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FINAL EVALUATION REPORT SITE 57 PROTON REDUCTION TECHNOLOGY
DEMONSTRATION NSWC INDIAN HEAD MD
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CB&I



FINAL EVALUATION REPORT
**Site 57 – Proton Reduction Technology
Demonstration
Naval Support Facility Indian Head
Indian Head, Maryland**

Prepared for AGVIQ, LLC
4610 Westgove Ct.
Virginia Beach, VA 23455

Prepared by Shaw Environmental & Infrastructure, Inc. (A CB&I Company)
500 East Main Street, Suite 1630
Norfolk, Virginia 23510

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EVALUATION REPORT

Site 57 – Proton Reduction Technology Demonstration
Naval Support Facility Indian Head
Indian Head, Maryland

SIGNATURE PAGE



Robert J. Steffan, Ph.D.
Director, Biotechnology Development and Applications

11/15/2013

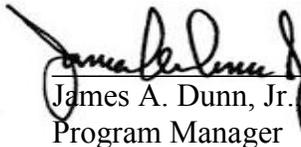
Date



William L. Hughes, C.P.G.
Project Manager

11/15/2013

Date



James A. Dunn, Jr. P.E.
Program Manager

11/15/2013

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LIST OF ACRONYMS AND ABBREVIATIONS

AC	Alternating Current
AGVIQ	AGVIQ, LLC
APP	Accident Prevention Plan
cDCE	Cis 1,2-Dichloroethylene
CTO	Contract Task Order
cVOCs	Chlorinated Volatile Organic Compounds
DC	Direct Current
FEAD	Facility Engineering and Acquisition Division
KOH	Potassium Hydroxide
mA	milliamps
NAVFAC	Naval Facilities Engineering Command
NSF-IH	Naval Support Facility Indian Head
OH-	Hydroxide Ion
ORP	Oxidation Reduction Potential
pH	Power of Hydrogen
PRT	Proton Reduction Technology
PQCP	Program Quality Control Plan
PQL	Practical Quantitation Limit
QC	Quality Control
RPM	Remedial Project Manager
Shaw	Shaw Environmental and Infrastructure, Inc., a CB&I Company
SU	Standard Units
TCE	Trichloroethene
V	Volt
VDC	Volts of Direct Current
VFAs	Volatile Fatty Acids
VOCs	Volatile Organic Compounds
VDC	Volts of Direct Current

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1.0 INTRODUCTION

Shaw Environmental & Infrastructure, Inc., a CB&I Company, (Shaw) was subcontracted by AGVIQ, LLC (AGVIQ), under Contract No. AV12-3A137, Contract Task Order (CTO) JU02 to perform a Proton Reduction Technology (PRT) demonstration at Site 57, Naval Support Facility, Indian Head (NSF-IH), Maryland. This Evaluation Report documents the demonstration activities performed at Site 57 between May 20, 2013 and July 18, 2013 and assesses the PRT performance.

1.1 PURPOSE

The work at Site 57 was completed in two phases. Phase 1 was performed to evaluate the impact of PRT on the Building 292 grounding system and equipment. A test report was submitted to AGVIQ on February 7, 2012 that summarized the findings of the Phase 1 work. Phase 2 was performed to demonstrate that hydrogen and pH adjustment needed for reductive dehalogenation of chlorinated volatile organic compounds (cVOCs) can be generated using PRT in the Indian Head aquifer, under and near Building 292. Detailed descriptions and results of the work performed during Phase 2 are included within **Sections 2.0 and 3.0** of this report.

1.2 SITE DESCRIPTION

The NSF-IH is located in northwestern Charles County, Maryland, approximately 25 miles southwest of Washington, DC as shown on **Figure 1**. The NSF-IH is a Navy facility, consisting of the Main Installation of the Cornwallis Neck Peninsula and the Stump Neck Annex on the Stump Neck peninsula. The Main Installation contains approximately 2,500 acres and is bounded by the Potomac River to the northwest, west, and south; Mattawoman Creek to the south and east; and the town of Indian Head to the northeast. Included as part of the Main Installation are Marsh Island and Thoroughfare Island, which are in Mattawoman Creek. The Stump Neck Annex covers approximately 1,084 acres and is bounded by Mattawoman Creek to the northeast, the Potomac River to the northwest, and Chicamuxen Creek to the south-southwest. The NSF-IH provides services in energetics, ordnance devices and components, and other related ordnance engineering standards, including chemicals, propellants, and their propulsion systems, explosives, pyrotechnics, warheads, and simulators.

Site 57, Building 292 TCE Contamination Area, encompasses the area located south of Building 292 on the Main Installation of NSF-IH as shown on **Figure 2**. Trichloroethene (TCE) was used in Building 292 for vapor degreasing and general cleaning activities between the mid 1960s and 1989. During the 1970s and 1980s, spent TCE (classified as listed F002 hazardous waste) was transferred from a tank inside Building 292 into drums via a pipe that passed through the wall near the southern corner of the building. The drums were reportedly stored on a grass-covered

area near manhole MH-1. It is believed that these operations have resulted in the contamination of soil and groundwater. Partial dechlorination of TCE has resulted in the presence of *cis*-1,2-dichlorethene (*c*DCE), and to a lesser degree, vinyl chloride in the aquifer. The use of TCE at Building 292 stopped in 1989.

1.3 PRE-CONSTRUCTION SUBMITTALS AND PLANS

Shaw submitted the Final Work Plan for this project on June 28, 2012. The following documents were included as Appendices to the Final Work Plan:

- Program Quality Control Plan (PQCP) Addendum,
- Accident Prevention Plan (APP), and
- Proposed Project Schedule.

1.4 REPORT ORGANIZATION

This report is being submitted in draft form for review and comment by the Site 57 project team which includes representatives from NAVFAC Washington, AGVIQ, and the NSF-IH Environmental and Facilities Engineering and Acquisition Division (FEAD) offices. The appendices included within this document provide the technical information compiled during remediation activities at the site.

The remainder of this report is organized as follows:

- **Section 2.0** provides detailed descriptions of the PRT demonstration activities performed at Site 57. The activities are summarized as follows:
 - Pre-mobilization activities;
 - Mobilization activities;
 - Demonstration set-up;
 - Step up testing;
 - PRT system monitoring and groundwater sampling;
 - Demobilization of personnel and equipment.
- **Section 3.0** provides a summary of demonstration results.
- **Section 4.0** provides conclusions of the demonstration results and recommendations for full scale implementation.
- **Section 5.0** identifies the references that were used in the preparation of this report.
- **Appendix A** contains all of the laboratory analytical reports for samples collected during the demonstration
- **Appendix B** presents the transportation and disposal documentation.

