 %*	*78-121*			"	"	"	"	
MW-98 (B6C0055-02) Air Sampled: 03/02/06 09:45 Received: 03/02/06 17:45									
Benzene	**351**	2.00	ug/l Air	1	6C03053	03/03/06	03/03/06	EPA 8260B	E-01
Ethylbenzene	**167**	2.00	"	"	"	"	"	"	E-01
Methyl tert-butyl ether	ND	2.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
Toluene	**325**	2.00	"	"	"	"	"	"	E-01
o-Xylene	**206**	2.00	"	"	"	"	"	"	E-01
m,p-Xylene	**328**	4.00	"	"	"	"	"	"	E-01
Surrogate: 1,2-DCA-d4	*>200 %*	*69-131*			"	"	"	"	*S-04*
Surrogate: Toluene-d8	*99.7 %*	*72-131*			"	"	"	"	
Surrogate: 4-BFB	*108 %*	*78-121*			"	"	"	"	
MW-98 (B6C0055-02RE1) Air Sampled: 03/02/06 09:45 Received: 03/02/06 17:45									
Benzene	**248**	80.0	ug/l Air	40	6C03053	03/03/06	03/03/06	EPA 8260B	
Ethylbenzene	ND	80.0	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	80.0	"	"	"	"	"	"	
Naphthalene	ND	80.0	"	"	"	"	"	"	
Toluene	**430**	80.0	"	"	"	"	"	"	
o-Xylene	ND	80.0	"	"	"	"	"	"	
m,p-Xylene	**300**	160	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*88.8 %*	*69-131*			"	"	"	"	
Surrogate: Toluene-d8	*94.4 %*	*72-131*			"	"	"	"	
Surrogate: 4-BFB	*103 %*	*78-121*			"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C03034: Prepared 03/03/06 Using EPA 5030B (P/T)										
Blank (6C03034-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Benzene	ND	0.100	"							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (FID)	*10.8*		*"*	*12.0*		*90.0*	*50-150*			
Surrogate: 4-BFB (PID)	*11.7*		*"*	*12.0*		*97.5*	*75-133*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Benzene (v/v)	ND	0.0308	"							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6C03034-BS1)										
Gasoline Range Hydrocarbons	77.0	10.0	mg/m³ Air	100		77.0	50-150			
Surrogate: 4-BFB (FID)	*10.8*		*"*	*12.0*		*90.0*	*50-150*			
LCS (6C03034-BS2)										
Benzene	1.69	0.100	mg/m³ Air	2.00		84.5	50-150			
Toluene	1.69	0.100	"	2.00		84.5	50-150			
Ethylbenzene	1.66	0.100	"	2.00		83.0	50-150			
Xylenes (total)	4.91	0.200	"	6.00		81.8	50-150			
Surrogate: 4-BFB (PID)	*12.6*		*"*	*12.0*		*105*	*75-133*			
LCS Dup (6C03034-BSD1)										
Gasoline Range Hydrocarbons	60.7	10.0	mg/m³ Air	100		60.7	50-150	23.7	50	
Surrogate: 4-BFB (FID)	*10.6*		*"*	*12.0*		*88.3*	*50-150*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C03034: Prepared 03/03/06 Using EPA 5030B (P/T)										
LCS Dup (6C03034-BSD2)										
Benzene	1.75	0.100	mg/m³ Air	2.00		87.5	50-150	3.49	50	
Toluene	1.88	0.100	"	2.00		94.0	50-150	10.6	50	
Ethylbenzene	1.73	0.100	"	2.00		86.5	50-150	4.13	50	
Xylenes (total)	5.17	0.200	"	6.00		86.2	50-150	5.16	50	
Surrogate: 4-BFB (PID)	*12.2*		*"*	*12.0*		*102*	*75-133*			
Duplicate (6C03034-DUP1)					**Source: B6C0010-01**					
Gasoline Range Hydrocarbons	21.1	10.0	mg/m³ Air		20.6			2.40	30	
Surrogate: 4-BFB (FID)	*11.3*		*"*	*12.0*		*94.2*	*50-150*			

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C03053: Prepared 03/03/06 Using EPA 5030B										
Blank (6C03053-BLK1)										
Benzene	ND	2.00	ug/l Air							
Ethylbenzene	ND	2.00	"							
Methyl tert-butyl ether	ND	2.00	"							
Naphthalene	ND	2.00	"							
Toluene	ND	2.00	"							
o-Xylene	ND	2.00	"							
m,p-Xylene	ND	4.00	"							
Surrogate: 1,2-DCA-d4	*9.09*		*"*	*10.0*		*90.9*	*69-131*			
Surrogate: Toluene-d8	*9.36*		*"*	*10.0*		*93.6*	*72-131*			
Surrogate: 4-BFB	*9.98*		*"*	*10.0*		*99.8*	*78-121*			
LCS (6C03053-BS1)										
Benzene	12.4	2.00	ug/l Air	10.0		124	69-138			
Ethylbenzene	9.61	2.00	"	10.0		96.1	60-140			
Methyl tert-butyl ether	9.62	2.00	"	10.0		96.2	60-140			
Naphthalene	9.86	2.00	"	10.0		98.6	60-140			
Toluene	11.5	2.00	"	10.0		115	70-130			
o-Xylene	10.3	2.00	"	10.0		103	60-140			
m,p-Xylene	20.2	4.00	"	20.0		101	60-140			
Surrogate: 1,2-DCA-d4	*8.41*		*"*	*10.0*		*84.1*	*69-131*			
Surrogate: Toluene-d8	*9.48*		*"*	*10.0*		*94.8*	*72-131*			
Surrogate: 4-BFB	*9.90*		*"*	*10.0*		*99.0*	*78-121*			
LCS Dup (6C03053-BSD1)										
Benzene	12.1	2.00	ug/l Air	10.0		121	69-138	2.45	20	
Ethylbenzene	9.04	2.00	"	10.0		90.4	60-140	6.11	20	
Methyl tert-butyl ether	9.08	2.00	"	10.0		90.8	60-140	5.78	20	
Naphthalene	9.52	2.00	"	10.0		95.2	60-140	3.51	20	
Toluene	11.3	2.00	"	10.0		113	70-130	1.75	20	
o-Xylene	9.65	2.00	"	10.0		96.5	60-140	6.52	20	
m,p-Xylene	19.0	4.00	"	20.0		95.0	60-140	6.12	20	
Surrogate: 1,2-DCA-d4	*8.28*		*"*	*10.0*		*82.8*	*69-131*			
Surrogate: Toluene-d8	*9.48*		*"*	*10.0*		*94.8*	*72-131*			
Surrogate: 4-BFB	*10.0*		*"*	*10.0*		*100*	*78-121*			

North Creek Analytical - Bothell

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/10/06 14:55

Notes and Definitions

E-01	Estimated value. The reported value exceeds the capacity of the detector and therefore is unreliable.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

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This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

@ AIR TOXICS LTD.
AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0603111A

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6C0055
DATE RECEIVED:	03/04/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	03/14/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6C0055-01	Modified ASTM D-1946	Tedlar Bag
02A	B6C0055-02	Modified ASTM D-1946	Tedlar Bag
03A	Lab Blank	Modified ASTM D-1946	NA
04A	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda D. Fruman DATE: 03/14/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0603111A

Two 1 Liter Tedlar Bag samples were received on March 04, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6C0055-01

Lab ID#: 0603111A-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	1.8
Nitrogen	0.10	74
Methane	0.0010	6.8
Carbon Dioxide	0.010	17

Client Sample ID: B6C0055-02

Lab ID#: 0603111A-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	2.0
Nitrogen	0.10	81
Methane	0.0010	2.7
Carbon Dioxide	0.010	13

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6C0055-01

Lab ID#: 0603111A-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030503**	**Date of Collection: 3/2/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/5/06 10:14 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	1.8
Nitrogen	0.10	74
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	6.8
Carbon Dioxide	0.010	17

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6C0055-02

Lab ID#: 0603111A-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030504**	**Date of Collection: 3/2/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/5/06 10:37 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	2.0
Nitrogen	0.10	81
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	2.7
Carbon Dioxide	0.010	13

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603111A-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030502**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/5/06 09:47 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.0010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

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AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603111A-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9030518**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/5/06 05:20 PM**	

Compound	%Recovery
Oxygen	100
Nitrogen	99
Carbon Monoxide	92
Methane	98
Carbon Dioxide	102

Container Type: NA - Not Applicable

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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Hours 8:00 A.M to 6:00 P.M. Pacific

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0603111B

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6C0055
DATE RECEIVED:	03/04/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	03/09/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6C0055-01	ASTM D-5504	Tedlar Bag
02A	B6C0055-02	ASTM D-5504	Tedlar Bag
03A	Lab Blank	ASTM D-5504	NA
04A	LCS	ASTM D-5504	NA

CERTIFIED BY: Linda D. Fruman DATE: 03/09/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
ASTM D-5504
North Creek Analytical
Workorder# 0603111B

Two 1 Liter Tedlar Bag samples were received on March 04, 2006. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 1.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

Samples were received past the recommended hold time of 24 hours. The discrepancy was noted in the Sample Receipt Confirmation email/fax and the analysis proceeded.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: B6C0055-01

Lab ID#: 0603111B-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	600

Client Sample ID: B6C0055-02

Lab ID#: 0603111B-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	62

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6C0055-01

Lab ID#: 0603111B-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030412**	**Date of Collection: 3/2/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/06 03:11 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	600

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6C0055-02

Lab ID#: 0603111B-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030413**	**Date of Collection: 3/2/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/06 03:21 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	62

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603111B-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030406**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/06 01:09 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603111B-04A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030405**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/4/06 12:06 PM**	

Compound	**%Recovery**
Hydrogen Sulfide	86

Container Type: NA - Not Applicable

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
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9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
20332 Empire Ave, Ste F1, Bend, OR 97701-5712 541-383-9310 FAX 382-7588
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B6P0055

NCA CLIENT: COP Delta

REPORT TO: 4006 148th Ave. NE
ADDRESS: Redmond, WA 98052

PHONE: (425) 498-7723 (Tena) FAX:

INVOICE TO:

P.O. NUMBER: WA255-352

PROJECT NAME: Westlake

PROJECT NUMBER: WA255-3522-1

SAMPLED BY: BH

TURNAROUND REQUEST
in Business Days *
Organic & Inorganic Analyses: 10 STD | 7 | 5 | 4 | 3 | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: X STD | 4 | 3 | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	NWTPH-G	BTEX	MTBE	Naphthalene	Fix Gas Analysis ASTM-D	H2S					Bags	Total	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	MW-51	~~3~~ 3-2-06/8:45	X	X	X	X	X		X					2				-01
2	MW-98	3-2-06/9:45	X	X	X	X	X		X					2				-02
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

RELEASED BY: Brian Hogerson DATE: 3-2-06
PRINT NAME: Brian Hogerson FIRM: Delta TIME: 5:45

RECEIVED BY: DATE: 3/2/06
PRINT NAME: BRANY TOVEY FIRM: NCA TIME: 1745

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

COC REV 09/04

TEMP: 18.9

PAGE OF

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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

22 March 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: 600 Westlake Avenue North

Enclosed are the results of analyses for samples received by the laboratory on 03/08/06 12:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-51	B6C0187-01	Air	03/08/06 08:45	03/08/06 12:00
MW-98	B6C0187-02	Air	03/08/06 09:45	03/08/06 12:00

North Creek Analytical - Bothell

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

Kortland Orr, PM

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-51 (B6C0187-01) Air Sampled: 03/08/06 08:45 Received: 03/08/06 12:00									
Gasoline Range Hydrocarbons	**16.5**	10.0	mg/m³ Air	1	6C09025	03/09/06	03/09/06	NWTPH Modified	
Surrogate: 4-BFB (FID)	*86.7 %*	*50-150*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**3.90**	2.36	ppmv	"	"	"	"	"	
MW-98 (B6C0187-02) Air Sampled: 03/08/06 09:45 Received: 03/08/06 12:00									
Gasoline Range Hydrocarbons	**26900**	500	mg/m³ Air	50	6C09025	03/09/06	03/09/06	NWTPH Modified	
Surrogate: 4-BFB (FID)	*101 %*	*50-150*			"	"	"	"	
Gasoline Range Hydrocarbons (v/v)	**6330**	118	ppmv	50	"	"	"	"	

North Creek Analytical - Bothell

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Kortland Orr, PM

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Volatile Organic Compounds by EPA Method 8260B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
MW-51 (B6C0187-01) Air Sampled: 03/08/06 08:45 Received: 03/08/06 12:00									
Benzene	ND	2.00	ug/l Air	1	6C09049	03/09/06	03/09/06	EPA 8260B	
Ethylbenzene	ND	2.00	"	"	"	"	"	"	
Methyl tert-butyl ether	ND	2.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
Toluene	ND	2.00	"	"	"	"	"	"	
o-Xylene	ND	2.00	"	"	"	"	"	"	
m,p-Xylene	ND	4.00	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*113 %*	*69-131*			"	"	"	"	
Surrogate: Toluene-d8	*101 %*	*72-131*			"	"	"	"	
Surrogate: 4-BFB	*99.8 %*	*78-121*			"	"	"	"	
MW-98 (B6C0187-02) Air Sampled: 03/08/06 09:45 Received: 03/08/06 12:00									
Benzene	**260**	2.00	ug/l Air	1	6C09049	03/09/06	03/09/06	EPA 8260B	E-01
Ethylbenzene	**136**	2.00	"	"	"	"	"	"	E-01
Methyl tert-butyl ether	ND	2.00	"	"	"	"	"	"	
Naphthalene	ND	2.00	"	"	"	"	"	"	
Toluene	**338**	2.00	"	"	"	"	"	"	E-01
o-Xylene	**150**	2.00	"	"	"	"	"	"	E-01
m,p-Xylene	**314**	4.00	"	"	"	"	"	"	E-01
Surrogate: 1,2-DCA-d4	*157 %*	*69-131*			"	"	"	"	*S-04*
Surrogate: Toluene-d8	*104 %*	*72-131*			"	"	"	"	
Surrogate: 4-BFB	*94.4 %*	*78-121*			"	"	"	"	
MW-98 (B6C0187-02RE1) Air Sampled: 03/08/06 09:45 Received: 03/08/06 12:00									
Benzene	**283**	80.0	ug/l Air	40	6C09049	03/09/06	03/09/06	EPA 8260B	
Ethylbenzene	**118**	80.0	"	"	"	"	"	"	
Toluene	**613**	80.0	"	"	"	"	"	"	
o-Xylene	**119**	80.0	"	"	"	"	"	"	
m,p-Xylene	**423**	160	"	"	"	"	"	"	
Surrogate: 1,2-DCA-d4	*104 %*	*69-131*			"	"	"	"	
Surrogate: Toluene-d8	*100 %*	*72-131*			"	"	"	"	
Surrogate: 4-BFB	*99.2 %*	*78-121*			"	"	"	"	