2.0 PRT DEMONSTRATION ACTIVITIES

This section discusses the major field activities associated with the PRT demonstration activities at Site 57. **Figure 3** presents the site plan for Site 57.

2.1 PRE-MOBILIZATION ACTIVITIES

Prior to mobilization, Shaw attended a pre-construction meeting on September 13, 2012 with the FEAD, Remedial Project Manager (RPM), and representatives from the Base Safety, Environmental, and Fire Departments. The meeting was used to present in detail the steps of the construction activities. Lines of communication between Shaw, the FEAD, and the RPM were confirmed during the meeting.

2.2 MOBILIZATION ACTIVITIES

After receiving notice from AGVIQ and Navy approval of the Phase 1 results, Shaw mobilized back to Site 57 on May 20, 2013. Shaw allocated available personnel, equipment, and materials to Site 57. A project support area was established again at the Shaw construction trailer in the contractor compound area located outside of the restricted gate.

2.3 BASELINE SAMPLING

On May 20, 2013, groundwater sampling was performed by Shaw personnel to obtain baseline data prior to installation and energizing of the PRT system. Background samples were collected from electrode wells S57IW02 and S57IW03, and the monitoring well relatively down gradient of S57IW03 (hereafter identified as S57MW41). Samples were collected utilizing low-flow sampling techniques and were analyzed for volatile organic compounds (VOCs), dissolved gases (methane, propane, ethane, ethene), volatile fatty acids (VFAs), anions, total iron, dissolved iron, and hydrogen. Results from the sampling events are discussed in Section 3.0 and complete analytical results for each well are provided in **Appendix B**.

Samples were obtained from each of the wells using a peristaltic pump and dedicated tubing. A flow-through cell with a YSI, Inc. field meter allowed for measurement of field geochemical parameters (pH, oxidation reduction potential (ORP), temperature, specific conductivity, and dissolved oxygen). All field meters were calibrated once at the beginning of the day and were checked periodically throughout the day to determine if re-calibration was required. None of the parts on the peristaltic pumps or YSI came into contact with the samples collected, and tubing used to sample all wells was dedicated. Therefore, decontamination of sampling equipment between samples was not necessary.

Analysis of all samples was performed by Shaw's New Jersey Certified Analytical Laboratory in Lawrenceville, NJ. Prior to purging each well, groundwater elevation measurements were

collected using an electronic water level indicator. Measurements were obtained from the top-of-casing and recorded to the nearest 0.01-foot.

2.4 DEMONSTRATION SET-UP

On May 20, 2013, after completion of baseline sampling, the PRT electrodes were installed in wells S57IW02 and S57IW03 (**Figure 4**). As shown in **Figure 5**, electrode wellheads that allowed for groundwater sampling and water level collection at the electrode wells were designed and constructed by Shaw. The electrode in S57IW02 was initially set up as the cathode (negative) while the electrode in S57IW03 was initially set up as the anode (positive). As shown in **Figure 6**, a control panel, containing a direct current (DC) power supply, a timer/polarity switch, fuses, and other electrical equipment was designed and constructed by Shaw. The timer/polarity switch allowed for the timed switching of polarity at the electrodes (i.e., switching the anode to a cathode, and vice versa). The control panel was constructed within a weatherproof enclosure that was delivered to the site (along with the electrodes) on May 20, 2013.

The control panel was placed on a gazebo, located approximately 75 feet from the electrode wells, and plugged into an existing 120 volt (V) alternating current (AC) power outlet (with a ground fault circuit interrupter) located on the side of the gazebo. Additionally, a grounding rod was installed in the ground adjacent to the gazebo, and a grounding wire installed between the control panel and the grounding rod. The DC power supply within the control panel converts the 120V AC power into DC power, and allows for a DC current up to 30V to be applied to the electrodes. Electrical leads were wired to the control panel and electrodes and run on the ground surface between the gazebo and the electrode wells.

2.5 STEP UP TESTING – WEEK 1

Testing consisting of stepped increases in voltage similar to the Phase 1 testing was performed during the first week to determine the optimum range of voltages required to achieve suitable current in the aquifer to maximize hydrogen production without exceeding the buffering capacity of the aquifer formation. These tests were needed to determine the frequency of polarity changes necessary to optimize performance of the PRT system and to control pH changes.

The PRT system was energized for the first time at 0855 hours on May 21, 2013. Initially, the voltage of the power supply connected to the electrodes in the wells was set at 5 Volts of direct current (VDC). A current of approximately 37 milliamps (mA) was measured at the DC power supply at this voltage. While energized, the pH in wells S57IW02 and S57IW03 was measured and recorded at approximately one hour intervals. Groundwater samples for hydrogen analysis were collected from S57IW02 at approximately 2.5, 4.5 and 6.5 hours after the system was

energized. Additionally, one hydrogen sample was collected from S57IW03 at approximately 2.5 hours after the system was energized.

On days two and three of PRT system operation (May 22 and May 23, 2013), the pH in wells S57IW02 and S57IW03 was measured and recorded at the beginning of the work day, and at approximately two hour intervals for the remainder of the day. Because minimal pH change was observed in the electrode wells during the first reading on each of these days (see Section 3), the system voltage was increased to 10 VDC and 15 VDC, respectively. A current of approximately 101 mA and 167 mA was measured at the DC power supply at these respective voltages. Groundwater samples for hydrogen analysis were collected on May 22, 2013 from S57IW02 at approximately 3, 5 and 7 hours after the system voltage had been increased. Additionally, one hydrogen sample was collected from S57IW03 at approximately 3 hours after the system voltage had been increased. No groundwater samples were collected on May 23, 2013.

On day four of system operation (May 24, 2013), the pH in wells S57IW02 and S57IW03 was measured and recorded three times during the work day. As per the work plane, the system voltage was left at 15 VDC because the pH was slowly climbing in well S57IW02, but had not reached the established target of 9 SU's that would require the polarity to be switched (see Section 3). One groundwater sample for hydrogen analysis was collected from S57IW02 in the morning.