North Creek Analytical - Bothell

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

Kortland Orr, PM

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09025: Prepared 03/09/06 Using EPA 5030B (P/T)										
Blank (6C09025-BLK1)										
Gasoline Range Hydrocarbons	ND	10.0	mg/m³ Air							
Surrogate: 4-BFB (FID)	*9.54*		*"*	*12.0*		*79.5*	*50-150*			
Gasoline Range Hydrocarbons (v/v)	ND	2.36	ppmv							
Blank (6C09025-BLK2)										
Benzene	ND	0.100	mg/m³ Air							
Toluene	ND	0.100	"							
Ethylbenzene	ND	0.100	"							
Xylenes (total)	ND	0.200	"							
Surrogate: 4-BFB (PID)	*11.5*		*"*	*12.0*		*95.8*	*75-133*			
Benzene (v/v)	ND	0.0308	ppmv							
Toluene (v/v)	ND	0.0261	"							
Ethylbenzene (v/v)	ND	0.0227	"							
Xylenes, total (v/v)	ND	0.0454	"							
LCS (6C09025-BS1)										
Gasoline Range Hydrocarbons	79.8	10.0	mg/m³ Air	100		79.8	50-150			
Surrogate: 4-BFB (FID)	*9.77*		*"*	*12.0*		*81.4*	*50-150*			
LCS (6C09025-BS2)										
Benzene	1.66	0.100	mg/m³ Air	2.00		83.0	50-150			
Toluene	1.56	0.100	"	2.00		78.0	50-150			
Ethylbenzene	1.57	0.100	"	2.00		78.5	50-150			
Xylenes (total)	4.70	0.200	"	6.00		78.3	50-150			
Surrogate: 4-BFB (PID)	*11.9*		*"*	*12.0*		*99.2*	*75-133*			
LCS Dup (6C09025-BSD1)										
Gasoline Range Hydrocarbons	68.9	10.0	mg/m³ Air	100		68.9	50-150	14.7	50	
Surrogate: 4-BFB (FID)	*10.9*		*"*	*12.0*		*90.8*	*50-150*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Gasoline Hydrocarbons (Benzene to Napthalene) and BTEX in Air by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09025: Prepared 03/09/06 Using EPA 5030B (P/T)										
LCS Dup (6C09025-BSD2)										
Benzene	1.65	0.100	mg/m³ Air	2.00		82.5	50-150	0.604	50	
Toluene	1.55	0.100	"	2.00		77.5	50-150	0.643	50	
Ethylbenzene	1.56	0.100	"	2.00		78.0	50-150	0.639	50	
Xylenes (total)	4.65	0.200	"	6.00		77.5	50-150	1.07	50	
Surrogate: 4-BFB (PID)	*11.8*		*"*	*12.0*		*98.3*	*75-133*			
Duplicate (6C09025-DUP1)					**Source: B6C0187-01**					
Gasoline Range Hydrocarbons	14.4	10.0	mg/m³ Air		16.5			13.6	30	
Surrogate: 4-BFB (FID)	*10.2*		*"*	*12.0*		*85.0*	*50-150*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09049: Prepared 03/09/06 Using EPA 5030B										
Blank (6C09049-BLK1)										
Acetone	ND	20.0	ug/l Air							
Benzene	ND	2.00	"							
Bromobenzene	ND	2.00	"							
Bromochloromethane	ND	2.00	"							
Bromodichloromethane	ND	2.00	"							
Bromoform	ND	2.00	"							
Bromomethane	ND	2.00	"							
2-Butanone	ND	20.0	"							
n-Butylbenzene	ND	2.00	"							
sec-Butylbenzene	ND	2.00	"							
tert-Butylbenzene	ND	2.00	"							
Carbon disulfide	ND	2.00	"							
Carbon tetrachloride	ND	2.00	"							
Chlorobenzene	ND	2.00	"							
Chloroethane	ND	2.00	"							
1-Chlorohexane	0.00	TIC	"							
Chloroform	ND	2.00	"							
Chloromethane	ND	5.00	"							
2-Chlorotoluene	ND	2.00	"							
4-Chlorotoluene	ND	2.00	"							
Dibromochloromethane	ND	2.00	"							
1,2-Dibromo-3-chloropropane	ND	10.0	"							
1,2-Dibromoethane	ND	2.00	"							
Dibromomethane	ND	2.00	"							
1,2-Dichlorobenzene	ND	2.00	"							
1,3-Dichlorobenzene	ND	2.00	"							
1,4-Dichlorobenzene	ND	2.00	"							
Dichlorodifluoromethane	ND	2.00	"							
1,1-Dichloroethane	ND	2.00	"							
1,2-Dichloroethane	ND	2.00	"							
1,1-Dichloroethene	ND	2.00	"							
cis-1,2-Dichloroethene	ND	2.00	"							
trans-1,2-Dichloroethene	ND	2.00	"							
1,2-Dichloropropane	ND	2.00	"							
1,3-Dichloropropane	ND	2.00	"							

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09049: Prepared 03/09/06 Using EPA 5030B										
Blank (6C09049-BLK1)										
2,2-Dichloropropane	ND	2.00	ug/l Air							
1,1-Dichloropropene	ND	2.00	"							
cis-1,3-Dichloropropene	ND	2.00	"							
trans-1,3-Dichloropropene	ND	2.00	"							
Ethylbenzene	ND	2.00	"							
Hexachlorobutadiene	ND	2.00	"							
Methyl tert-butyl ether	ND	2.00	"							
2-Hexanone	ND	20.0	"							
Isopropylbenzene	ND	2.00	"							
p-Isopropyltoluene	ND	2.00	"							
4-Methyl-2-pentanone	ND	20.0	"							
Methylene chloride	ND	10.0	"							
Naphthalene	ND	2.00	"							
n-Propylbenzene	ND	2.00	"							
Styrene	ND	2.00	"							
1,2,3-Trichlorobenzene	ND	2.00	"							
1,2,4-Trichlorobenzene	ND	2.00	"							
1,1,1,2-Tetrachloroethane	ND	2.00	"							
1,1,2,2-Tetrachloroethane	ND	2.00	"							
Tetrachloroethene	ND	2.00	"							
Toluene	ND	2.00	"							
1,1,1-Trichloroethane	ND	2.00	"							
1,1,2-Trichloroethane	ND	2.00	"							
Trichloroethene	ND	2.00	"							
Trichlorofluoromethane	ND	2.00	"							
1,2,3-Trichloropropane	ND	2.00	"							
1,2,4-Trimethylbenzene	ND	2.00	"							
1,3,5-Trimethylbenzene	ND	2.00	"							
Vinyl chloride	ND	2.00	"							
o-Xylene	ND	2.00	"							
m,p-Xylene	ND	4.00	"							
Surrogate: 1,2-DCA-d4	*10.5*		*"*	*10.0*		*105*	*69-131*			
Surrogate: Toluene-d8	*10.1*		*"*	*10.0*		*101*	*72-131*			
Surrogate: 4-BFB	*9.98*		*"*	*10.0*		*99.8*	*78-121*			

North Creek Analytical - Bothell

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

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Volatile Organic Compounds by EPA Method 8260B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09049: Prepared 03/09/06 Using EPA 5030B										
LCS (6C09049-BS1)										
Benzene	9.97	2.00	ug/l Air	10.0		99.7	69-138			
Chlorobenzene	9.46	2.00	"	10.0		94.6	69-121			
1,1-Dichloroethene	10.6	2.00	"	10.0		106	47-161			
Toluene	9.70	2.00	"	10.0		97.0	70-130			
Trichloroethene	10.3	2.00	"	10.0		103	65-137			
Surrogate: 1,2-DCA-d4	*9.56*		*"*	*10.0*		*95.6*	*69-131*			
Surrogate: Toluene-d8	*9.71*		*"*	*10.0*		*97.1*	*72-131*			
Surrogate: 4-BFB	*9.82*		*"*	*10.0*		*98.2*	*78-121*			
LCS Dup (6C09049-BSD1)										
Benzene	9.32	2.00	ug/l Air	10.0		93.2	69-138	6.74	20	
Chlorobenzene	9.20	2.00	"	10.0		92.0	69-121	2.79	20	
1,1-Dichloroethene	9.74	2.00	"	10.0		97.4	47-161	8.46	20	
Toluene	9.38	2.00	"	10.0		93.8	70-130	3.35	20	
Trichloroethene	9.63	2.00	"	10.0		96.3	65-137	6.72	20	
Surrogate: 1,2-DCA-d4	*9.75*		*"*	*10.0*		*97.5*	*69-131*			
Surrogate: Toluene-d8	*9.82*		*"*	*10.0*		*98.2*	*72-131*			
Surrogate: 4-BFB	*9.92*		*"*	*10.0*		*99.2*	*78-121*			

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Delta Environmental	Project: 600 Westlake Avenue North	
4006 148th Ave NE	Project Number: WA255-3521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/22/06 16:44

Notes and Definitions

E-01	Estimated value. The reported value exceeds the capacity of the detector and therefore is unreliable.
S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

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Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

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WORK ORDER #: 0603202A

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6C0187
DATE RECEIVED:	03/09/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	03/17/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6C0187-01	Modified ASTM D-1946	Tedlar Bag
02A	B6C0187-02	Modified ASTM D-1946	Tedlar Bag
03A	Lab Blank	Modified ASTM D-1946	NA
04A	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda L. Fruman DATE: 03/18/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0603202A

Two 1 Liter Tedlar Bag samples were received on March 09, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6C0187-01

Lab ID#: 0603202A-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	1.6
Nitrogen	0.10	73
Methane	0.00010	7.5
Carbon Dioxide	0.010	18

Client Sample ID: B6C0187-02

Lab ID#: 0603202A-02A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	2.2
Nitrogen	0.10	80
Methane	0.00010	3.1
Carbon Dioxide	0.010	14

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Client Sample ID: B6C0187-01

Lab ID#: 0603202A-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031005**	**Date of Collection: 3/8/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/10/06 07:44 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	1.6
Nitrogen	0.10	73
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	7.5
Carbon Dioxide	0.010	18

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: B6C0187-02

Lab ID#: 0603202A-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031006**	**Date of Collection: 3/8/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/10/06 08:08 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	2.2
Nitrogen	0.10	80
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	3.1
Carbon Dioxide	0.010	14

Container Type: 1 Liter Tedlar Bag

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Client Sample ID: Lab Blank

Lab ID#: 0603202A-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031004**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/10/06 07:22 AM**	

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

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Client Sample ID: LCS

Lab ID#: 0603202A-04A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031021**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/10/06 07:39 PM**	

Compound	%Recovery
Oxygen	100
Nitrogen	99
Carbon Monoxide	97
Methane	99
Carbon Dioxide	102

Container Type: NA - Not Applicable

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WORK ORDER #: 0603202B

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6C0187
DATE RECEIVED:	03/09/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	03/14/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6C0187-01	ASTM D-5504	Tedlar Bag
01AA	B6C0187-01 Duplicate	ASTM D-5504	Tedlar Bag
02A	B6C0187-02	ASTM D-5504	Tedlar Bag
03A	Lab Blank	ASTM D-5504	NA
04A	LCS	ASTM D-5504	NA

CERTIFIED BY: Linda D. Fruman DATE: 03/14/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

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LABORATORY NARRATIVE
ASTM D-5504
North Creek Analytical
Workorder# 0603202B

Two 1 Liter Tedlar Bag samples were received on March 09, 2006. The laboratory performed the analysis of sulfur compounds via ASTM D-5504 using GC/SCD. The method involves direct injection of the air sample into the GC via a fixed 1.0 mL sampling loop. See the data sheets for the reporting limits for each compound.

Receiving Notes

Samples were received past the recommended hold time of 24 hours. The discrepancy was noted in the Sample Receipt Confirmation email/fax and the analysis proceeded.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
SULFUR GASES BY ASTM D-5504 GC/SCD

Client Sample ID: B6C0187-01

Lab ID#: 0603202B-01A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	40	8500

Client Sample ID: B6C0187-01 Duplicate

Lab ID#: 0603202B-01AA

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	40	7900

Client Sample ID: B6C0187-02

Lab ID#: 0603202B-02A

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	4.0	120

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Client Sample ID: B6C0187-01

Lab ID#: 0603202B-01A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030909**	**Date of Collection: 3/8/06**	
Dil. Factor:	**10.0**	**Date of Analysis: 3/9/06 03:03 PM**	

Compound	Rpt. Limit (ppbv)	Amount (ppbv)
Hydrogen Sulfide	40	8500

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6C0187-01 Duplicate

Lab ID#: 0603202B-01AA

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030910**	**Date of Collection: 3/8/06**	
Dil. Factor:	**10.0**	**Date of Analysis: 3/9/06 03:34 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	40	7900

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: B6C0187-02

Lab ID#: 0603202B-02A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030911**	**Date of Collection: 3/8/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/9/06 04:04 PM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	120

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603202B-03A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030903**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/9/06 09:10 AM**	

Compound	**Rpt. Limit (ppbv)**	**Amount (ppbv)**
Hydrogen Sulfide	4.0	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603202B-04A

SULFUR GASES BY ASTM D-5504 GC/SCD

File Name:	**b030902**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/9/06 08:21 AM**	

Compound	**%Recovery**
Hydrogen Sulfide	126

Container Type: NA - Not Applicable

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210 ☒
11922 E 1st Ave, Spokane, WA 99206-5302 509-924-9200 FAX 924-9290 ☐
9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210 ☐
20332 Empire Ave, Ste F1, Bend, OR 97701-5712 541-383-9310 FAX 382-7588 ☐
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210 ☐

CHAIN OF CUSTODY REPORT

Work Order #: B6C0187

NCA CLIENT: COP Delta

REPORT TO: 4006 148th Ave. NE
ADDRESS: Redmond, WA 98052
Tera
PHONE (425) 498-7725 FAX:

INVOICE TO:

P.O. NUMBER: WA255-3521-1

PROJECT NAME: COP Westlake

PROJECT NUMBER: WA255-3521

SAMPLED BY: BH/AF

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | 3 | 2 | 1 | <1

Petroleum Hydrocarbon Analyses: 5 STD. | 4 | 3 | 2 | 1 | <1

OTHER Specify:

* Turnaround Requests less than standard may incur Rush Charges.

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	NWTPH-Gx	BTEX (8260)	MTBE	Naphthalene	ASTM Fixed Gas	H_2S	Total	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	MW-51	3-8-06 / 8:45								2				
2	MW-98	3-8-06 / 9:45												
3														
4														
5														
6														
7														
8														
9														
10														

REQUESTED ANALYSES

RELEASED BY: Brian Hogenson	DATE: 3/8/06	RECEIVED BY: Cathy Gamble	DATE: 3/8/06
PRINT NAME: Hogenson FIRM: Delta	TIME: 12:00	PRINT NAME: Cathy Gamble FIRM: NCA	TIME: 12:00
RELEASED BY:	DATE:	RECEIVED BY:	DATE:
PRINT NAME: FIRM:	TIME:	PRINT NAME: FIRM:	TIME:

ADDITIONAL REMARKS:

TEMP: 21.7° w/o

COC REV 09/04

PAGE OF

APPENDIX D

AQUIFER TESTING DATA

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date:	February 9, 2006
Test Well:	DW-1
Well Depth:	46'
Screen Interval:	41' to 46'
Pre-Test DTW:	10.81'

Slug Volume: 0.034796 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Negative Displacement)			(Bailer Test)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	9.29	36.71	0:00	12.32	33.68	0:00	12.41	33.59
0:05	10.31	35.69	0:10	11.18	34.82	0:02	11.92	34.08
0:10	10.52	35.48	0:15	11.12	34.88	0:05	11.54	34.46
0:15	10.60	35.40	0:20	11.04	34.96	0:10	11.38	34.62
0:20	10.64	35.36	0:25	11.01	34.99	0:15	11.28	34.72
0:25	10.67	35.33	0:30	10.96	35.04	0:20	11.18	34.82
0:30	10.70	35.30	0:35	10.94	35.06	0:25	11.07	34.93
0:35	10.72	35.28	0:40	10.92	35.08	0:28	11.04	34.96
0:40	10.74	35.26	0:45	10.9	35.10	0:30	10.96	35.04
0:45	10.76	35.24	0:50	10.89	35.11	0:35	10.93	35.07
0:50	10.77	35.23	1:00	10.87	35.13	0:40	10.91	35.09
0:55	10.78	35.22	1:05	10.86	35.14	0:45	10.88	35.12
1:00	10.79	35.21	1:10	10.84	35.16	0:50	10.86	35.14
1:10	10.79	35.21	1:15	10.83	35.17	0:55	10.85	35.15
1:20	10.80	35.20	1:20	10.83	35.17	1:00	10.84	35.16
1:40	10.80	35.20	1:30	10.82	35.18	1:05	10.84	35.16
2:00	10.80	35.20	1:40	10.82	35.18	1:10	10.83	35.17
2:10	10.80	35.20	2:00	10.81	35.19	1:20	10.82	35.18
2:20	10.80	35.20	2:30	10.81	35.19	1:25	10.82	35.18
2:30	10.80	35.20	3:00	10.81	35.19	1:30	10.81	35.19
3:30	10.80	35.20						
4:00	10.80	35.20						

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

r = radius of well (ft):	0.08541667
L = length of well screen (ft):	5
R = radius of well screen (ft):	0.08541667
V = slug volume (ft^3):	0.0347958
q_0 = Initial flow rate (cfs):	0.00458422 (lowered 1 foot of water in first 5 seconds)

K = 0.00039118 ft/s = 0.000119 m/s

Calculated conductivity indicates CLEAN SAND, which concurs with field observations during drilling of DW-1

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date: February 9, 2006
Test Well: DAS-6
Well Depth: 20'
Screen Interval in water: 18' to 20'
Pre-Test DTW: 10.75'

Slug Volume: 0.034796 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Positive Displacement - cont'd)			(Negative Displacement)			(Negative Displacement-cont'd)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	9.23	10.77	3:15	10.56	9.44	0:00	12.25	7.75	4:30	10.92	9.08
0:05	9.45	10.55	3:30	10.58	9.42	0:40	11.59	8.41	4:45	10.91	9.09
0:10	9.60	10.40	3:40	10.60	9.40	0:50	11.45	8.55	5:00	10.91	9.09
0:15	9.64	10.36	3:55	10.61	9.39	1:00	11.40	8.60	5:15	10.90	9.10
0:20	9.72	10.28	4:10	10.62	9.38	1:15	11.35	8.65	5:30	10.89	9.11
0:25	9.83	10.17	4:20	10.63	9.37	1:18	11.32	8.68	6:00	10.88	9.12
0:30	9.87	10.13	4:35	10.64	9.36	1:22	11.29	8.71	6:20	10.88	9.12
0:35	9.93	10.07	4:50	10.65	9.35	1:30	11.26	8.74	6:40	10.87	9.13
0:40	9.98	10.02	5:10	10.66	9.34	1:35	11.23	8.77	7:00	10.86	9.14
0:42	10.00	10.00	5:30	10.67	9.33	1:43	11.21	8.79	7:30	10.85	9.15
0:45	10.02	9.98	6:00	10.68	9.32	1:50	11.18	8.82	8:00	10.83	9.17
0:50	10.05	9.95	6:30	10.69	9.31	1:55	11.16	8.84	8:30	10.82	9.18
0:55	10.10	9.90	7:00	10.70	9.30	2:00	11.14	8.86	8:55	10.81	9.19
1:00	10.13	9.87	7:30	10.7	9.30	2:10	11.12	8.88	10:25	10.80	9.20
1:05	10.19	9.81	8:00	10.71	9.29	2:15	11.10	8.90	11:00	10.80	9.20
1:10	10.23	9.77	8:30	10.71	9.29	2:20	11.09	8.91	12:00	10.78	9.22
1:15	10.27	9.73	9:00	10.72	9.28	2:30	11.06	8.94	13:00	10.78	9.22
1:20	10.31	9.69	9:30	10.72	9.28	2:40	11.05	8.95	14:00	10.77	9.23
1:30	10.35	9.65	10:10	10.72	9.28	2:50	11.03	8.97	15:00	10.77	9.23
1:40	10.37	9.63	10:30	10.73	9.27	3:00	11.01	8.99	16:00	10.77	9.23
1:50	10.40	9.60	11:00	10.73	9.27	3:05	11.00	9.00	17:00	10.77	9.23
2:00	10.42	9.58	11:30	10.73	9.27	3:20	10.98	9.02	18:30	10.77	9.23
2:05	10.44	9.56	12:00	10.73	9.27	3:25	10.97	9.03	19:00	10.77	9.23
2:10	10.46	9.54	12:30	10.73	9.27	3:35	10.96	9.04	20:00	10.77	9.23
2:20	10.48	9.52	13:00	10.73	9.27	3:45	10.95	9.05			
2:30	10.50	9.50	14:00	10.73	9.27	3:55	10.94	9.06			
2:40	10.53	9.47	15:00	10.73	9.27	4:05	10.93	9.07			
2:55	10.55	9.45				4:20	10.93	9.07			

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:
r = radius of well (ft): 0.08541667
L = length of well screen (ft): 2 *
R = radius of well screen (ft): 0.08541667
V = slug volume (ft^3): 0.0347958
q_0 = Initial flow rate (cfs): 0.00100853 (lowered .22 foot of water in first 5 seconds)

K = 0.00016671 ft/s = 5.08464E-05 m/s

Calculated conductivity indicates SILTY SAND, which concurs with field observations during drilling of DAS-6.
*Screened interval of well is in wood debris.

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date: March 21, 2006
Test Well: DAS-10
Well Depth: 20'
Screen Interval in water: 18' to 20'
Pre-Test DTW: 11.15

Slug Volume: 0.0347958 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Positive Displacement - cont'd)			(Negative Displacement)			(Negative Displacement-cont'd)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	9.63	10.37	3:10	10.51	9.49	0:00	12.29	7.71	2:40	11.40	8.60
0:05	9.86	10.14	3:20	10.52	9.48	0:05	11.89	8.11	2:45	11.40	8.60
0:10	10.00	10.00	3:30	10.53	9.47	0:10	11.90	8.10	2:50	11.39	8.61
0:15	10.10	9.90	3:40	10.53	9.47	0:15	11.85	8.15	2:55	11.38	8.62
0:20	10.15	9.85	3:50	10.53	9.47	0:20	11.83	8.17	3:00	11.38	8.62
0:25	10.18	9.82	4:00	10.54	9.46	0:25	11.80	8.20	3:10	11.37	8.63
0:30	10.21	9.79	4:10	10.55	9.45	0:30	11.78	8.22	3:20	11.36	8.64
0:35	10.24	9.76	4:20	10.56	9.44	0:35	11.76	8.24	3:30	11.35	8.65
0:40	10.26	9.74	4:30	10.57	9.43	0:40	11.75	8.25	3:40	11.34	8.66
0:45	10.27	9.73	4:40	10.58	9.42	0:45	11.73	8.27	3:50	11.33	8.67
0:50	10.28	9.72	4:50	10.6	9.40	0:50	11.69	8.31	4:00	11.33	8.67
0:55	10.30	9.70	5:00	10.6	9.40	0:55	11.66	8.34	4:10	11.32	8.68
1:00	10.31	9.69	5:30	10.61	9.39	1:00	11.64	8.36	4:20	11.31	8.69
1:05	10.32	9.68	6:00	10.62	9.38	1:05	11.62	8.38	4:30	11.31	8.69
1:10	10.34	9.66	6:30	10.64	9.36	1:10	11.61	8.39	4:40	11.30	8.70
1:15	10.35	9.65	7:00	10.64	9.36	1:15	11.60	8.40	4:50	11.29	8.71
1:20	10.36	9.64	8:00	10.67	9.33	1:20	11.58	8.42	5:00	11.28	8.72
1:25	10.38	9.62	9:00	10.69	9.31	1:25	11.56	8.44	5:30	11.26	8.74
1:30	10.39	9.61	10:00	10.7	9.30	1:30	11.55	8.45	6:00	11.24	8.76
1:35	10.41	9.59	11:00	10.71	9.29	1:35	11.54	8.46	6:30	11.23	8.77
1:40	10.43	9.57	12:00	10.72	9.28	1:40	11.53	8.47	7:00	11.21	8.79
1:45	10.44	9.56	13:00	10.73	9.27	1:45	11.51	8.49	7:30	11.19	8.81
2:00	10.45	9.55	14:00	10.73	9.27	1:50	11.50	8.50	8:00	11.18	8.82
2:10	10.45	9.55	15:00	10.74	9.26	1:55	11.48	8.52	8:30	11.17	8.83
2:20	10.46	9.54	17:00	10.75	9.25	2:00	11.47	8.53	9:00	11.16	8.84
2:30	10.47	9.53	19:00	10.76	9.24	2:05	11.46	8.54	9:30	11.15	8.85
2:40	10.48	9.52	21:00	10.77	9.23	2:10	11.46	8.54	10:00	11.13	8.87
2:50	10.48	9.52	23:00	10.77	9.23	2:15	11.45	8.55	11:00	11.11	8.89
3:00	10.5	9.50	25:00:00	10.77	9.23	2:20	11.44	8.56	12:00	11.11	8.89
						2:25	11.43	8.57	13:00	11.09	8.91
						2:30	11.42	8.58	14:00	11.08	8.92
						2:35	11.41	8.59	15:00	11.07	8.93

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:
r = radius of well (ft): 0.08541667
L = length of well screen (ft): 2 *
R = radius of well screen (ft): 0.08541667
V = slug volume (ft^3): 0.0347958
q_0 = Initial flow rate (cfs): 0.00105437 (lowered .23 foot of water in first 5 seconds)

K = 0.00017429 ft/s = 5.3158E-05 m/s

Calculated conductivity indicates SILTY SAND, which concurs with field observations during drilling of DAS-10.
*Screened interval of well is in wood debris with fine sand and silt.

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date: March 21, 2006
Test Well: DAS-12
Well Depth: 20'
Screen Interval in water: 18' to 20'
Pre-Test DTW: 11.79

Slug Volume: 0.0347958 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Positive Displacement - cont'd)			(Negative Displacement)			(Negative Displacement-cont'd)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	10.27	9.73	3:50	11.09	8.91	0:00	13.23	6.77	2:40	12.33	7.67
0:05	10.50	9.50	4:00	11.1	8.90	0:05	12.91	7.09	2:45	12.33	7.67
0:10	10.51	9.49	4:10	11.12	8.88	0:10	12.85	7.15	2:50	12.32	7.68
0:15	10.57	9.43	4:20	11.13	8.87	0:15	12.81	7.19	2:55	12.32	7.68
0:20	10.58	9.42	4:30	11.14	8.86	0:20	12.75	7.25	3:00	12.31	7.69
0:25	10.60	9.40	4:40	11.15	8.85	0:25	12.71	7.29	3:10	12.31	7.69
0:30	10.62	9.38	4:50	11.16	8.84	0:30	12.66	7.34	3:20	12.30	7.70
0:35	10.65	9.35	5:00	11.18	8.82	0:35	12.64	7.36	3:30	12.29	7.71
0:40	10.67	9.33	5:30	11.2	8.80	0:40	12.61	7.39	3:40	12.28	7.72
0:45	10.70	9.30	6:00	11.23	8.77	0:45	12.60	7.40	3:50	12.27	7.73
0:50	10.71	9.29	6:30	11.26	8.74	0:50	12.57	7.43	4:00	12.26	7.74
0:55	10.74	9.26	7:00	11.29	8.71	0:55	12.56	7.44	4:10	12.25	7.75
1:00	10.76	9.24	7:30	11.32	8.68	1:00	12.54	7.46	4:20	12.24	7.76
1:05	10.77	9.23	8:00	11.34	8.66	1:05	12.52	7.48	4:30	12.23	7.77
1:10	10.78	9.22	8:30	11.36	8.64	1:10	12.51	7.49	4:40	12.22	7.78
1:15	10.80	9.20	9:00	11.37	8.63	1:15	12.50	7.50	4:50	12.21	7.79
1:20	10.82	9.18	9:30	11.39	8.61	1:20	12.49	7.51	5:00	12.21	7.79
1:25	10.83	9.17	10:00	11.41	8.59	1:25	12.47	7.53	5:30	12.18	7.82
1:30	10.84	9.16	11:00	11.44	8.56	1:30	12.46	7.54	6:00	12.17	7.83
1:35	10.86	9.14	12:00	11.41	8.59	1:35	12.45	7.55	6:30	12.14	7.86
1:40	10.87	9.13	13:00	11.42	8.58	1:40	12.43	7.57	7:00	12.13	7.87
1:45	10.88	9.12	14:00	11.44	8.56	1:45	12.42	7.58	7:30	12.11	7.89
1:50	10.89	9.11	15:00	11.46	8.54	1:50	12.41	7.59	8:00	12.10	7.90
1:55	10.90	9.10	16:00	11.49	8.51	1:55	12.40	7.60	8:30	12.08	7.92
2:00	10.91	9.09	17:00	11.51	8.49	2:00	12.39	7.61	9:00	12.06	7.94
2:10	10.92	9.08	19:00	11.55	8.45	2:05	12.38	7.62	9:30	12.04	7.96
2:20	10.94	9.06	21:00	11.57	8.43	2:10	12.38	7.62	10:00	12.01	7.99
2:30	10.96	9.04	23:00	11.58	8.42	2:15	12.37	7.63	11:00	11.99	8.01
2:40	10.98	9.02	25:00	11.61	8.39	2:20	12.37	7.63	12:00	11.97	8.03
2:50	11.00	9.00	28:00	11.64	8.36	2:25	12.36	7.64	13:00	11.94	8.06
3:00	11.02	8.98	30:00	11.67	8.33	2:30	12.35	7.65	14:00	11.93	8.07
3:10	11.03	8.97	32:00	11.68	8.32	2:35	12.34	7.66	15:00	11.92	8.08
3:20	11.05	8.95	37:00	11.69	8.31						
3:30	11.06	8.94	40:00	11.71	8.29						
3:40	11.07	8.93									

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

r = radius of well (ft): 0.08541667
L = length of well screen (ft): 2 *
R = radius of well screen (ft): 0.08541667
V = slug volume (ft^3): 0.0347958
q_0 = Initial flow rate (cfs): 0.00105437 (lowered .23 foot of water in first 5 seconds)

K = 0.00017429 ft/s = 5.3158E-05 m/s

Calculated conductivity indicates SILTY SAND, which concurs with field observations during drilling of DAS-10.
*Screened interval of well is in silty sand and peat with wood fragments.

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date: March 21, 2006
Test Well: MW-59 - test 1
Well Depth: 20'
Screen Interval in water: 12.03' to 20' (well is screened from 5' to 20')
Pre-Test DTW: 12.03

Slug Volume: 0.0347958 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Negative Displacement)			(Negative Displacement-cont'd)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	10.51	9.49	0:00	13.55	6.45	2:00	12.08	7.92
0:05	11.80	8.20	0:05	12.58	7.42	2:10	12.08	7.92
0:10	11.84	8.16	0:10	12.52	7.48	2:20	12.08	7.92
0:15	11.90	8.10	0:15	12.43	7.57	2:30	12.07	7.93
0:20	11.91	8.09	0:20	12.36	7.64	2:40	12.07	7.93
0:25	11.93	8.07	0:25	12.30	7.70	2:50	12.06	7.94
0:30	11.94	8.06	0:30	12.26	7.74	3:00	12.06	7.94
0:35	11.95	8.05	0:35	12.23	7.77	3:10	12.06	7.94
0:40	11.96	8.04	0:40	12.21	7.79	3:20	12.06	7.94
0:45	11.97	8.03	0:45	12.19	7.81	3:30	12.05	7.95
0:50	11.98	8.02	0:50	12.17	7.83	3:40	12.05	7.95
0:55	11.98	8.02	0:55	12.16	7.84	3:50	12.05	7.95
1:00	11.99	8.01	1:00	12.15	7.85	4:00	12.04	7.96
1:05	11.99	8.01	1:05	12.14	7.86	4:10	12.04	7.96
1:10	12.00	8.00	1:10	12.14	7.86	4:20	12.04	7.96
1:15	12.00	8.00	1:15	12.13	7.87	4:30	12.04	7.96
1:20	12.00	8.00	1:20	12.12	7.88	4:40	12.04	7.96
1:25	12.01	7.99	1:25	12.11	7.89	4:50	12.04	7.96
1:30	12.02	7.98	1:30	12.11	7.89	5:00	12.04	7.96
1:35	12.02	7.98	1:35	12.11	7.89	5:30	12.04	7.96
1:40	12.02	7.98	1:40	12.10	7.90	6:00	12.03	7.97
1:45	12.02	7.98	1:45	12.10	7.90	6:30	12.03	7.97
1:50	12.03	7.97	1:50	12.10	7.90	7:00	12.03	7.97
1:55	12.03	7.97	1:55	12.09	7.91			
2:00	12.03	7.97						
2:10	12.03	7.97						

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

r = radius of well (ft): 0.08541667
L = length of well screen (ft): 7.97
R = radius of well screen (ft): 0.08541667
V = slug volume (ft^3): 0.0347958
q_0 = Initial flow rate (cfs): 0.00591364 (lowered 1.29 foot of water in first 5 seconds)

K = 0.00035285 ft/s = 0.00010762 m/s

Calculated conductivity indicates CLEAN SAND, which concurs with field observations during drilling of MW-59.

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date: March 21, 2006
Test Well: MW-59 - test 2
Well Depth: 20'
Screen Interval in water: 12.03' to 20' (well is screened from 5' to 20')
Pre-Test DTW: 12.03

Slug Volume: 0.0347958 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Negative Displacement)			(Negative Displacement-cont'd)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	10.51	9.49	0:00	13.55	6.45	1:50	12.10	7.90
0:05	11.79	8.21	0:05	12.71	7.29	1:55	12.09	7.91
0:10	11.84	8.16	0:10	12.56	7.44	2:00	12.08	7.92
0:15	11.87	8.13	0:15	12.46	7.54	2:10	12.07	7.93
0:20	11.88	8.12	0:20	12.39	7.61	2:20	12.07	7.93
0:25	11.90	8.10	0:25	12.36	7.64	2:30	12.07	7.93
0:30	11.92	8.08	0:30	12.33	7.67	2:40	12.06	7.94
0:35	11.93	8.07	0:35	12.29	7.71	2:50	12.06	7.94
0:40	11.94	8.06	0:40	12.27	7.73	3:00	12.06	7.94
0:45	11.96	8.04	0:45	12.25	7.75	3:10	12.05	7.95
0:50	11.96	8.04	0:50	12.23	7.77	3:20	12.05	7.95
0:55	11.98	8.02	0:55	12.20	7.80	3:30	12.05	7.95
1:00	11.98	8.02	1:00	12.18	7.82	3:40	12.04	7.96
1:05	11.99	8.01	1:05	12.17	7.83	3:50	12.04	7.96
1:10	12.00	8.00	1:10	12.16	7.84	4:00	12.04	7.96
1:15	12.00	8.00	1:15	12.15	7.85	4:10	12.04	7.96
1:20	12.01	7.99	1:20	12.14	7.86	4:20	12.04	7.96
1:25	12.01	7.99	1:25	12.13	7.87	4:30	12.04	7.96
1:30	12.02	7.98	1:30	12.12	7.88	4:40	12.03	7.97
1:35	12.03	7.97	1:35	12.11	7.89	4:50	12.03	7.97
1:40	12.03	7.97	1:40	12.11	7.89	5:00	12.03	7.97
1:45	12.02	7.98	1:45	12.10	7.90	5:30	12.03	7.97
1:50	12.03	7.97						
1:55	12.03	7.97						
2:00	12.03	7.97						

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

r = radius of well (ft): 0.08541667
L = length of well screen (ft): 7.97
R = radius of well screen (ft): 0.08541667
V = slug volume (ft^3): 0.0347958
q_0 = Initial flow rate (cfs): 0.0058678 (lowered 1.28 foot of water in first 5 seconds)

K = 0.00035011 ft/s = 0.00010678 m/s

Calculated conductivity indicates CLEAN SAND, which concurs with field observations during drilling of MW-59.