To allow for analysis of what is happening inside of the well, as opposed to the formation surrounding the well, pH measurements were collected within the first 2 minutes of well purging and hydrogen samples were collected after only 5 minutes of purging during Week 1 testing. All hydrogen samples were shipped to the Shaw Lawrenceville lab for analysis. The PRT system remained energized from this point to the completion of the demonstration (with the exception of two power outages, as discussed below).

2.6 PRT SYSTEM MONITORING AND GROUNDWATER SAMPLING – WEEKS 2 THROUGH 7

Based upon the results of the first week of step up testing and groundwater sampling, Shaw determined that the PRT system would continue to operate at 15 VDC, and that the polarity would be switched every 48 hours to avoid large pH swings in both electrode wells. Therefore, on May 28, 2013, the timer/polarity switch was set to reverse polarity of the electrodes every 48 hours. On this day, groundwater samples for hydrogen and anions were collected from down gradient monitoring well S57MW41 utilizing low-flow sampling techniques, as described in Section 2.3. A system check and a full round of groundwater sampling was performed on June 5, 2013 (Week 2). Samples were collected from all three demonstration wells utilizing low-flow sampling techniques described in Section 2.3. Samples were analyzed for VOCs, dissolved

gases, VFAs, anions, and hydrogen. Samples for hydrogen were also collected from both electrode wells within the first 5 minutes of well purging to better compare hydrogen concentrations within the well and within the surrounding formation. Results from the sampling events are discussed in Section 3.0 and complete analytical results for each well are provided in **Appendix B**.

During site checks performed on June 10 and June 19, 2013 (Weeks 3 and 4), it was determined that local power outages (most likely caused by electrical storms) caused the DC power supply to shut down. The DC power supply being used was digital, and would not reboot automatically after the power was restored. Therefore, the PRT system was only running for a portion of the time during the 3rd and 4th week of the demonstration. The digital DC power supply was replaced with an analog DC power supply (which would automatically reboot after a power outage) on June 19, 2013. The timer was also bypassed at this time, and well 57IW03 was wired to be a full-time cathode and well 57IW02 was wired to be a full-time anode. The voltage was left at 15 VDC. This configuration was maintained for the remainder of the demonstration.

The final two rounds of groundwater sampling were performed on June 26 and July 8, 2013 (Weeks 5 and 7). Samples were collected from all three demonstration wells utilizing low-flow sampling techniques described in Section 2.3. Samples were analyzed for hydrogen during the June 26, 2013 event, and for VOCs, dissolved gases, VFAs, anions, hydrogen, and dissolved metals during the July 8, 2013. Additional hydrogen samples were also collected after 5 minutes of purging. Results from the sampling events are discussed in Section 3.0 and complete analytical results for each well are provided in **Appendix A**.

2.7 WASTE DISPOSAL

One 55-gallon labeled drum of purge and decon water was generated during sampling and temporarily stored on-site. On July 18, 2013, Shaw sampled the liquid waste for waste characterization and the waste was disposed of off-site at an approved disposal facility on August 27, 2013 (**Appendix C**). The Navy was responsible for signing manifest forms.

2.8 DEMOBILIZATION

Upon completion of the Phase 2 demonstration on July 8, 2013, Shaw demobilized from the site. Demobilization activities included site cleanup and equipment decontamination; removal of equipment and supplies; and departure of personnel from the site.

3.0 DEMONSTRATION RESULTS

The following subsections provide a summary of select data collected from the two electrode wells and one monitoring well during the seven week field demonstration. These data are summarized in **Table 1** through **Table 3**, and Laboratory analytical reports are provided in **Appendix A**.

3.1 pH

Groundwater pH values ranged from 4.61 SU to 5.05 SU at the three demonstration wells during baseline sampling conducted on May 20, 2013. The pH in well 57IW02 (which started out as a cathode well) increased to 6.03 SU during the first four days of step up testing. Conversely, the pH in well 57IW03 (anode well) decreased to 2.97 SU during the same period. The pH in monitoring well 57MW41 remained relatively constant during this period.

After the polarity of the PRT system was switched and held constant for the remainder of the demonstration, the pH in cathode well 57IW03 increased to 6.26 SU, and the pH in anode well 57IW02 decreased to 3.16 SU by the end of the demonstration. The pH in down gradient monitoring well 57MW41 increased steadily during the prolonged operation of the system, increasing from 4.24 to 5.16 SU. This represented a nearly 10-fold decrease in hydrogen ion concentration (acidity) in the groundwater at this well.

3.2 ORP

Groundwater ORP values ranged from +263.9 mV to +385.5 mV at the three demonstration wells during the baseline sampling event. The ORP in well 57IW02 (cathode well) decreased to -10 mV during the first four days of step up testing. Conversely, the ORP in well 57IW03 (anode well) increased to +533.7 mV during the same period. The pH in monitoring well 57MW41 remained relatively constant during this period.

After the polarity of the PRT system was switched and held constant for the remainder of the demonstration, the ORP in cathode well 57IW03 decreased to as low as -470.3 mV, and the ORP in anode well 57IW02 increased to as high as +623.6 mV during the final 5 weeks of the demonstration. The ORP in down gradient monitoring well 57MW41 remained relatively steady during the demonstration, ranging from +204.9 mV and +263.9 mV.

3.3 HYDROGEN

Hydrogen concentrations ranged from 0.0104 µg/L to 0.125 µg/L at the three demonstration wells during the baseline sampling event. Hydrogen concentration in well 57IW02 (cathode well) increased to 91.8 µg/L during the first week of operation (step up testing). Hydrogen concentrations in this well returned to near baseline shortly after the polarity of the PRT system

was switched. Hydrogen concentration in well 57IW03 were observed as high as 181 µg/L during the final 5 weeks of the demonstration (after the polarity of the ORT system had been switched). Hydrogen concentrations at down gradient monitoring well 57MW41 remained relatively steady during the demonstration, ranging from 0.0049 µg/L to 0.040 µg/L.