Slug Test Data
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date: March 21, 2006
Test Well: MW-53
Well Depth: 20'
Screen Interval in water: 11.52' to 20' (well is screened from 5' to 20')
Pre-Test DTW: 11.52

Slug Volume: 0.0347958 cubic feet (Slug displaced 1.52 feet of water column in well)

(Positive Displacement)			(Positive Displacement-con't)			(Negative Displacement)			(Negative Displacement-cont'd)		
Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	10.00	10.00	3:20	11.40	8.60	0:00	13.01	6.99	2:40	11.62	8.38
0:05	10.91	9.09	3:30	11.41	8.59	0:05	12.67	7.33	2:50	11.60	8.40
0:10	11.00	9.00	3:30	11.41	8.59	0:10	12.61	7.39	3:00	11.58	8.42
0:15	11.04	8.96	3:40	11.41	8.59	0:15	12.58	7.42	3:10	11.57	8.43
0:20	11.09	8.91	3:50	11.41	8.59	0:20	12.50	7.50	3:20	11.56	8.44
0:25	11.12	8.88	4:00	11.42	8.58	0:25	12.41	7.59	3:30	11.55	8.45
0:30	11.15	8.85	4:10	11.42	8.58	0:30	12.35	7.65	3:40	11.54	8.46
0:35	11.19	8.81	4:20	11.42	8.58	0:35	12.28	7.72	3:50	11.53	8.47
0:40	11.21	8.79	4:30	11.43	8.57	0:40	12.21	7.79	4:00	11.53	8.47
0:45	11.23	8.77	4:40	11.43	8.57	0:45	12.15	7.85	4:10	11.52	8.48
0:50	11.24	8.76	4:50	11.43	8.57	0:50	12.09	7.91	4:20	11.52	8.48
0:55	11.25	8.75	5:00	11.43	8.57	0:55	12.08	7.92	4:30	11.51	8.49
1:00	11.26	8.74	5:10	11.43	8.57	1:00	12.04	7.96	4:40	11.51	8.49
1:05	11.27	8.73	5:20	11.43	8.57	1:05	12.01	7.99	4:50	11.50	8.50
1:10	11.28	8.72	5:30	11.43	8.57	1:10	11.94	8.06	5:00	11.50	8.50
1:15	11.29	8.71	5:40	11.44	8.56	1:15	11.91	8.09	5:30	11.49	8.51
1:20	11.30	8.70	5:50	11.44	8.56	1:20	11.90	8.10	6:00	11.49	8.51
1:25	11.31	8.69	6:00	11.44	8.56	1:25	11.87	8.13	6:30	11.48	8.52
1:30	11.32	8.68	6:30	11.44	8.56	1:30	11.82	8.18	7:00	11.47	8.53
1:35	11.33	8.67	7:00	11.45	8.55	1:35	11.81	8.19	7:30	11.47	8.53
1:40	11.34	8.66	7:30	11.46	8.54	1:40	11.80	8.20	8:00	11.47	8.53
1:45	11.34	8.66	8:00	11.46	8.54	1:45	11.78	8.22	9:00	11.46	8.54
1:50	11.35	8.65	8:30	11.47	8.53	1:50	11.77	8.23	10:00	11.46	8.54
1:55	11.35	8.65	9:00	11.47	8.53	1:55	11.76	8.24	11:00	11.45	8.55
2:00	11.36	8.64	9:30	11.47	8.53	2:00	11.73	8.27	12:00	11.45	8.55
2:10	11.36	8.64	10:00	11.48	8.52	2:10	11.70	8.30	13:00	11.45	8.55
2:20	11.37	8.63	11:00	11.48	8.52	2:20	11.66	8.34	14:00	11.45	8.55
2:30	11.37	8.63	12:00	11.48	8.52	2:30	11.64	8.36	15:00	11.45	8.55
2:40	11.38	8.62	13;00	11.49	8.51						
2:50	11.38	8.62	14:00	11.49	8.51						
3:00	11.39	8.61	15:00	11.49	8.51						
3:10	11.40	8.60									

Hvorslev Formula for Conductivity (ft/s):
Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

r = radius of well (ft): 0.08541667
L = length of well screen (ft): 8.48
R = radius of well screen (ft): 0.08541667
V = slug volume (ft^3): 0.0347958
q_0 = Initial flow rate (cfs): 0.00417164 (lowered 0.91 foot of water in first 5 seconds)

K = 0.00023714 ft/s = 7.2327E-05 m/s

Calculated conductivity indicates SILTY SAND to CLEAN SAND, which concurs with information from boring log of MW-53.

Step-Drawdown Pump Test Data Analysis - DW-1
February 16, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Well Depth (ft): 46.26
Initial DTW (ft): 10.81
Water Column: 35.45
Desired 2/3 Drawdown = 2/3 * (water column): 23.63
Desired DTW for 2/3 drawdown: 34.44

Flowrate (gpm)	Time (hr:min)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
0.0	0:00	10.81	0.00	35.45	Start pump at 125 Hz, flowmeter and totalizer flowrate 1.4 gpm
1.4	0:03	12.41	1.60	33.85	
1.4	0:05	12.44	1.63	33.82	
1.4	0:07	12.47	1.66	33.79	flow fluctuating 1.4 - 1.5 gpm
1.4	0:09	12.46	1.65	33.80	
2.8	0:10	14.28	3.47	31.98	Increased pump speed to 200 Hz, flowmeter 2.8 gpm, totalizer flow 2.8-2.9
2.9	0:15	14.36	3.55	31.90	
2.9	0:18	14.39	3.58	31.87	
2.9	0:20	14.40	3.59	31.86	
2.9	0:24	14.41	3.60	31.85	
2.9	0:28	14.43	3.62	31.83	
3.0	0:31	14.45	3.64	31.81	
3.0	0:35	14.46	3.65	31.80	
3.0	0:38	14.46	3.65	31.80	
3.0	0:40	14.46	3.65	31.80	
4.7	0:41	16.70	5.89	29.56	Increased pump speed to 300 Hz, flowmeter ~4.7 gpm, totalizer flow 4.8 gpm
4.7	0:46	16.80	5.99	29.46	
4.7	0:48	16.84	6.03	29.42	
4.7	0:53	16.87	6.06	29.39	
4.7	0:59	16.90	6.09	29.36	
4.7	1:01	16.90	6.09	29.36	
4.7	1:03	16.91	6.10	29.35	
4.7	1:05	16.91	6.10	29.35	
4.7	1:22	16.94	6.13	29.32	
6.0	1:25	18.23	7.42	28.03	Increased pump speed to 400 Hz, flowrate maxed at 6.0 gpm
6.0	1:26	18.55	7.74	27.71	
6.0	1:27	18.58	7.77	27.68	
6.0	1:28	18.6	7.79	27.66	
6.0	1:29	18.62	7.81	27.64	

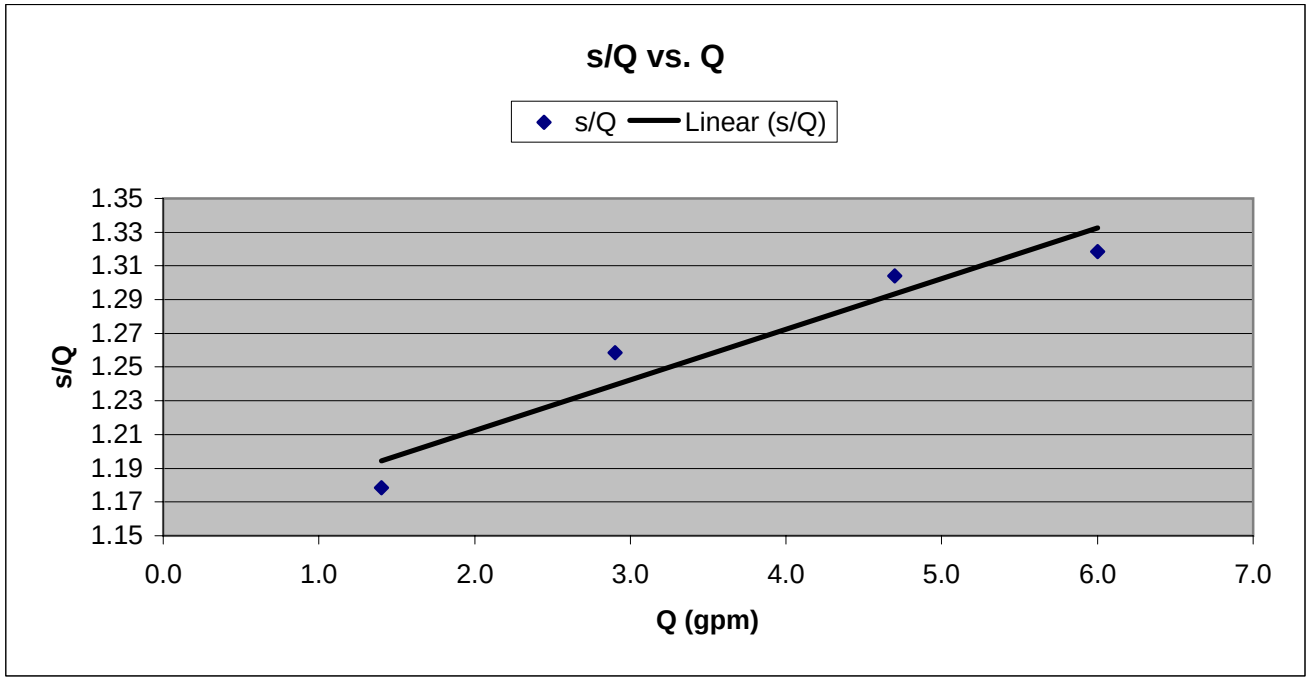
Step-Drawdown Pump Test Data Analysis - DW-1
February 16, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Flowrate (gpm)	Time (hr:min)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
6.0	1:30	18.6	7.79	27.66	
6.0	1:31	18.59	7.78	27.67	
6.0	1:32	18.61	7.80	27.65	
6.0	1:33	18.57	7.76	27.69	
6.0	1:34	--	--	--	Flow decreased rapidly - dicharge tubing came off of pump
4.6	0:07	NM	--	--	Restarted test, increased pump speed to 300 Hz over 7 minutes
4.6	0:10	16.67	5.86	29.59	Flowrate at 4.6 gpm
4.6	0:12	16.7	5.89	29.56	
4.6	0:14	16.72	5.91	29.54	flow fluctuated between 4.6 - 4.7 gpm
4.6	0:16	16.73	5.92	29.53	flow fluctuated between 4.6 - 4.7 gpm
4.6	0:18	16.74	5.93	29.52	flow fluctuated between 4.6 - 4.7 gpm
4.6	0:20	16.76	5.95	29.50	
4.6	0:25	16.77	5.96	29.49	
4.6	0:30	16.77	5.96	29.49	
4.6	0:32	16.78	5.97	29.48	
4.6	0:38	16.80	5.99	29.46	
5.5	0:40	17.80	6.99	28.46	Increased pump speed to 350 Hz, flow at 5.5 gpm
5.5	0:43	17.83	7.02	28.43	
5.5	0:45	17.85	7.04	28.41	
5.5	0:47	17.87	7.06	28.39	
5.5	0:50	17.87	7.06	28.39	
5.5	0:53	17.89	7.08	28.37	
6.0	0:55	18.37	7.56	27.89	Increased pump speed to 400 Hz, flow at 6 gpm
6.0	0:56	18.50	7.69	27.76	
6.0	0:58	18.50	7.69	27.76	
6.0	0:59	18.52	7.71	27.74	
6.0	1:00	18.53	7.72	27.73	
6.0	1:01	18.53	7.72	27.73	
6.0	1:03	18.54	7.73	27.72	
6.0	1:04	18.55	7.74	27.71	
6.0	1:05	18.55	7.74	27.71	
6.0	1:07	18.56	7.75	27.70	
6.0	1:10	18.57	7.76	27.69	
6.0	1:12	18.57	7.76	27.69	

Step-Drawdown Pump Test Data Analysis - DW-1
February 16, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Flowrate (gpm)	Time (hr:min)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
6.0	1:15	18.58	7.77	27.68	
6.0	1:17	18.59	7.78	27.67	
6.0	1:29	18.63	7.82	27.63	
6.0	1:35	18.68	7.87	27.58	
6.0	1:45	18.70	7.89	27.56	
6.0	1:50	18.71	7.90	27.55	
6.0	1:55	18.72	7.91	27.54	
6.0	1:58	18.72	7.91	27.54	Last reading before shutting off pump

Yield 'Q' (gpm)	Drawdown 's' (feet)	s/Q
1.4	1.65	1.18
2.9	3.65	1.26
4.7	6.13	1.30
6.0	7.91	1.32



DW-1 Recovery Data

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date:	February 16, 2006
Test Well:	DW-1
Well Depth:	46.26
Screen Interval:	41'-46'
Pre-Recovery DTW:	18.72

Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
0:00	18.72	27.54	3:20	11.02	35.24
0:10	12.82	33.44	3:30	11.01	35.25
0:20	11.67	34.59	3:40	11.01	35.25
0:30	11.06	35.20	3:50	11.00	35.26
0:40	10.41	35.85	4:00	11.00	35.26
0:50	10.20	36.06	4:10	10.99	35.27
1:00	10.03	36.23	4:20	10.99	35.27
1:10	10.76	35.50	4:30	10.99	35.27
1:20	10.93	35.33	4:40	10.98	35.28
1:30	10.99	35.27	4:50	10.98	35.28
1:40	11.06	35.20	5:00	10.97	35.29
1:50	11.07	35.19	5:10	10.97	35.29
2:00	11.07	35.19	5:20	10.96	35.30
2:10	11.06	35.20	5:30	10.96	35.30
2:20	11.06	35.20	6:00	10.96	35.30
2:30	11.05	35.21	6:30	10.95	35.31
2:40	11.04	35.22	7:00	10.95	35.31
2:50	11.04	35.22	7:30	10.94	35.32
3:00	11.03	35.23	8:00	10.94	35.32
3:10	11.02	35.24	8:30	10.94	35.32

Hvorslev Formula for Conductivity (ft/s):

Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

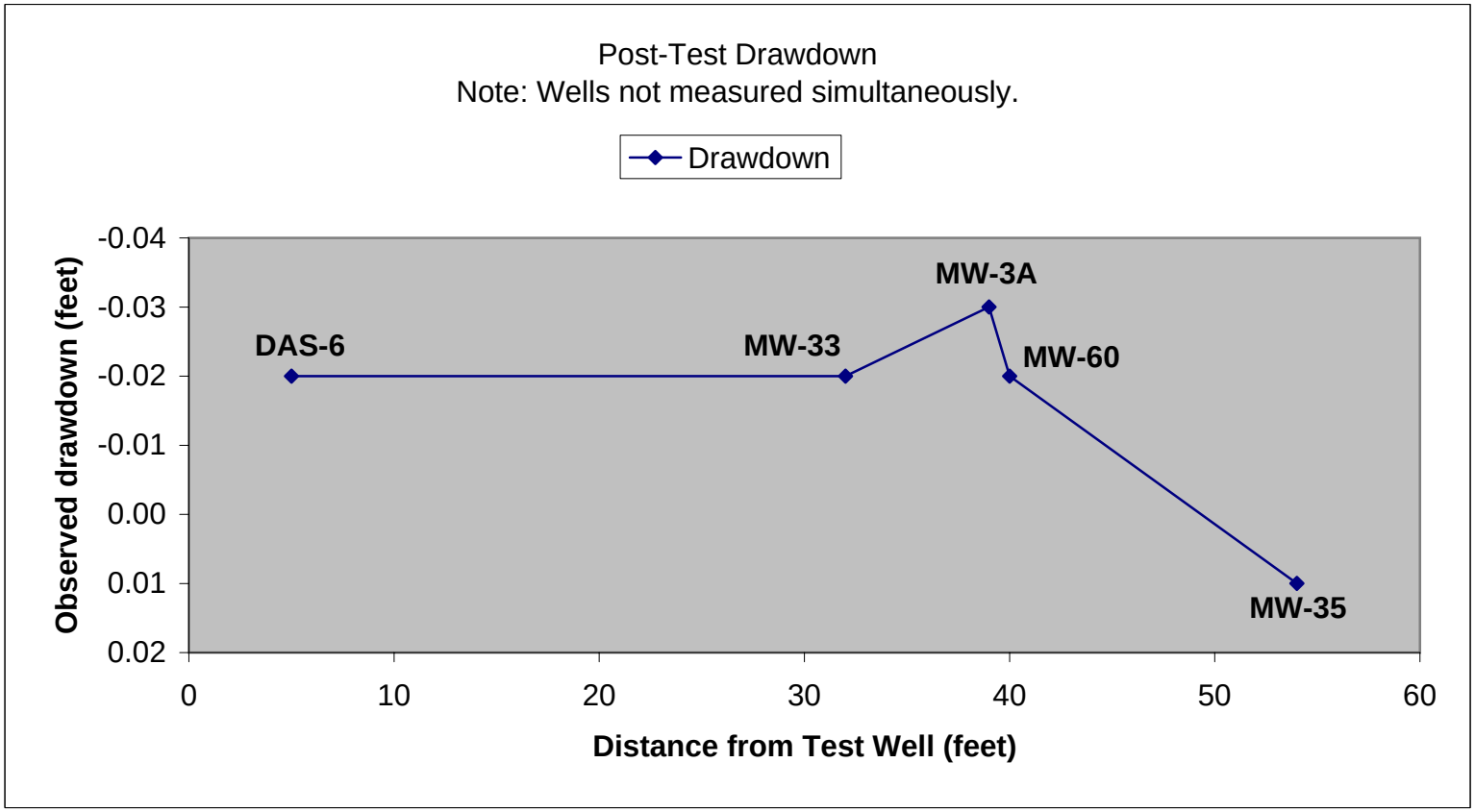
r = radius of well (ft):	0.08541667	
L = length of well screen (ft):	5.00	
R = radius of well screen (ft):	0.08541667	
V = drawdown/recovery volume (ft^3):	0.04304644	cross-sectional area X initial recovery
q_0 = Initial flow rate (cfs):	0.01352344	(recovered 3.27 feet of water in first 10 seconds)

K = 0.00093281 ft/s = 0.000285 m/s

Calculated conductivity indicates CLEAN SAND, which concurs with field observations during drilling of DW-1.

DW-1 Pump Test - Observation Well Gauging Data
February 16, 2006

Well ID	approx. distance from test well	Pre-Test DTW	Post Test DTW	post-test drawdown
DAS-6	5	10.90	10.88	-0.02
MW-33	32	11.27	11.25	-0.02
MW-3A	39	10.15	10.12	-0.03
MW-60	40	11.37	11.35	-0.02
MW-35	54	9.96	9.97	0.01



Step-Drawdown Pump Test Data Analysis - MW-50
March 2, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Well Depth (ft): 17.70
Initial DTW (ft): 10.59
Water Column: 7.11
Desired 2/3 Drawdown = 2/3 * (water column): 4.74
Desired DTW for 2/3 drawdown: 15.33

Flowrate (gpm)	Time (hr:min:sec)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
0.0	0:00:00	10.59	0.00	7.11	Start pump speed at 100 Hz, flowmeter <1 gpm, estimating 0.5 gpm
0.5	0:00:10	10.68	0.09	7.02	
0.5	0:00:20	10.68	0.09	7.02	
0.5	0:00:35	10.64	0.05	7.06	
0.5	0:00:50	10.62	0.03	7.08	
0.5	0:01:00	10.61	0.02	7.09	
0.5	0:01:10	10.61	0.02	7.09	
0.8	0:02:25	10.94	0.35	6.76	Increased pump speed to 125 Hz, flowmeter <1 gpm, estimating 0.8 gpm
0.8	0:02:30	11.02	0.43	6.68	
0.8	0:02:50	10.91	0.32	6.79	
1.6	0:04:00	11.51	0.92	6.19	Increased pump speed to 150 Hz, flowmeter fluctuates 1.5 to 1.7 gpm, measured flow at totalizer 1.6 gpm
1.6	0:05:00	11.63	1.04	6.07	
1.6	0:05:50	11.75	1.16	5.95	
1.6	0:06:20	11.82	1.23	5.88	
1.6	0:06:40	11.85	1.26	5.85	
1.6	0:07:00	11.86	1.27	5.84	
1.6	0:07:30	11.91	1.32	5.79	
1.6	0:08:00	11.96	1.37	5.74	
1.6	0:08:30	11.95	1.36	5.75	
1.6	0:09:00	11.98	1.39	5.72	
1.6	0:09:30	12.02	1.43	5.68	
1.6	0:10:00	12.06	1.47	5.64	
1.6	0:10:20	12.10	1.51	5.60	
1.6	0:10:50	12.10	1.51	5.60	
1.6	0:11:15	12.13	1.54	5.57	
1.6	0:11:35	12.15	1.56	5.55	
1.6	0:12:00	12.16	1.57	5.54	
1.7	0:12:30	12.18	1.59	5.52	
1.6	0:13:00	12.18	1.59	5.52	
1.6	0:13:30	12.15	1.56	5.55	

Step-Drawdown Pump Test Data Analysis - MW-50
March 2, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Flowrate (gpm)	Time (hr:min:sec)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
1.6	0:14:00	12.18	1.59	5.52	
1.6	0:14:30	12.15	1.56	5.55	
1.6	0:15:00	12.13	1.54	5.57	
1.6	0:15:30	12.14	1.55	5.56	
1.6	0:16:00	12.14	1.55	5.56	
2.1	0:17:50	12.23	1.64	5.47	Increased pump speed to 175 Hz, flowmeter ~2gpm, totalizer flow @ 2.1 gpm
2.1	0:17:55	12.31	1.72	5.39	
2.1	0:18:00	12.38	1.79	5.32	
2.1	0:18:20	12.44	1.85	5.26	
2.1	0:18:30	12.43	1.84	5.27	
2.1	0:18:50	12.45	1.86	5.25	
2.1	0:19:20	12.53	1.94	5.17	
2.1	0:19:45	12.59	2.00	5.11	
2.1	0:20:25	12.63	2.04	5.07	
2.1	0:21:00	12.64	2.05	5.06	
2.1	0:21:30	12.65	2.06	5.05	
2.1	0:22:20	12.68	2.09	5.02	
2.1	0:22:50	12.70	2.11	5.00	
2.1	0:23:10	12.78	2.19	4.92	
2.1	0:23:30	12.80	2.21	4.90	
2.1	0:24:00	12.82	2.23	4.88	Flow checked at totalizer 2.1 gpm
2.1	0:24:50	12.78	2.19	4.92	
2.1	0:25:50	12.82	2.23	4.88	
2.1	0:26:55	12.88	2.29	4.82	
2.1	0:27:30	12.89	2.30	4.81	
2.1	0:28:45	12.90	2.31	4.80	
2.1	0:29:15	12.90	2.31	4.80	
2.1	0:28:45	12.91	2.32	4.79	
2.1	0:30:30	12.93	2.34	4.77	
2.1	0:31:00	12.92	2.33	4.78	
2.6	0:32:25	13.04	2.45	4.66	Increased pump speed to 200 Hz, flow meter ~2.5 gpm, totalizer flow @ 2.6 gpm
2.6	0:32:50	13.13	2.54	4.57	
2.6	0:33:15	13.22	2.63	4.48	
2.6	0:33:25	13.25	2.66	4.45	
2.6	0:33:50	13.32	2.73	4.38	
2.6	0:34:20	13.31	2.72	4.39	

Step-Drawdown Pump Test Data Analysis - MW-50
March 2, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Flowrate (gpm)	Time (hr:min:sec)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
2.6	0:34:40	13.36	2.77	4.34	
2.6	0:34:55	13.40	2.81	4.30	
2.6	0:35:35	13.48	2.89	4.22	
2.6	0:35:50	13.46	2.87	4.24	
2.6	0:36:30	13.55	2.96	4.15	Flow checked at totalizer 2.6 gpm
2.6	0:36:45	13.54	2.95	4.16	
2.6	0:37:20	13.63	3.04	4.07	
2.6	0:37:40	13.61	3.02	4.09	
2.6	0:38:40	13.63	3.04	4.07	
2.6	0:39:20	13.63	3.04	4.07	
2.6	0:39:50	13.63	3.04	4.07	
2.6	0:40:20	13.64	3.05	4.06	
2.6	0:41:20	13.64	3.05	4.06	
3.1	0:42:20	13.62	3.03	4.08	Increased pump speed to 225 Hz, flow meter ~3 gpm, totalizer flow @ 3.1 gpm
3.1	0:43:05	13.52	2.93	4.18	
3.1	0:43:50	13.51	2.92	4.19	
3.1	0:44:45	13.58	2.99	4.12	
3.1	0:45:00	13.59	3.00	4.11	
3.1	0:45:35	13.72	3.13	3.98	Flow checked at totalizer 3.1 gpm
3.1	0:46:45	13.76	3.17	3.94	
3.1	0:47:20	14.26	3.67	3.44	
3.1	0:47:50	14.48	3.89	3.22	
3.1	00:48.3	14.56	3.97	3.14	
3.1	0:48:55	14.57	3.98	3.13	
3.1	0:49:20	14.59	4.00	3.11	
3.1	0:49:55	14.59	4.00	3.11	
3.1	0:50:15	14.61	4.02	3.09	
3.1	0:50:35	14.63	4.04	3.07	
3.1	0:51:10	14.65	4.06	3.05	
3.1	0:51:45	14.65	4.06	3.05	
3.1	0:52:00	14.66	4.07	3.04	
3.1	0:52:45	14.67	4.08	3.03	
3.1	0:53:15	14.73	4.14	2.97	
3.1	0:53:30	14.70	4.11	3.00	
3.1	0:53:45	14.70	4.11	3.00	
3.1	0:54:05	14.73	4.14	2.97	

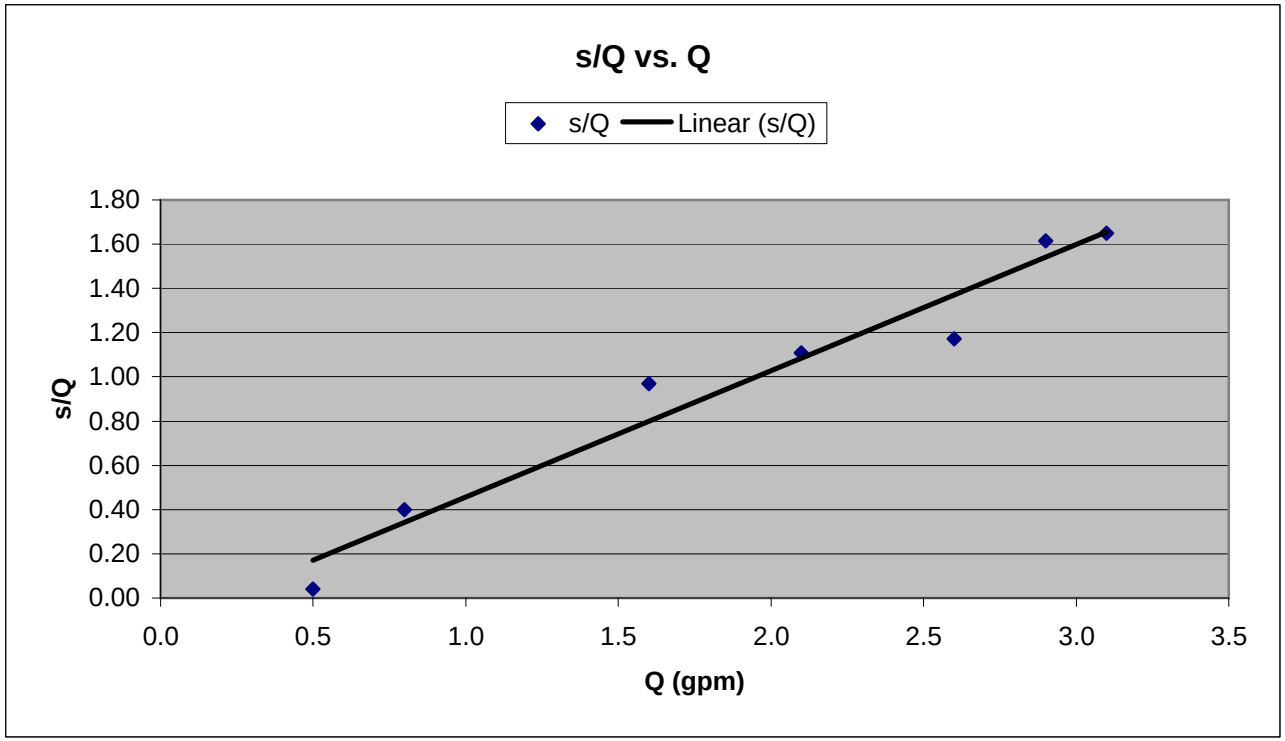
Step-Drawdown Pump Test Data Analysis - MW-50
March 2, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Flowrate (gpm)	Time (hr:min:sec)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
3.1	0:54:30	14.74	4.15	2.96	
3.1	0:55:00	14.76	4.17	2.94	
3.1	0:55:30	14.75	4.16	2.95	
3.1	0:56:00	14.76	4.17	2.94	
3.1	0:56:30	14.78	4.19	2.92	
3.1	0:57:00	14.80	4.21	2.90	
3.1	0:57:30	14.81	4.22	2.89	
3.1	0:58:00	14.83	4.24	2.87	
3.1	0:58:45	14.86	4.27	2.84	
3.1	0:59:20	14.87	4.28	2.83	
3.1	0:59:50	14.90	4.31	2.80	
3.1	1:00:20	14.90	4.31	2.80	
3.1	1:01:00	14.90	4.31	2.80	
3.1	1:01:30	14.92	4.33	2.78	
3.1	1:02:20	14.93	4.34	2.77	
3.1	1:03:00	14.96	4.37	2.74	
3.1	1:03:50	14.99	4.40	2.71	
3.1	1:04:20	15.00	4.41	2.70	
3.1	1:05:00	15.02	4.43	2.68	
3.1	1:06:00	15.00	4.41	2.70	Flow checked at totalizer 3.1 gpm
3.1	1:06:45	15.04	4.45	2.66	
3.1	1:07:40	15.05	4.46	2.65	
3.1	1:08:00	15.08	4.49	2.62	
3.1	1:08:50	15.11	4.52	2.59	
3.1	1:09:55	15.12	4.53	2.58	
3.1	1:10:30	15.13	4.54	2.57	
3.1	1:11:50	15.11	4.52	2.59	
3.1	1:13:00	15.13	4.54	2.57	
3.1	1:13:30	15.15	4.56	2.55	
3.1	1:14:10	15.15	4.56	2.55	
3.1	1:15:50	15.16	4.57	2.54	
3.1	1:17:15	15.14	4.55	2.56	
3.1	1:18:15	15.14	4.55	2.56	
3.1	1:19:25	15.16	4.57	2.54	
3.1	1:35:00	15.70	5.11	2.00	Water level gauged after gauging observation wells; WL lowered below desired level

Step-Drawdown Pump Test Data Analysis - MW-50
March 2, 2006
ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Flowrate (gpm)	Time (hr:min:sec)	DTW (feet)	Drawdown (feet)	Water Column (feet)	Notes
2.9	1:38:00	15.26	4.67	2.44	Decreased pump speed to 215 Hz, flowmeter ~2.8gpm, totalizer flow @ 2.9 gpm
2.9	1:38:30	15.25	4.66	2.45	
2.9	1:39:30	15.20	4.61	2.50	
2.9	1:41:00	15.16	4.57	2.54	
2.9	1:42:45	15.16	4.57	2.54	
2.9	1:44:30	15.32	4.73	2.38	
2.9	1:45:40	15.15	4.56	2.55	
2.9	1:47:50	15.24	4.65	2.46	
2.9	1:48:30	15.24	4.65	2.46	
2.9	1:49:50	15.26	4.67	2.44	
2.9	1:51:30	15.27	4.68	2.43	
2.9	1:52:45	15.27	4.68	2.43	Stopped test; too late in day to continue; recorded recovery data and gauged observation wells