As discussed in Section 2.5, hydrogen samples were collected after only 5 minutes of purging during Week 1 (step up testing) of the demonstration. Multiple hydrogen samples were sometimes collected from the same well throughout the day during this period. Additionally, as discussed in Section 2.6, to allow for analysis of what is happening inside of the well, as opposed to the formation surrounding the well, additional hydrogen samples were collected after only 5 minutes of purging during select demonstration low flow sampling events. The data summarized in **Table 1** through **Table 3** includes the last hydrogen sample collected at the end of each day during Week 1 activities, and the hydrogen sample collected once the wells had stabilized during low flow sampling for the remainder of the demonstration. All of the laboratory analytical data are provided in **Appendix A**. The additional hydrogen samples collected during low flow sampling indicated that there was significantly more hydrogen (a factor of approximately 2 to 4) within the cathode well casing and screen (samples collected after only 5 minutes of purging) than what was observed within the formation (samples collected after well stabilization). These data suggest that higher concentrations of hydrogen are diffusing from within the cathode well into the surrounding formation.

3.4 cVOCs

As presented in **Table 1** and **Table 3**, TCE, *c*DCE and vinyl chloride concentrations at wells 57IW02 and 57MW41 remained relatively steady throughout the demonstration. However, an 80 percent decrease in TCE and a 90 percent decrease in *c*DCE were observed at well 57IW03 (which was operated as an anode well through the majority of the demonstration) between the baseline and final sampling event. These data are counter-intuitive, because reduction of chlorinated solvents would not be expected in the anode well. Because there was only one baseline and two performance sampling events for VOCs during the demonstration, it is possible that the baseline *c*VOC data were artificially high

3.5 ETHENE

Ethene, the innocuous end product of complete reductive dechlorination of TCE, was not observed above the practical quantitation limit (PQL) during the demonstration.

3.6 SYSTEM OPERATION

With the exception of two temporary system shutdowns, resulting from local power outages (most likely caused by electrical storms), the PRT system functioned as designed. As discussed

in Section 2.6, the digital DC power supply being used at the beginning of the demonstration was replaced with an analog DC power supply on June 19, 2013, so that the PRT system would automatically reboot after a power outage.

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4.0 CONCLUSIONS AND RECOMMENDATIONS

The goals of this PRT demonstration project were to: 1) demonstrate that groundwater pH could be altered by inducing an electrical current between two electrodes inserted into the Site 57 aquifer; 2) demonstrate that hydrogen, an essential electron donor for microbial reductive dechlorination, could be produced on a cathode inserted into the Site 57 aquifer, and 3) identify initial operating conditions for a full-scale proton reduction system installed to treat the Site 57 aquifer. Demonstrating cVOC biodegradation was not a goal of this work. Results of the demonstration revealed that the groundwater pH could be readily increased by proton reduction on the cathode, and that the reduction in pH at the cathode also reduced the groundwater ORP to levels suitable for microbial reductive dechlorination (i.e., <-200 mV).

Microbial reductive dechlorination of chlorinated ethenes is very sensitive to pH and ORP. The permissible range of pH for complete dechlorination of cVOCs is approximately pH 5.6 to pH 8.5, with the optimal range between approximately pH 6.5 and 7.5 (Vainberg et al., 2009). Because pH represents the negative log of the hydrogen ion concentration ($-\log[H^+]$), a 1-fold increase in pH units represents a 10-fold decrease in hydrogen ion concentration. In a proton reduction technology system, cathodes are “electron donating”, so it is at the cathode that hydrogen ions (protons) are reduced. Likewise, it is at the cathode that electrolysis of water can occur, resulting in the production of hydroxide ion (OH⁻). Consequently, it is in wells that contain a cathode that we expect to observe increases in pH and the production of hydrogen. Because it is a reducing environment, we also expect decreases in ORP in the cathode wells.

During this demonstration, the pH of groundwater in the cathode wells increased during operation of the proton reduction system. During the first day of testing, pH in 57IW03 increased by approximately 0.5 SU even at the lowest voltage tested (5 volts). This increase in pH was accompanied by significant increase in hydrogen concentration and a significant decrease in groundwater ORP. ***Consequently, the results demonstrate that the proton reduction system could be operated at as low as 5 VDC, and still result in increased groundwater pH, decreased ORP, and the production of sufficient hydrogen to support microbial reductive dechlorination.***

One of the greatest challenges for treating low pH aquifers is consuming the buffering capacity of the aquifer soils. This can be achieved by prolonged operation of a proton reduction system. In this scenario, high pH groundwater from the cathode well is transported down gradient of the cathode by either natural or induced groundwater flow. The rate at which the down gradient aquifer pH is increased is dependent on the rate at which the high pH groundwater can be produced and “loaded” into the down gradient aquifer. During this demonstration, we measured the rate of pH change in the cathode well during operation at increasing applied voltages. We

also measured pH changes in 57MW41 that was located a few feet down gradient of 57IW03 while it was operated as a cathode well between June 5 and July 8, 2013. Results of the demonstration showed that increasing voltage and prolonged operation resulted in significantly increased pH in the cathode wells, but that the rate of pH increase was relatively slow. The slow increase was likely due to the low electrical conductivity of the system, as indicated by the relatively low current measured during the demonstration. In addition, the low groundwater flow rates of the system will likely limit the loading of high pH groundwater from the cathode well to the down gradient formation. ***Consequently, the results of the demonstration showed that under the tested operating conditions, the pH of the aquifer can be increased, but the rate of increase will be slow and many years may be required before the aquifer geochemistry is suitable for biological treatment.***

Results of this demonstration and our on-going PRT demonstration project at McGuire Air Force Base have demonstrated that proton reduction can be used to increase groundwater pH, decrease groundwater ORP, and produce sufficient hydrogen to support reductive dechlorination of chlorinated ethenes. They also reveal, however, that the greatest challenge for treating low pH aquifers is consuming the buffering capacity of aquifer soils in a treatment zone down gradient of the system cathodes. If the buffering capacity of these soils were consumed, it is likely that the proton reduction system could be used to increase the pH of inflowing groundwater to maintain the suitable pH of the treatment zone, while also providing hydrogen and reducing conditions for reductive dechlorination. ***Thus, a treatment option for Site 57 would include an initial treatment with base or high pH buffer to consume the buffering capacity of aquifer soils, followed by operation of the proton reduction technology to maintain the desired aquifer pH and to support reductive dechlorination.***

Construction and operation of a full-scale treatment system incorporating PRT at Site 57 will require several considerations. As mentioned above, Shaw recommends planning to increase aquifer pH within the treatment zone by first injecting a basic solution (e.g., potassium hydroxide (KOH)) or buffer (sodium bicarbonate) to increase the pH in a designed treatment zone. Given the reportedly relatively slow groundwater flow rates at the site, this treatment zone can be fairly short (e.g., 5 to 10 feet) and still provide adequate contact time between the in-flowing contaminants and the dechlorinating bacteria maintained in the zone. Fortunately, injection well boring logs indicate that the aquifer formation is composed of primarily sands and gravel, and as such should be relatively permissible for the injection of buffer solutions. While injection of the buffering solution could be performed by using the existing injection wells installed at the site, Shaw is concerned about the construction of the existing wells. It appears that the IW well construction may not be conducive to injecting substrates, because the top of the well screens appear to be very near the water table elevation. Also, the filter packs installed above the screens

appear to extend to above the water table. Because of the lack of hydraulic head above the well screen, and the potential conduit created by the filter pack, injected materials may potentially migrate into the vadose zone, rather than be effectively distributed within the aquifer. *As a result of all of the above-mentioned factors, Shaw would likely recommend the use of direct push technology to inject a buffering solution over 3-4 foot intervals, starting from bottom up, within the designed treatment zones. While injecting buffers, we also would consider adding some organic substrate and a dechlorinating culture to rapidly establish the biologically active treatment zone.*

The presence of extensive underground utilities across the proposed treatment area would need to be taken into account when designing the layout of a direct push injection grid. Additionally, previous experience injecting liquid-phase amendments into the injection wells in the treatment area indicated the presence of preferential pathways that allowed injected reagents to short circuit into a storm sewer line crossing through the treatment area, which leads to a surface water outfall. Specific descriptions of methods and procedures required to prevent short circuiting impacts would need to be addressed in the design for a full-scale injection program. These methods would likely include the following:

- Minimizing injection flows, volumes, and pressures, particularly at the shallower injection intervals,
- Close monitoring for decreases in injection pressures and or increases in injection flows (relative to pressures and flows observed at deeper injection intervals) that may indicate short-circuiting, and
- Monitoring of the storm sewer line and/or surface water outfall.

Another consideration for the construction and operation of a full scale PRT system at Site 57 is the location of the electrode wells. As shown during the demonstration, while pH is increased and ORP is decreased at the cathode, pH is decreased and ORP is increased at the anode. The results of the demonstration, however, showed that when the polarity of the electrodes is reversed, both pH and ORP respond fairly quickly (i.e., within days). This creates the possibility for two different design scenarios for full scale implementation.

In the first scenario, two off-set rows of electrodes that sandwiched the biological treatment zone could be installed as permeable reactive barriers or treatment "hurdles" along the contaminant plume. In this approach, the cathodes would reside on the up gradient side of the zone, and polarity of the electrodes would be alternated as needed to maintain a suitable pH. The occasional production of oxygen (from anodes) up gradient of the treatment zone could also be used if necessary to control extremely-oxygen-sensitive methanogenic bacteria if they appear to

be competing for the produced hydrogen with dechlorinating (as would be indicated by high levels of methane).

In the second scenario, cathodes could be placed in rows within the contaminant plume while common anodes (i.e., an anode shared by multiple cathodes) are placed outside the plume. The advantage of this approach would be that the low pH and oxygen produced at the anode would not affect the treated area of the plume. In addition, it would allow us to most efficiently utilize the existing injection wells installed in the plume and minimize the number of additional wells that would need to be installed to ensure efficient treatment of the plume.

In either case outlined above, periodic alternating of polarity would be performed to minimize mineral precipitation on the electrodes. During these electrode maintenance procedures, the groundwater geochemistry within the electrode wells is going to change. Results of this demonstration, however, have shown that these short term changes will be rapidly corrected once the polarity is returned to its original setting.

In summary, the results of this demonstration project showed that the groundwater pH and ORP at Site 57 can be altered, and hydrogen can be produced, by using PRT, to create suitable conditions for in situ biodegradation of cVOCs,. Response of the aquifer to PRT alone, however, may be slower than necessary to meet regulatory requirements. To speed and improve performance of the treatment, buffering solutions could be added to the aquifer to rapidly consume soil buffering capacity and organic substrate and a dechlorinating culture would be added to rapidly establish the biologically active treatment zone. The PRT would be used to maintain the appropriate aquifer geochemistry and supply hydrogen to support the activity of dechlorinating bacteria in the aquifer. The organic substrate (most likely sodium lactate) would be biodegraded within a few months, allowing evaluation of the PRT portion of the implementation to be evaluated over time. Several indicators of the switch from utilization of the carbon electron donor to the exclusive use of H₂ are expected to become apparent, including, 1) depletion of lactate; 2) depletion of volatile fatty acids, especially propionic acid lactate, that are fermentation products of lactate; 3) continued low Eh after depletion of added lactate and propionic acid; 4) continued low concentrations of sulfate, from active sulfate reduction, following depletion of lactate and propionic; and 5) possible continued presence of acetate, from homoacetogenesis, following depletion of lactate and propionic acid.

5.0 REFERENCES

AGVIQ-CH2M HILL 2012. *Revised Cost Proposal, Remedial Action Modification at Site 57 – Building 292 TCE Contamination Area, Naval Support Facility Indian Head, Indian Head, Maryland.* April 2012.

Shaw 2012. *Final Work Plan, Site 57 – Proton Reduction Technology Demonstration, Naval Support Facility Indian Head, Indian Head, Maryland.* October 2012.

Vainberg, S., C.W. Condee, R.J. Steffan. 2009. *Large scale production of Dehalococcoides sp.-containing cultures for bioaugmentation.* J. Indust. Microbiol. Biotechnol. 36:1189-1197.

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TABLES

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Table 1
Summary of Data for 571IW02

Date	pH (SU)	ORP (mV)	DO (mg/L)	Hydrogen (µg/L)	TCE (µg/L)	c DCE (µg/L)	Vinyl Chloride (µg/L)	Ethene (µg/L)	Comments
5/20/2013	4.61	364.5	6.35	0.0104	114	21.5	<5	<5	Baseline sampling event
5/21/2013	5.10	-2.3	3.89	44.9	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 5 Volts
5/22/2013	5.47	-285.3	3.02	47.9	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 10 Volts
5/23/2013	5.97	-348.2	2.90	NS	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 15 Volts
5/24/2013	6.03	-10.0	6.42	91.8	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 15 Volts
5/28/2013	6.05	-62.7	5.90	NS	NS	NS	NS	NS	Last daily reading prior to alternating electrode polarity. PRT system at 15 Volts
6/5/2013	3.76	362.0	1.23	0.062	32.3	11.9	<5	<5	Low flow sampling event. PRT system polarity alternating every 48 hours.
6/26/2013	2.79	493.4	6.30	0.280	NS	NS	NS	NS	Low flow sampling event. 571IW02 set to permanent anode. PRT system at 15 Volts.
7/8/2013	3.16	623.6	28.26	0.358	22.7	2.1 J	<5	<5	Final low flow sampling event prior to PRT system shutdown.