Yield 'Q' (gpm)	Drawdown 's' (feet)	s/Q
0.5	0.02	0.04
0.8	0.32	0.40
1.6	1.55	0.97
2.1	2.33	1.11
2.6	3.05	1.17
2.9	4.68	1.61
3.1	5.11	1.65



MW-50 Recovery Data

ConocoPhillips Site No. 255353
600 Westlake Avenue N., Seattle, WA

Test Date:	March 2, 2006
Test Well:	MW-50
Well Depth:	17.70
Screen Interval:	5' to 17.7'
Pre-Recovery DTW:	15.27

recorded test time	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)	recorded test time	Elapsed Time (min:sec)	DTW (ft)	Water Column (ft)
1:53:00	0:00:00	15.27	2.43	1:59:15	0:06:15	11.14	6.56
1:53:20	0:00:20	12.00	5.70	1:59:30	0:06:30	11.13	6.57
1:53:45	0:00:45	11.50	6.20	2:00:00	0:07:00	11.13	6.57
1:53:55	0:00:55	11.29	6.41	2:00:25	0:07:25	11.10	6.60
1:54:05	0:01:05	11.19	6.51	2:00:50	0:07:50	11.08	6.62
1:54:15	0:01:15	11.09	6.61	2:01:20	0:08:20	11.07	6.63
1:54:20	0:01:20	11.05	6.65	2:01:45	0:08:45	11.06	6.64
1:54:25	0:01:25	11.01	6.69	2:02:00	0:09:00	11.05	6.65
1:54:30	0:01:30	10.98	6.72	2:03:00	0:10:00	11.02	6.68
1:54:40	0:01:40	10.95	6.75	2:04:00	0:11:00	10.98	6.72
1:54:50	0:01:50	11.20	6.50	2:05:00	0:12:00	10.95	6.75
1:55:25	0:02:25	11.21	6.49	2:06:00	0:13:00	10.92	6.78
1:56:05	0:03:05	11.21	6.49	2:07:00	0:14:00	10.90	6.80
1:56:15	0:03:15	11.20	6.50	2:08:00	0:15:00	10.87	6.83
1:56:30	0:03:30	11.19	6.51	2:09:30	0:16:30	10.84	6.86
1:56:50	0:03:50	11.18	6.52	2:11:00	0:18:00	10.82	6.88
1:57:15	0:04:15	11.18	6.52	2:13:00	0:20:00	10.78	6.92
1:57:35	0:04:35	11.17	6.53	2:15:00	0:22:00	10.77	6.93
1:58:00	0:05:00	11.17	6.53	2:17:00	0:24:00	10.75	6.95
1:58:15	0:05:15	11.16	6.54	2:18:00	0:25:00	10.74	6.96
1:58:25	0:05:25	11.15	6.55	2:20:00	0:27:00	10.73	6.97
1:58:45	0:05:45	11.14	6.56	2:23:00	0:30:00	10.72	6.98

Hvorslev Formula for Conductivity (ft/s):

Conductivity (K) = $[r^2 * \ln(L/R)] / [2 * L * (V/q_0)]$, where:

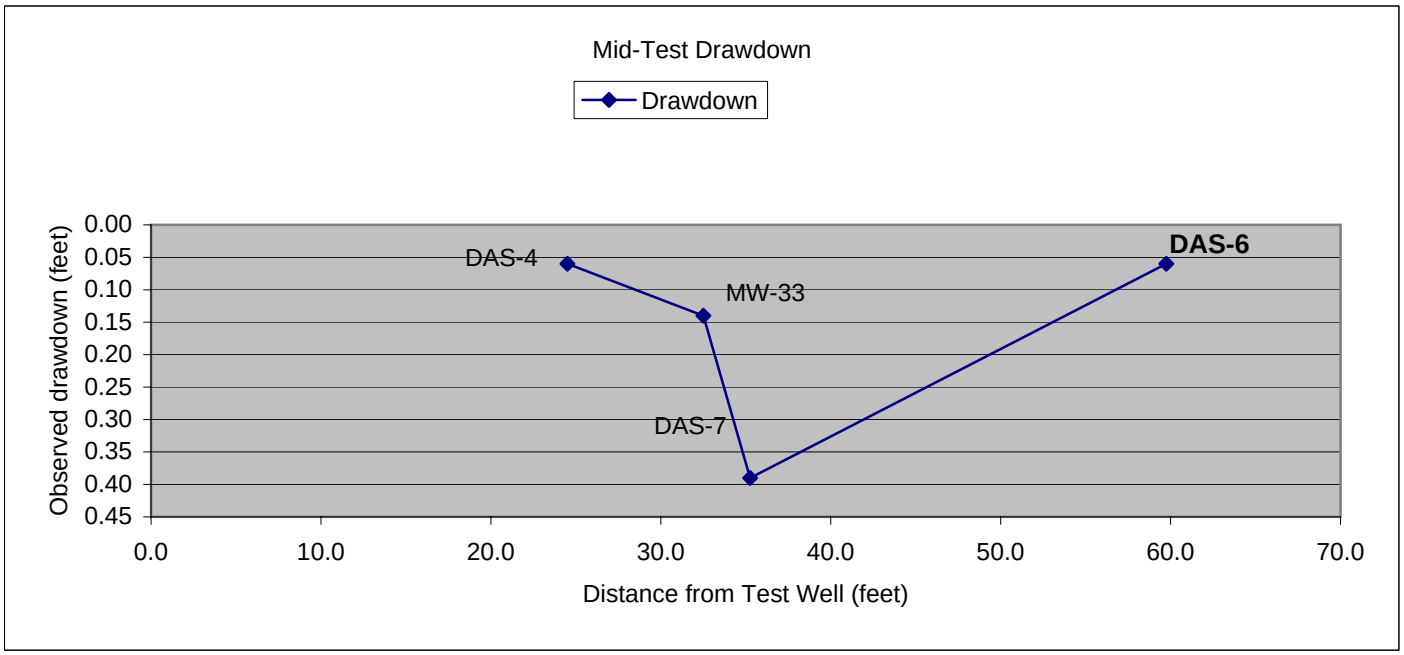
r = radius of well (ft):	0.08541667	
L = length of well screen (ft):	6.54	average screened interval in water (=average water column)
R = radius of well screen (ft):	0.08541667	
V = drawdown/recovery volume (ft^3):	0.10727066	cross-sectional area X initial recovery
q_0 = Initial flow rate (cfs):	0.0037476	(recovered 3.27 feet of water in first 20 seconds)

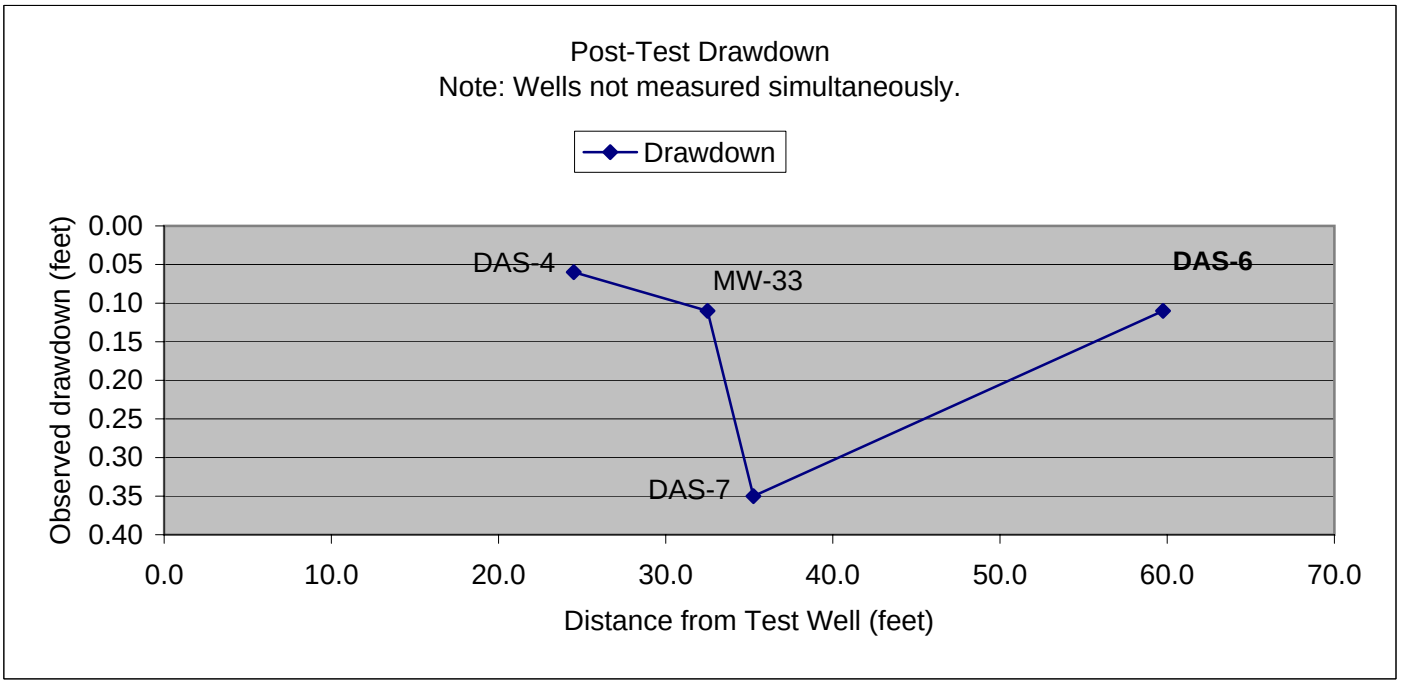
K = 8.4538E-05 ft/s = 2.58E-05 m/s

Calculated conductivity indicates SILTY SAND. Boring log for MW-50 indicates SILT and wood fragments.

MW-50 Pump Test - Observation Well Gauging Data
March 2, 2006

Well ID	distance from test well	Pre-Test DTW	Mid-Test DTW	mid-test drawdown	Post Test DTW	post-test drawdown
DAS-4	24.5	11.14	11.20	0.06	11.20	0.06
MW-33	32.5	11.41	11.55	0.14	11.52	0.11
DAS-7	35.3	10.71	11.10	0.39	11.06	0.35
DW-1	56.4	10.76	10.73	-0.03	10.73	-0.03
DAS-6	59.8	11.03	11.09	0.06	11.14	0.11
MW-60	84.5	11.51	NM	--	NM	--





APPENDIX E

KING COUNTY TEMPORARY DISCHARGE AUTHORIZATION NO. 10692-01

King County
Wastewater Treatment Division
Industrial Waste Program
Department of Natural Resources and Parks
130 Nickerson Street, Suite 200
Seattle, WA 98109-1658
206-263-3000
206-263-3001 Fax

February 22, 2006

Tena Seeds
Delta Environmental
4006 148th Avenue NE
Redmond, WA 98052

Authorization 10692-01 to Discharge to the Sanitary Sewer

Dear Ms. Seeds:

The King County Industrial Waste Program has reviewed your request to discharge construction dewatering to the sanitary sewer from the Westlake 76-Delta Environmental construction project located at 600 Westlake Avenue North, Seattle, Washington. In accordance with King County Code 28.84.060 (enclosed), King County grants approval for a one-time discharge up to 1,000 gallons between February 24, 2006 through March 6, 2006, provided that:

- King County is notified when the discharge begins;
- Approval from the City of Seattle is received before discharge to allow for permitting of a connection to the sanitary sewer and assessment of sewer charges. Please call David Cordaro, 206-684-7933, to obtain required approval; and
- The discharge limitations and special conditions listed below are met.

Discharge Limitations

Maximum Discharge Volume	1,000 gallons
Settleable Solids (by Imhoff Cone)	7 mL/L
Benzene	0.13 mg/L
Toluene	1.5 mg/L
Ethylbenzene	1.4 mg/L
pH Minimum	5.5 s.u.
pH Maximum	12.0 s.u.

There shall be no odor of solvent, gasoline, or hydrogen sulfide (rotten egg odor), oil sheen, unusual color, or visible turbidity. The discharge must remain translucent. If any of the discharge limits are exceeded, you must stop discharging and notify the King County Industrial Waste Program at 206-263-3000.

Special Conditions

1. This document permits the discharge of a limited amount of construction dewatering from the construction site into the sanitary sewer. Wastes or contaminants from sources other than permitted herein shall not be discharged to the sanitary sewer without prior approval from King County's Industrial Waste Program.

2. The contractor shall implement erosion control best management practices (BMPs) to minimize the amount of solids discharged to the sanitary sewer system. As a minimum precaution, the wastewater must be pumped to an appropriately sized settling tank prior to entering the sewer system.

3. Discharge point as designated by City of Seattle representatives.

If you propose to substantially increase the volume of your discharge or change the type and quantities of substances discharged, you must submit a new waste discharge permit application to King County.

Chapter 28.84 of the King County Code – Water Pollution Abatement sanctions a fee for each letter of discharge authorization (LDA) issued by the Department of Natural Resources and Parks. The fee for issuance of an LDA in 2006 is $140. You will be sent an invoice for this amount.

If you have any questions about this authorization, or other questions about your discharge, please call me at 206-263-3024.

Sincerely,

Barbara Badger
Investigator
Industrial Waste Program

Enclosures

cc: David Cordaro, City of Seattle
Doug Hilderbrand, King County

King County

Industrial Waste Program
Construction Dewatering Discharge Monitoring Sheet

Project Name: Westlake 76-Delta Environmental
Project Location: 600 Westlake Avenue N., Seattle
Authorization No.: 10692-01

Your King County Industrial Waste Contact: Barbara Badger, 206-263-3024

Date	Discharge Volume (gallons)	pH (s.u.)	Settleable Solids (mL/L)
3-23-06	1390	7.07	<0.20
Total Discharge Volume	1390		

Mail or FAX to: King County Industrial Waste
130 Nickerson Street, Suite 200
Seattle, WA 98109-1658
206-263-3001 FAX

Tena Seeds

From: Badger, Barbara [Barbara.Badger@METROKC.GOV]
Sent: Tuesday, March 21, 2006 5:41 AM
To: Tena Seeds
Subject: RE: sewer discharge authorization 10692-01

Good Morning Tena,

I'm giving you a verbal approval to discharge the 1500 gallons of construction dewater via a baker tank that has been sampled and analyzed. The test results are within the King County permitted limits.

If you need further assistance and/or have any questions, please let me know.

Barbara Badger, IW Compliance Investigator II
King County Industrial Waste
(206) 263-3024/Fax (206) 263-3001

-----Original Message-----
From: Tena Seeds [mailto:tseeds@deltaenv.com]
Sent: Monday, March 20, 2006 2:46 PM
To: Badger, Barbara
Subject: FW: sewer discharge authorization 10692-01

Barbara -
I finally received the new analytical data for the water in our Baker tank at the 600 Westlake Avenue site in Seattle, following the last pump test we performed. Attached are the lab reports showing results for the parameters specified in the discharge authorization letter we received previously (No. 10692-01):

Settleable Solids (<0.20 mL/L)
Benzene (0.0487 mg/L)
Toluene (0.00734 mg/L)
Ethylbenzene (<0.0005 mg/L)
pH (7.07).

All appear to be within the authorized limits. Discharge volume will now be no more than **1500** gallons (estimated quantity in tank is ~1400, but actual may be a little more than that; we will also need to rinse the tank with additional clean water, which will be discharged to the sewer).

I would like to discharge the water as soon as possible, so if we could receive your revised authorization letter this week, we will perform disharge by end of this week or early next week. I look forward to hearing from you. Thanks!

--Tena Seeds

-----Original Message-----
From: Tena Seeds
Sent: Wednesday, March 08, 2006 5:50 PM
To: 'barbara.badger@metrokc.gov'
Cc: Aric Frohman
Subject: sewer discharge authorization 10692-01

Barbara -
We received your discharge authorization letter (No. 10692-01) last week for a temporary discharge of

1,000 gallons of water from our ConocoPhillips site located at 600 Westlake Avenue N. in Seattle. We had a change in plans at the last minute, so we did not discharge the water as planned last week. We were directed to perform additional pump testing at the site which increased the volume to a total of 1,400 gallons of water. However, the authorization was limited to 1,000 gallons and specified that discharge occur between February 24, 2006 and March 6, 2006.

Please let me know what we need to do to obtain authorization to discharge the increased amount. We are also re-testing the water from the Baker tank since we added water from a different well. Per your authorization letter, we do not need to analyze for metals or total petroleum hydrocarbons. Is that correct? Please confirm. You can try to reach me tomorrow (Thursday) on my cell phone at 425-785-5595. However, I will be in health & safety training all day, so if I don't answer, you can try contacting Aric Frohman at 425-241-2534 and let him know what we will need to do.