J - estimated value above MDL and less than PQL.

Table 2
Summary of Data for 57IW03

Date	pH (SU)	ORP (mV)	DO (mg/L)	Hydrogen (µg/L)	TCE (µg/L)	c DCE (µg/L)	Vinyl Chloride (µg/L)	Ethene (µg/L)	Comments
5/20/2013	4.97	385.5	4.98	0.125	413	209	3.0 J	<5	Baseline sampling event
5/21/2013	4.55	373.0	3.59	0.0205	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 5 Volts
5/22/2013	3.83	411.0	5.46	NS	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 10 Volts
5/23/2013	3.00	495.3	12.93	NS	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 15 Volts
5/24/2013	2.97	533.7	22.84	NS	NS	NS	NS	NS	Last daily reading during step up testing. PRT system at 15 Volts
5/28/2013	2.90	845.2	26.34	NS	NS	NS	NS	NS	Last daily reading prior to alternating electrode polarity. PRT system at 15 Volts
6/5/2013	4.08	-54.0	0.66	26.4	305	147	1.9 J	<5	Low flow sampling event. PRT system polarity alternating every 48 hours.
6/26/2013	5.97	-470.3	0.68	181	NS	NS	NS	NS	Low flow sampling event. 57IW03 set to permanent cathode. PRT system at 15 Volts.
7/8/2013	6.26	-234.1	5.52	122	430	175	3.0 J	<5	Final low flow sampling event prior to PRT system shutdown.

J - estimated value above MDL and less than PQL.

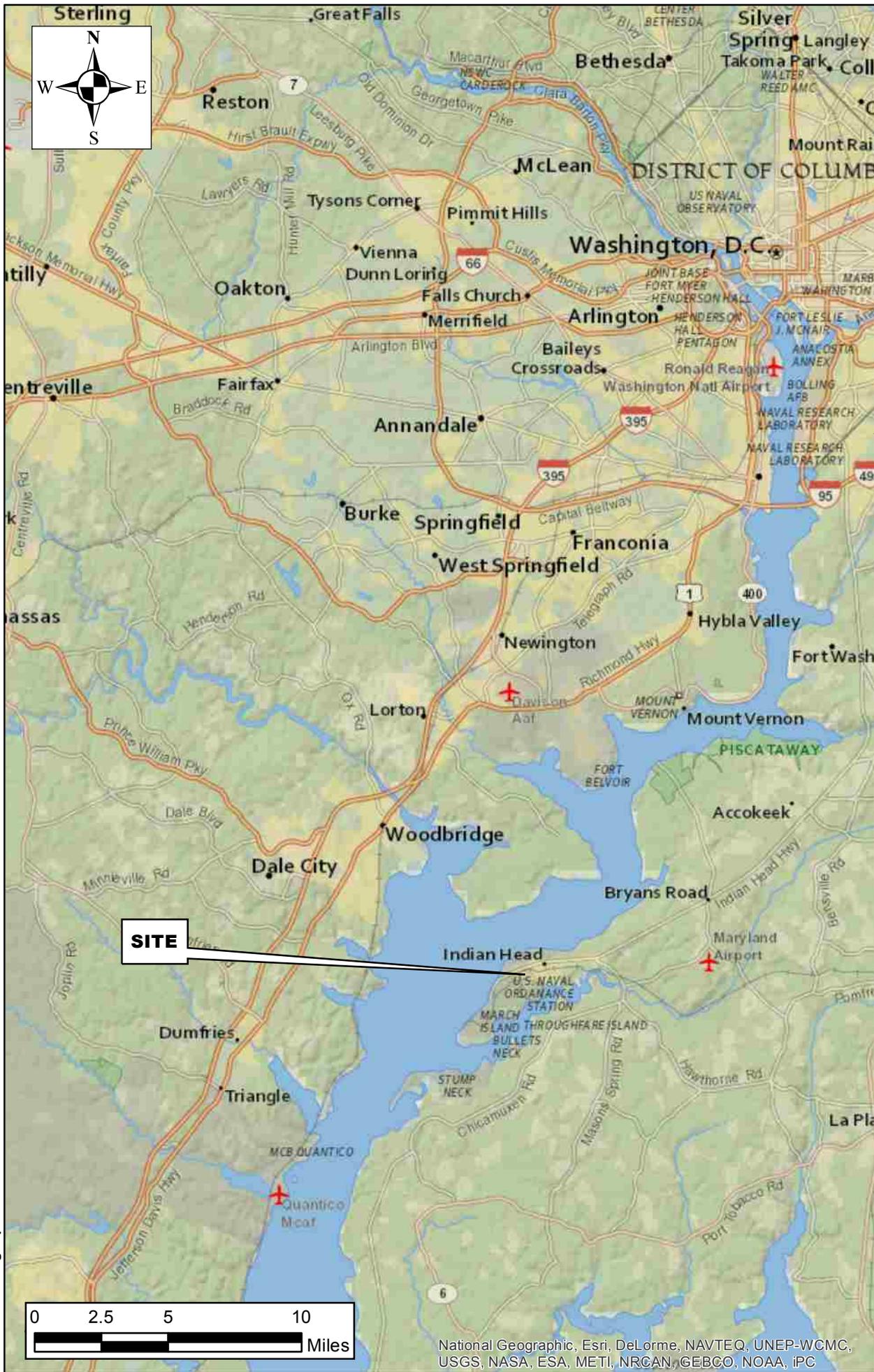
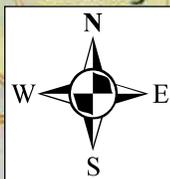
Table 3
Summary of Data 57MW41

Date	pH (SU)	ORP (mV)	DO (mg/L)	Hydrogen (µg/L)	TCE (µg/L)	c DCE (µg/L)	Vinyl Chloride (µg/L)	Ethene (µg/L)	Comments
5/20/2013	5.05	263.9	4.27	0.0157	30.3	6.9	<5	<5	Baseline sampling event
5/28/2013	5.16	256.8	5.85	0.0049 J	NS	NS	NS	NS	Low flow sampling prior to shifting electrode polarity. PRT system at 15 Volts.
6/5/2013	4.24	226.7	0.92	0.026	29.4	7.9	<5	<5	Low flow sampling event. PRT system polarity alternating every 48 hours.
6/26/2013	4.64	204.9	0.77	0.040	NS	NS	NS	NS	Low flow sampling event. PRT system polarity not alternating and at 15 Volts.
7/8/2013	5.07	219.8	11.1	0.0068	58.5	11.4	1.2 J	<5	Final low flow sampling event prior to PRT system shutdown.

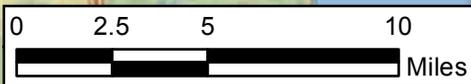
J - estimated value above MDL and less than PQL.

FIGURES

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SITE



National Geographic, Esri, DeLorme, NAVTEQ, UNEP-WCMC, USGS, NASA, ESA, METI, NRCAN, GEBCO, NOAA, IPC

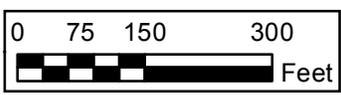
<p style="text-align: center;">Shaw Environmental & Infrastructure, Inc. (A CB&I Company)</p>		DESIGNED BY	PMG	CHECKED BY	PMG	REV NO.	DATE	DESCRIPTION
		DRAWN BY	TA	APPROVED BY	WLH	08/28/2013	08/28/2013	
<p style="text-align: center;">PREPARED BY SHAW ENVIRONMENTAL AND INFRASTRUCTURE FOR AGVIQ SITE 57 - PROTON REDUCTION TECHNOLOGY DEMONSTRATION SITE LOCATION MAP</p>		<p style="text-align: center;">Indian Head, Maryland</p>						
		<p style="text-align: center;">NSF-IH</p>						
		SCALE: AS SHOWN		SIZE: A				
		<p>TASK ORDER NO. JU02</p> <p>CONST. CONTRACT NO. AV12-3A137</p> <p>NAVAC DRAWING NO.</p> <p>SHEET I.D.</p>						
		FIGURE 1						

N:\IndianHead\Agviq\MXD*.mxd

N:\IndianHead\Agviq\MXD\SDs*.mxd



- Legend**
- New Monitoring Well
 - Existing Monitoring Well
 - Permanent Injection Well
 - CDCE and VC Plume (Remedial Design Report, TtNUS 2 009)
 - TCE Plume (Remedial Design Report, TtNUS 2009)
 - Injection Depth 7-14 feet bgs
 - Injection Depth 17-23 feet bgs
 - Site Boundary



Reference: Figure taken from CH2MHILL's Figure 1 Injection and Monitoring Well Locations, Remedial Action at Site 57, NSF-IH, Indian Head, Maryland.

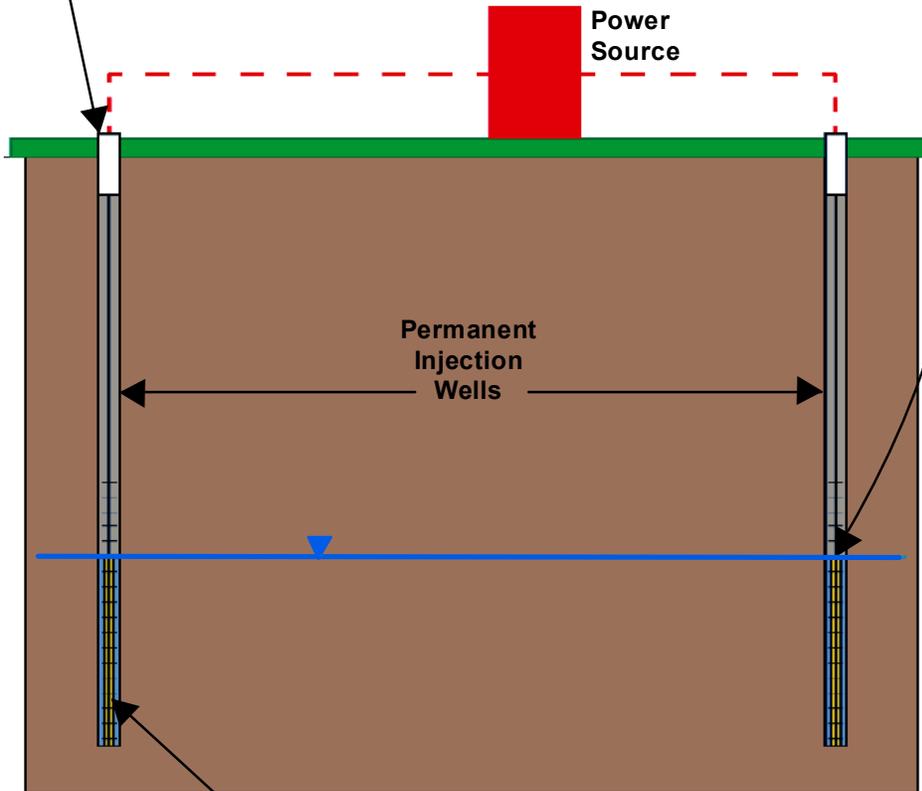
Shaw Environmental & Infrastructure, Inc. (A CB&I Company)		DESIGNED BY	PMG	CHECKED BY	PMG	DATE	08/28/2013
DRAWN BY	TA	APPROVED BY	WLH	REV. NO.	08/28/2013	DESCRIPTION	
PREPARED BY SHAW ENVIRONMENTAL AND INFRASTRUCTURE FOR AGVIQ SITE 57 - PROTON REDUCTION TECHNOLOGY DEMONSTRATION SITE PLAN							
NSF-IH Indian Head, Maryland							
SCALE: AS SHOWN		SIZE: 2		TASK ORDER NO. JU02			
CONST. CONTRACT NO. AV12-3A137							
NAV/FAC DRAWING NO. -							
SHEET I.D.							
FIGURE 3							



Example of a well head designed for installing electrodes.



An electrode connected to an electrical lead.



Example of electrode material.