Thanks!
-Tena
~~~~~~~~~~~~~~

Tena Seeds
Delta Environmental Consultants, Inc.
E-mail address: tseeds@deltaenv.com
Address: 4006 148th Avenue NE, Redmond, WA 98052
Direct Phone No.: 425-498-7725
Main No. 425-882-3528
Fax No.: 425-869-1892
Toll Free No.: 800-477-7411
Cell No.: 425-785-6539
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Delta Environmental Consultants, Inc.

PHONE CONVERSATION RECORD

Date 3-21-06 Time 2:14 PM

Person Contacted David Cordaro, SPU

Phone 206-684-7933 Project No. WA2553521

Project Name/Location COP Westlake - water discharge

Contacted by T. Seeds

Notes:

Left msg asking if we can discharge to sewer in Terry at CB on site.

~1500 gallons water, meets King Co's discharge limits, referred to David by Barbara Badger of King Co.

- We can fax the sewer card showing proposed CB for discharge location.
- Awaiting call back first.

3/22/06 Dave left me a voice mail
→ Call Jeff Smith for SPU approval

3/22/06 11:30 AM Contacted Jeff Smith, SPU 206-684-4615

- Discussed discharge point at CB located in NE portion of property that drains to Terry.
- Received verbal approval from Jeff Smith to discharge to said CB, w/ maximum flowrate of 50 gpm
- Also asked if we could discharge when it is not raining (if at all possible)

* - Requested that we call him after discharge to let him know

VALLEY ST
Valley St.
LAKE UNION SHORE LANDS
D.T. DENNY'S 6TH ADD
D.T. DENNY'S 1ST ADD
TERRY AVE N
WESTLAKE AVE N
MERCER ST
Mercer St
Terry Ave N
Proposed discharge Location
965
1000

APPENDIX F

ANALYTICAL LABORATORY REPORTS AND CHAIN-OF-CUSTODY DOCUMENTATION FOR WATER DISCHARGE SAMPLES

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907.563.9200 fax 907.563.9210

24 February 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: COP 25535221 Seattle

Enclosed are the results of analyses for samples received by the laboratory on 02/17/06 08:40. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Pump test Effl	B6B0406-01	Water	02/16/06 16:30	02/17/06 08:40

North Creek Analytical - Bothell

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

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pump test Effl (B6B0406-01) Water	**Sampled: 02/16/06 16:30**		**Received: 02/17/06 08:40**						
Gasoline Range Hydrocarbons	ND	50.0	ug/l	1	6B20034	02/20/06	02/21/06	NWTPH-Gx/8021B	
Benzene	ND	0.500	"	"	"	"	"	"	
Toluene	ND	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	ND	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (FID)	*85.5 %*	*58-144*			"	"	"	"	
Surrogate: 4-BFB (PID)	*102 %*	*68-140*			"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pump test Effl (B6B0406-01) Water	**Sampled: 02/16/06 16:30**		**Received: 02/17/06 08:40**						
Diesel Range Hydrocarbons	ND	0.243	mg/l	1	6B20029	02/20/06	02/22/06	NWTPH-Dx	
Lube Oil Range Hydrocarbons	ND	0.485	"	"	"	"	"	"	
Surrogate: 2-FBP	*80.2 %*	*50-150*			"	"	"	"	
Surrogate: Octacosane	*97.9 %*	*50-150*			"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Total Metals by EPA 6000/7000 Series Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pump test Effl (B6B0406-01) Water	**Sampled: 02/16/06 16:30**		**Received: 02/17/06 08:40**						
Silver	ND	0.00100	mg/l	1	6B21030	02/21/06	02/22/06	EPA 6020	
Arsenic	**0.00444**	0.00100	"	"	"	"	"	"	
Cadmium	ND	0.00100	"	"	"	"	"	"	
Chromium	**0.00179**	0.00100	"	"	"	"	"	"	
Copper	**0.00638**	0.00100	"	"	"	"	"	"	
Mercury	ND	0.000200	"	"	6B22060	02/22/06	02/23/06	EPA 7470A	
Nickel	**0.0243**	0.00100	"	"	6B21030	02/21/06	02/22/06	EPA 6020	
Lead	ND	0.00100	"	"	"	"	"	"	
Zinc	**0.0465**	0.0100	"	"	"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B20034: Prepared 02/20/06 Using EPA 5030B (P/T)										
Blank (6B20034-BLK1)										
Gasoline Range Hydrocarbons	ND	50.0	ug/l							
Benzene	ND	0.500	"							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (FID)	*51.0*		*"*	*60.0*		*85.0*	*58-144*			
Surrogate: 4-BFB (PID)	*60.4*		*"*	*60.0*		*101*	*68-140*			
LCS (6B20034-BS1)										
Gasoline Range Hydrocarbons	1130	50.0	ug/l	1000		113	80-120			
Surrogate: 4-BFB (FID)	*64.8*		*"*	*60.0*		*108*	*58-144*			
LCS (6B20034-BS2)										
Benzene	32.6	0.500	ug/l	30.0		109	80-120			
Toluene	32.3	0.500	"	30.0		108	80-120			
Ethylbenzene	32.4	0.500	"	30.0		108	80-120			
Xylenes (total)	97.0	1.00	"	90.0		108	80-120			
Surrogate: 4-BFB (PID)	*60.4*		*"*	*60.0*		*101*	*68-140*			
Duplicate (6B20034-DUP1)					**Source: B6B0361-01**					
Gasoline Range Hydrocarbons	825	50.0	ug/l		954			14.5	25	
Benzene	1.54	0.500	"		1.67			8.10	25	
Toluene	ND	0.500	"		ND			78.3	25	RP-4
Ethylbenzene	ND	0.500	"		ND			22.6	25	
Xylenes (total)	6.17	1.00	"		6.43			4.13	25	I-06
Surrogate: 4-BFB (FID)	*79.0*		*"*	*60.0*		*132*	*58-144*			
Surrogate: 4-BFB (PID)	*71.7*		*"*	*60.0*		*120*	*68-140*			

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Gasoline Hydrocarbons (Benzene to Naphthalene) and BTEX by NWTPH-G and EPA 8021B - Quality Control

North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B20034: Prepared 02/20/06 Using EPA 5030B (P/T)										
Duplicate (6B20034-DUP2)					**Source: B6B0361-02**					
Gasoline Range Hydrocarbons	719	50.0	ug/l		820			13.1	25	
Benzene	ND	0.500	"		ND			2.41	25	
Toluene	1.23	0.500	"		1.26			2.41	25	
Ethylbenzene	1.02	0.500	"		1.07			4.78	25	
Xylenes (total)	ND	1.00	"		ND			NR	25	
Surrogate: 4-BFB (FID)	*91.6*		*"*	*60.0*		*153*	*58-144*			*SR-4*
Surrogate: 4-BFB (PID)	*72.6*		*"*	*60.0*		*121*	*68-140*			
Matrix Spike (6B20034-MS1)					**Source: B6B0361-03**					
Gasoline Range Hydrocarbons	1050	50.0	ug/l	1000	36.3	101	58-129			
Surrogate: 4-BFB (FID)	*59.7*		*"*	*60.0*		*99.5*	*58-144*			
Matrix Spike (6B20034-MS2)					**Source: B6B0361-04**					
Benzene	35.0	0.500	ug/l	30.0	5.62	97.9	46-130			
Toluene	30.1	0.500	"	30.0	1.30	96.0	60-124			
Ethylbenzene	29.4	0.500	"	30.0	0.714	95.6	56-141			
Xylenes (total)	88.1	1.00	"	90.0	3.28	94.2	66-132			
Surrogate: 4-BFB (PID)	*95.8*		*"*	*60.0*		*160*	*68-140*			*SR-4*
Matrix Spike Dup (6B20034-MSD1)					**Source: B6B0361-03**					
Gasoline Range Hydrocarbons	1120	50.0	ug/l	1000	36.3	108	58-129	6.45	25	
Surrogate: 4-BFB (FID)	*66.2*		*"*	*60.0*		*110*	*58-144*			
Matrix Spike Dup (6B20034-MSD2)					**Source: B6B0361-04**					
Benzene	34.7	0.500	ug/l	30.0	5.62	96.9	46-130	0.861	40	
Toluene	29.8	0.500	"	30.0	1.30	95.0	60-124	1.00	40	
Ethylbenzene	29.0	0.500	"	30.0	0.714	94.3	56-141	1.37	40	
Xylenes (total)	87.2	1.00	"	90.0	3.28	93.2	66-132	1.03	40	
Surrogate: 4-BFB (PID)	*96.0*		*"*	*60.0*		*160*	*68-140*			*SR-4*

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Semivolatile Petroleum Products by NWTPH-Dx with Acid/Silica Gel Clean-up - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B20029: Prepared 02/20/06 Using EPA 3520C										
Blank (6B20029-BLK1)										
Diesel Range Hydrocarbons	ND	0.250	mg/l							
Lube Oil Range Hydrocarbons	ND	0.500	"							
Surrogate: 2-FBP	*0.196*		*"*	*0.250*		*78.4*	*50-150*			
Surrogate: Octacosane	*0.235*		*"*	*0.250*		*94.0*	*50-150*			
LCS (6B20029-BS1)										
Diesel Range Hydrocarbons	2.02	0.250	mg/l	2.00		101	45-119			
Lube Oil Range Hydrocarbons	1.99	0.500	"	2.00		99.5	50-150			
Surrogate: 2-FBP	*0.236*		*"*	*0.250*		*94.4*	*50-150*			
Surrogate: Octacosane	*0.268*		*"*	*0.250*		*107*	*50-150*			
Duplicate (6B20029-DUP1)					**Source: B6B0318-04**					
Diesel Range Hydrocarbons	3.63	0.236	mg/l		4.24			15.5	50	
Lube Oil Range Hydrocarbons	1.00	0.472	"		1.18			16.5	50	
Surrogate: 2-FBP	*0.223*		*"*	*0.236*		*94.5*	*50-150*			
Surrogate: Octacosane	*0.261*		*"*	*0.236*		*111*	*50-150*			
Matrix Spike (6B20029-MS1)					**Source: B6B0318-04**					
Diesel Range Hydrocarbons	5.20	1.19	mg/l	1.90	4.24	50.5	50-150			
Lube Oil Range Hydrocarbons	2.44	2.38	"	1.90	1.18	66.3	50-150			
Surrogate: 2-FBP	*0.153*		*"*	*0.238*		*64.3*	*50-150*			
Surrogate: Octacosane	*0.238*		*"*	*0.238*		*100*	*50-150*			

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B21030: Prepared 02/21/06 Using EPA 3020A										
Blank (6B21030-BLK1)										
Silver	ND	0.00100	mg/l							
Arsenic	ND	0.00100	"							
Cadmium	ND	0.00100	"							
Chromium	ND	0.00100	"							
Copper	ND	0.00100	"							
Nickel	ND	0.00100	"							
Lead	ND	0.00100	"							
Zinc	ND	0.0100	"							
LCS (6B21030-BS1)										
Silver	0.0771	0.00100	mg/l	0.0800		96.4	80-120			
Arsenic	0.0744	0.00100	"	0.0800		93.0	80-120			
Cadmium	0.0750	0.00100	"	0.0800		93.8	80-120			
Chromium	0.0778	0.00100	"	0.0800		97.2	80-120			
Copper	0.0773	0.00100	"	0.0800		96.6	80-120			
Nickel	0.0795	0.00100	"	0.0800		99.4	80-120			
Lead	0.0780	0.00100	"	0.0800		97.5	80-120			
Zinc	0.0794	0.0100	"	0.0800		99.3	80-120			
Duplicate (6B21030-DUP1)					**Source: B6B0406-01**					
Silver	ND	0.00100	mg/l		ND			NR	50	
Arsenic	0.00451	0.00100	"		0.00444			1.56	20	
Cadmium	ND	0.00100	"		ND			NR	20	
Chromium	0.00190	0.00100	"		0.00179			5.96	20	
Copper	0.00639	0.00100	"		0.00638			0.157	20	
Nickel	0.0242	0.00100	"		0.0243			0.412	20	
Lead	ND	0.00100	"		ND			5.97	20	
Zinc	0.0456	0.0100	"		0.0465			1.95	20	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B21030: Prepared 02/21/06 Using EPA 3020A										
Matrix Spike (6B21030-MS1)					**Source: B6B0406-01**					
Silver	0.0115	0.00100	mg/l	0.0800	ND	14.4	21-142			Q-02
Arsenic	0.0804	0.00100	"	0.0800	0.00444	95.0	75-125			
Cadmium	0.0760	0.00100	"	0.0800	ND	95.0	80-120			
Chromium	0.0784	0.00100	"	0.0800	0.00179	95.8	80-120			
Copper	0.0817	0.00100	"	0.0800	0.00638	94.2	70-125			
Nickel	0.101	0.00100	"	0.0800	0.0243	95.9	77-120			
Lead	0.0791	0.00100	"	0.0800	0.000690	98.0	80-120			
Zinc	0.119	0.0100	"	0.0800	0.0465	90.6	68-128			
Post Spike (6B21030-PS1)					**Source: B6B0406-01**					
Silver	0.0963		ug/ml	0.100	-0.0000800	96.4	75-125			
Arsenic	0.108		"	0.100	0.00444	104	75-125			
Cadmium	0.0983		"	0.100	-0.0000800	98.4	75-125			
Chromium	0.103		"	0.100	0.00179	101	75-125			
Copper	0.105		"	0.101	0.00638	97.6	75-125			
Nickel	0.124		"	0.100	0.0243	99.7	75-125			
Lead	0.103		"	0.100	0.000690	102	75-125			
Zinc	0.143		"	0.100	0.0465	96.5	75-125			
Batch 6B22060: Prepared 02/22/06 Using EPA 7470A										
Blank (6B22060-BLK1)										
Mercury	ND	0.000200	mg/l							
LCS (6B22060-BS1)										
Mercury	0.00486	0.000200	mg/l	0.00500		97.2	80-120			

North Creek Analytical - Bothell

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

Kortland Orr, PM

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	02/24/06 15:25

Total Metals by EPA 6000/7000 Series Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6B22060: Prepared 02/22/06 Using EPA 7470A										
Duplicate (6B22060-DUP1)					**Source: B6B0406-01**					
Mercury	ND	0.000200	mg/l		ND			NR	20	
Matrix Spike (6B22060-MS1)					**Source: B6B0406-01**					
Mercury	0.00507	0.000200	mg/l	0.00500	0.000101	99.4	70-130			
Matrix Spike Dup (6B22060-MSD1)					**Source: B6B0406-01**					
Mercury	0.00529	0.000200	mg/l	0.00500	0.000101	104	70-130	4.25	20	

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Delta Environmental	Project:	COP 25535221 Seattle	
4006 148th Ave NE	Project Number:	WA2553521	**Reported:**
Redmond, WA/USA 98052	Project Manager:	Eric Larsen	02/24/06 15:25

Notes and Definitions

I-06	The analyte concentration may be artificially elevated due to coeluting compounds or components.
Q-02	The spike recovery for this QC sample is outside of NCA established control limits due to sample matrix interference.
RP-4	Due to the low levels of analyte in the sample, the duplicate RPD calculation does not provide useful information.
SR-4	Due to sample matrix effects, the surrogate recovery was outside laboratory control limits.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Kortland Orr, PM

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B6B0406

NCA CLIENT: COP

REPORT TO: Eric Larson c/o elarson@deltaenv.com

ADDRESS: 4006 148th Ave. NE, Redmond, 98052

PHONE: (425) 498-7718 FAX: (425) 869-1892

INVOICE TO: COP

P.O. NUMBER: 1396DEL021

PROJECT NAME: COP Westlake

PROJECT NUMBER: WA 2553521

SAMPLED BY: BH

TURNAROUND REQUEST in Business Days *

Organic & Inorganic Analyses: 10 STD. / 7 / 5 / 4 / 3 / 2 / 1 / <1

Petroleum Hydrocarbon Analyses: [X] STD. / 4 / 3 / 2 / 1 / <1

OTHER Specify:

* Turnaround Requests less than standard may have Rush Charges.

PRESERVATIVE: H | H | H | nitric acid

REQUESTED ANALYSES

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	TPH-Dx	8021	TPHg x BTEX	As	Cd	Cr	Cu	Pb	Hg	Ni	Ag	Zn	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	Pump test Eff	2/16/06, 16:30	*	X											W	6		-01
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

RELEASED BY: [signature] DATE: 2/17/06 RECEIVED BY: Colette Weaver DATE: 02.17.06

PRINT NAME: Aric Frohman FIRM: Delta TIME: 8:40 PRINT NAME: Colette Weaver FIRM: NCA TIME: 0840

RELEASED BY: DATE: RECEIVED BY: DATE:

PRINT NAME: FIRM: TIME: PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS: * TPH-Dx w/ sg cleanup

TEMP: 5.4°C

COC REV 09/04

PAGE OF

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14 March 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: COP 25535221 Seattle

Enclosed are the results of analyses for samples received by the laboratory on 03/09/06 14:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/14/06 16:28

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Pump test Effl.	B6C0228-01	Water	03/08/06 11:00	03/09/06 14:00

North Creek Analytical - Bothell

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Kortland Orr, PM

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/14/06 16:28

BTEX by EPA Method 8021B
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pump test Effl. (B6C0228-01) Water	**Sampled: 03/08/06 11:00**		**Received: 03/09/06 14:00**						
Benzene	**48.7**	0.500	ug/l	1	6C09027	03/09/06	03/09/06	EPA 8021B	
Toluene	**7.34**	0.500	"	"	"	"	"	"	
Ethylbenzene	ND	0.500	"	"	"	"	"	"	
Xylenes (total)	**7.89**	1.00	"	"	"	"	"	"	
Surrogate: 4-BFB (PID)	*99.7 %*	*68-140*			"	"	"	"	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/14/06 16:28

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Pump test Effl. (B6C0228-01) Water	**Sampled: 03/08/06 11:00**		**Received: 03/09/06 14:00**						
pH	**7.07**		pH Units	1	6C09053	03/09/06	03/09/06	EPA 150.1	
Total Suspended Solids	**7.5**	4.0	mg/l	"	6C10041	03/10/06	03/13/06	EPA 160.2	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/14/06 16:28

BTEX by EPA Method 8021B - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09027: Prepared 03/09/06 Using EPA 5030B (P/T)										
Blank (6C09027-BLK1)										
Benzene	ND	0.500	ug/l							
Toluene	ND	0.500	"							
Ethylbenzene	ND	0.500	"							
Xylenes (total)	ND	1.00	"							
Surrogate: 4-BFB (PID)	*60.4*		*"*	*60.0*		*101*	*68-140*			
LCS (6C09027-BS2)										
Benzene	30.0	0.500	ug/l	30.0		100	80-120			
Toluene	31.1	0.500	"	30.0		104	80-120			
Ethylbenzene	31.1	0.500	"	30.0		104	80-120			
Xylenes (total)	93.1	1.00	"	90.0		103	80-120			
Surrogate: 4-BFB (PID)	*59.7*		*"*	*60.0*		*99.5*	*68-140*			
Duplicate (6C09027-DUP1)					**Source: B6C0216-01**					
Benzene	0.596	0.500	ug/l		0.689			14.5	25	
Toluene	1.06	0.500	"		1.20			12.4	25	
Ethylbenzene	0.788	0.500	"		1.02			25.7	25	
Xylenes (total)	2.99	1.00	"		3.43			13.7	25	
Surrogate: 4-BFB (PID)	*60.4*		*"*	*60.0*		*101*	*68-140*			
Duplicate (6C09027-DUP2)					**Source: B6C0225-01**					
Benzene	ND	0.500	ug/l		ND			NR	25	
Toluene	ND	0.500	"		ND			NR	25	
Ethylbenzene	ND	0.500	"		ND			NR	25	
Xylenes (total)	ND	1.00	"		ND			NR	25	
Surrogate: 4-BFB (PID)	*60.0*		*"*	*60.0*		*100*	*68-140*			
Matrix Spike (6C09027-MS2)					**Source: B6C0225-01**					
Benzene	31.2	0.500	ug/l	30.0	ND	104	46-130			
Toluene	32.2	0.500	"	30.0	ND	107	60-124			
Ethylbenzene	32.2	0.500	"	30.0	ND	107	56-141			
Xylenes (total)	96.1	1.00	"	90.0	ND	107	66-132			
Surrogate: 4-BFB (PID)	*59.8*		*"*	*60.0*		*99.7*	*68-140*			

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/14/06 16:28

Conventional Chemistry Parameters by APHA/EPA Methods - Quality Control
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 6C09053: Prepared 03/09/06 Using General Preparation										
Duplicate (6C09053-DUP1)					**Source: B6C0228-01**					
pH	7.05		pH Units		7.07			0.283	10	
Batch 6C10041: Prepared 03/10/06 Using General Preparation										
Blank (6C10041-BLK1)										
Total Suspended Solids	ND	4.0	mg/l							
Duplicate (6C10041-DUP1)					**Source: B6C0118-01**					
Total Suspended Solids	ND	4.0	mg/l		ND				19	

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907.563.9200 fax 907.563.9210

Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/14/06 16:28

Notes and Definitions

Q-06	Analyses are not controlled on RPD values from sample concentrations less than 5 times the reporting limit.
RP-5	Sample RPD exceeded the laboratory control limit.
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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Kortland Orr, PM

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2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B6C0228

NCA CLIENT: COP

REPORT TO: Eric Larson c/o elarson@deltaenv.com

ADDRESS: 4006 148th Ave NE
Redmond, WA 98052

PHONE: (425) 498-7718 FAX: (425) 869-1892

INVOICE TO: COP

P.O. NUMBER: 1396DEL021

PROJECT NAME: COP 255353 Westlake

PROJECT NUMBER: WA2553521

SAMPLED BY: BH/AF

TURNAROUND REQUEST
In Business Days *
Organic & Inorganic Analyses: 10 STD. | 7 | 5 | 4 | X | 2 | 1 | <1
Petroleum Hydrocarbon Analyses: 5 STD. | 4 | X | 2 | 1 | <1
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

PRESERVATIVE: H

REQUESTED ANALYSES: BTEX (8021) | Settleable solids (160.5) | 4h

	CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1	Pump test Effl.	3/8/06, 11:00	W	5	3 voas 1 poly	01
2						
3						
4						
5						
6						
7						
8						
9						
10						

RELEASED BY: [signature] DATE: 3/9/06
PRINT NAME: Aric Fohman FIRM: Delta TIME: 14:00

RECEIVED BY: Colette Weaver DATE: 03-09-06
PRINT NAME: Colette Weaver FIRM: NCA TIME: 1400

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

TEMP: 7.2c

COC REV 09/04

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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

20 March 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: COP 25535221 Seattle

Enclosed are the results of analyses for samples received by the laboratory on 03/15/06 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/20/06 13:49

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
Baker Tank Effl.	B6C0370-01	Water	03/15/06 13:00	03/15/06 17:00

North Creek Analytical - Bothell

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Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/20/06 13:49

Conventional Chemistry Parameters by APHA/EPA Methods
North Creek Analytical - Bothell

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Baker Tank Effl. (B6C0370-01) Water Sampled: 03/15/06 13:00 Received: 03/15/06 17:00									
Settleable Solids	ND	0.20	ml/l	1	6C16037	03/15/06	03/15/06	EPA 160.5	

North Creek Analytical - Bothell

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Delta Environmental	Project: COP 25535221 Seattle	
4006 148th Ave NE	Project Number: WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager: Eric Larsen	03/20/06 13:49

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes

North Creek Analytical - Bothell

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Kortland Orr, PM

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541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

Delta Environmental	Project:	COP 25535221 Seattle	
4006 148th Ave NE	Project Number:	WA255-3522-1	**Reported:**
Redmond, WA/USA 98052	Project Manager:	Eric Larsen	03/20/06 13:49

Notes and Definitions

DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference

North Creek Analytical - Bothell

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

Kortland Orr, PM

11720 North Creek Pkwy N Suite 400, Bothell, WA 98011-8244 425-420-9200 FAX 420-9210
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9405 SW Nimbus Ave, Beaverton, OR 97008-7145 503-906-9200 FAX 906-9210
20332 Empire Ave, Ste F1, Bend, OR 97701-5712 541-383-9310 FAX 382-7588
2000 W International Airport Rd Ste A10, Anchorage, AK 99502-1119 907-563-9200 FAX 563-9210

CHAIN OF CUSTODY REPORT

Work Order #: B606370

NCA CLIENT: COP Delta

REPORT TO: 4006 148th Ave NE
ADDRESS: Redmond, WA 98052
Jena
PHONE: (425) 498-7785 FAX:

INVOICE TO:

P.O. NUMBER: WA255-3521-1

~~PROJECT NAME:~~ COP Westlake

PROJECT NUMBER: WA255-3521-1

SAMPLED BY: AF/BH

TURNAROUND REQUEST
in Business Days *
Organic & Inorganic Analyses
10 7 5 4 3 2 1 <1
STD.
Petroleum Hydrocarbon Analyses
5 4 3 2 1 <1
STD.
OTHER Specify:
* Turnaround Requests less than standard may incur Rush Charges.

CLIENT SAMPLE IDENTIFICATION	SAMPLING DATE/TIME	PRESERVATIVE	REQUESTED ANALYSES: Settleable Solids	REQUESTED ANALYSES: CH4	MATRIX (W, S, O)	# OF CONT.	LOCATION / COMMENTS	NCA WO ID
1 Baker Tank Effl.	3-15-06/13:00		X		W	1		-01
2 MH-5	3-15-06/12:30			X	Air	1		-02
3								
4								
5								
6								
7								
8								
9								
10								

RELEASED BY: [signature] DATE: 3-15-06
PRINT NAME: Brian Hogenson FIRM: Delta TIME: 17:00

RECEIVED BY: [signature] DATE: 3/15/06
PRINT NAME: PRANAV TANEJA FIRM: NCA TIME: 1700

RELEASED BY: DATE:
PRINT NAME: FIRM: TIME:

RECEIVED BY: DATE:
PRINT NAME: FIRM: TIME:

ADDITIONAL REMARKS:

W/O

TEMP: 9.5

COC REV 09/04

PAGE OF

APPENDIX G

ANALYTICAL LABORATORY REPORT AND CHAIN-OF-CUSTODY DOCUMENTATION FOR VAPOR MONITORING AIR SAMPLE

www.ncalabs.com

Seattle 11720 North Creek Pkwy N, Suite 400, Bothell, WA 98011-8244
425.420.9200 fax 425.420.9210
Spokane East 11115 Montgomery, Suite B, Spokane, WA 99206-4776
509.924.9200 fax 509.924.9290
Portland 9405 SW Nimbus Avenue, Beaverton, OR 97008-7132
503.906.9200 fax 503.906.9210
Bend 20332 Empire Avenue, Suite F-1, Bend, OR 97701-5711
541.383.9310 fax 541.382.7588
Anchorage 2000 W International Airport Road, Suite A-10, Anchorage, AK 99502-1119
907.563.9200 fax 907.563.9210

20 March 2006

Eric Larsen
Delta Environmental
4006 148th Ave NE
Redmond, WA/USA 98052

RE: COP 25535221 Seattle

Enclosed are the results of analyses for samples received by the laboratory on 03/15/06 17:00. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Kortland Orr
PM

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Air Toxics Ltd. Introduces the Electronic Report

Thank you for choosing Air Toxics Ltd. To better serve our customers, we are providing your report by e-mail. This document is provided in Portable Document Format which can be viewed with Acrobat Reader by Adobe.

This electronic report includes the following:

- Work order Summary;
- Laboratory Narrative;
- Results; and
- Chain of Custody (copy).

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630

(916) 985-1000 .FAX (916) 985-1020
Hours 8:00 A.M to 6:00 P.M. Pacific

@ AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

WORK ORDER #: 0603360

Work Order Summary

CLIENT:	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011	**BILL TO:**	Mr. Kortland Orr North Creek Analytical 11720 North Creek Parkway N. Suite 400 Bothell, WA 98011
PHONE:	425-420-9200	**P.O. #**	
FAX:	425-420-9210	**PROJECT #**	B6C0370
DATE RECEIVED:	03/17/2006	**CONTACT:**	Nicole Danbacher
DATE COMPLETED:	03/21/2006		

FRACTION #	NAME	TEST	RECEIPT VAC./PRES.
01A	B6C0370-02	Modified ASTM D-1946	Tedlar Bag
02A	Lab Blank	Modified ASTM D-1946	NA
03A	LCS	Modified ASTM D-1946	NA

CERTIFIED BY: Linda D. Fruman DATE: 03/21/06

Laboratory Director

Certfication numbers: CA NELAP - 02110CA, LA NELAP/LELAP- AI 30763, NJ NELAP - CA004
NY NELAP - 11291, UT NELAP - 9166389892
Name of Accrediting Agency: NELAP/Florida Department of Health, Scope of Application: Clean Air Act,
Accreditation number: E87680, Effective date: 07/01/05, Expiration date: 06/30/06
Air Toxics Ltd. certifies that the test results contained in this report meet all requirements of the NELAC standards

180 BLUE RAVINE ROAD, SUITE B FOLSOM, CA - 95630
(916) 985-1000 . (800) 985-5955 . FAX (916) 985-1020

LABORATORY NARRATIVE
Modified ASTM D-1946
North Creek Analytical
Workorder# 0603360

One 1 Liter Tedlar Bag sample was received on March 17, 2006. The laboratory performed analysis via Modified ASTM Method D-1946 for Methane and fixed gases in air using GC/FID or GC/TCD. The method involves direct injection of 1.0 mL of sample.

On the analytical column employed for this analysis, Oxygen coelutes with Argon. The corresponding peak is quantitated as Oxygen.

Method modifications taken to run these samples include:

Requirement	***ASTM D-1946***	***ATL Modifications***
Calibration	A single point calibration is performed using a reference standard closely matching the composition of the unknown.	A 3-point calibration curve is performed. Quantitation is based on a daily calibration standard which may or may not resemble the composition of the associated samples.
Reference Standard	The composition of any reference standard must be known to within 0.01 mol % for any component.	The standards used by ATL are blended to a >/= 95% accuracy.
Sample Injection Volume	Components whose concentrations are in excess of 5 % should not be analyzed by using sample volumes greater than 0.5 mL.	The sample container is connected directly to a fixed volume sample loop of 1.0 mL on the GC. Linear range is defined by the calibration curve. Bags are loaded by vacuum.
Normalization	Normalize the mole percent values by multiplying each value by 100 and dividing by the sum of the original values. The sum of the original values should not differ from 100% by more than 1.0%.	Results are not normalized. The sum of the reported values can differ from 100% by as much as 15%, either due to analytical variability or an unusual sample matrix.
Precision	Precision requirements established at each concentration level.	Duplicates should agree within 25% RPD for detections > 5 X's the RL.

Receiving Notes

There were no receiving discrepancies.

Analytical Notes

There were no analytical discrepancies.

Definition of Data Qualifying Flags

Seven qualifiers may have been used on the data analysis sheets and indicate as follows:
B - Compound present in laboratory blank greater than reporting limit.
J - Estimated value.
E - Exceeds instrument calibration range.
S - Saturated peak.
Q - Exceeds quality control limits.
U - Compound analyzed for but not detected above the detection limit.
M - Reported value may be biased due to apparent matrix interferences.
File extensions may have been used on the data analysis sheets and indicates as follows:
a-File was requantified
b-File was quantified by a second column and detector
r1-File was requantified for the purpose of reissue

Summary of Detected Compounds
NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

Client Sample ID: B6C0370-02

Lab ID#: 0603360-01A

Compound	Rpt. Limit (%)	Amount (%)
Oxygen	0.10	20
Nitrogen	0.10	77
Methane	0.00010	0.022
Carbon Dioxide	0.010	2.0

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Client Sample ID: B6C0370-02

Lab ID#: 0603360-01A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031718**	**Date of Collection: 3/15/06**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/17/06 01:19 PM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	20
Nitrogen	0.10	77
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	0.022
Carbon Dioxide	0.010	2.0

Container Type: 1 Liter Tedlar Bag

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: Lab Blank

Lab ID#: 0603360-02A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031707**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/17/06 08:39 AM**	

Compound	**Rpt. Limit (%)**	**Amount (%)**
Oxygen	0.10	Not Detected
Nitrogen	0.10	Not Detected
Carbon Monoxide	0.010	Not Detected
Methane	0.00010	Not Detected
Carbon Dioxide	0.010	Not Detected

Container Type: NA - Not Applicable

AIR TOXICS LTD.

AN ENVIRONMENTAL ANALYTICAL LABORATORY

Client Sample ID: LCS

Lab ID#: 0603360-03A

NATURAL GAS ANALYSIS BY MODIFIED ASTM D-1946

File Name:	**9031702**	**Date of Collection: NA**	
Dil. Factor:	**1.00**	**Date of Analysis: 3/17/06 06:37 AM**	

Compound	%Recovery
Oxygen	100
Nitrogen	100
Carbon Monoxide	98
Methane	102
Carbon Dioxide	102

Container Type: NA - Not Applicable

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