Shaw Environmental & Infrastructure, Inc. (A CB&I Company)		DESIGNED BY RS	CHECKED BY RS	08/28/2013	08/28/2013	REVISION REV.N.O.	DATE	DESCRIPTION
DESIGNED BY RS	DRAWN BY TA	CHECKED BY RS	APPROVED BY WLH	08/28/2013	08/28/2013	REVISION REV.N.O.	DATE	DESCRIPTION
PREPARED BY SHAW ENVIRONMENTAL AND INFRASTRUCTURE FOR AGVIQ SITE 57 - PROTON REDUCTION TECHNOLOGY DEMONSTRATION ELECTRODE SCHEMATIC								
INDIAN HEAD, MARYLAND								
NSF-IH								
SCALE: NTS		SIZE: A						
TASK ORDER NO. JU02								
CONST. CONTRACT NO. AV12-3A137								
NAV/FAC DRAWING NO.								
SHEET I.D.								
FIGURE 4								



Indian Head, Maryland

NSF-IH

**PREPARED BY SHAW ENVIRONMENTAL
AND INFRASTRUCTURE FOR AGVIQ
SITE 57 - PROTON REDUCTION
TECHNOLOGY DEMONSTRATION
ELECTRODE WELLHEAD**

SCALE: NTS SIZE: A
TASK ORDER NO. JU02
CONST. CONTRACT NO. AV12-3A137
NAVFAC DRAWING NO.
SHEET I.D.

FIGURE 5

**Shaw Environmental & Infrastructure, Inc.
(A CB&I Company)**

DESIGNED BY	RS	08/28/2013	CHECKED BY	RS	08/28/2013
DRAWN BY	TA	08/28/2013	APPROVED BY	WLH	08/28/2013

DESCRIPTION

DATE

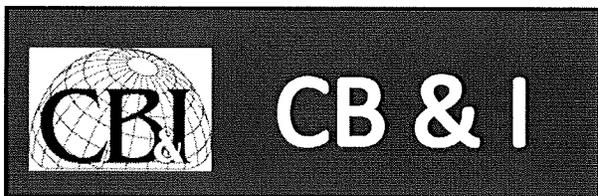
REV. NO.

APPENDIX A

ANALYTICAL DOCUMENTATION

Note: In an effort aimed at reducing both paper consumption and the physical size of this report, this Appendix is only included in the electronic file on the CD attached to this report.

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17 Princess Rd

Lawrenceville, New Jersey 08648

Tel: 609/895-5370

Fax: 609/895-1858

**Volatile Organic Compound
Reduced Deliverable Package**

**Prepared for
Indianhead Proton Reduction
Project Number: 146395**

**Lab ID
8965**

**Samples Received
21-May-13**

**Reported
4-Jun-13**

NJDEP Certified Lab 11001

A handwritten signature in black ink, appearing to read 'Randi K Rothmel'.

**Randi K Rothmel, PhD
Laboratory Director**

6-9-13

Date

Table of Contents

Section

1.0 General Information

Chain of Custody

Methodology Review

Laboratory Chronicle

Conformance/Non-Conformance

2.0 Analytical Sample Summary

3.0 QA/QC Results

Tune Results

Method Blank Summary

Calibration Summary

Surrogate Summary

MS/MSD Summary

Internal Standards Summary

4.0 Raw Data and Chromatograms

1.0 General Information

Chain of Custody

Samples were received at Shaw E& I within required temperature and transportation requirements. Samples were received in good condition with custody seals intact. Internal and external chains of custody are enclosed for review. No peculiarities were observed during the chain of custody process.



17 Princess Rd
Lawrenceville, NJ 08648
609-895-5370 / 609-895-1858
CB&I - Federal Services, LLC

CHAIN OF CUSTODY

Ref. Document # _____ Page _____ of _____

Project Number/Cost code: 146385 /
 Project Name / Location: Proton Red / Edison Road
 Purchase Order #: _____
 Shipment Date: 5/20/13
 Waybill/Airbill Number: _____
 Lab Destination: Lawrenceville
 Lab Contact Name / ph. #: R. Cothran

Project Contact: Dave Lippincott R&D
 (Name & phone #)
 Send Report To: D. Lippincott
 Phone/Fax Number: _____
 Address: (as above)
 City/State: _____

Sampler's Name(s): Teresa Addis

Lab No.	Sample ID Number	Sample Description
1	146395IW62-052013-CBT	Groundwater
2	146395FW03-052013-CBT	↓
3	146395PMM41-052013-CBT	↓
4	Frp BK	

Collection Information		Preservative			
Date	Time	HCL	NaOH	HNO ₃	H ₂ SO ₄
5/20/13	1405	X			X
↓	1548	X			X
↓	1715	X			X

Analyses Requested	Any Additional Information	Turn Around Time Requested
VOC		5 days
MFE		↓
VFA		↓
ANIONS		↓
Hydrogen		↓

Special Instructions:
 See Dave for level of QC required

Received By: [Signature] Date: 5/20/13 Time: 11:30

Received By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

not Fill Shaded Areas

G/C Codes
 C = Composite G = Grab

QC Package Codes
 Level I = data summary
 Level II = data summary + basic QC
 Level III = New Jersey QC reduced deliverable
 Level IV = Full deliverable CLP package
 Cooler temperature upon arrival at Lab:

Shaw E&I Analytical and Treatability Laboratories Internal Chain of Custody

8965

Lab ID

Client:

Date Received:

Sample ID	Parameter	Bottle Type	Preservative	Date/Time Removed	Releasing Custodian Initials	Receiving Analyst Initials	Date/Time Returned	Releasing Custodian Initials	Receiving Analyst Initials
8965-1	VOC's	3-40-1	HEI	05-23-13 10:30	M		05-23-13 14:10	M	
8965-2	VOC's	3-40-1	HEI	05-23-13 10:30			05-23-13 14:10		
8965-3	REEP	2-40-1	HEI	5/23/13 10:30			05-23-13 14:10		
8965-4	REEP	2-40-1	HEI	5/23/13 10:30			05-23-13 14:10		
8965-1	VFA	1-50-1	None	5-23-13 10:30			5-23-13 14:10		
8965-2	VFA	1-50-1	None	5-23-13 10:30			5-23-13 14:10		
8965-3	anions	1-50-1	None	5-23-13 10:30			5-23-13 14:10		
8965-1	anions	1-50-1	None	5/23/13 10:30			05-23-13 14:10		
8965-2	anions	1-50-1	None	5/23/13 10:30			05-23-13 14:10		
8965-3	anions	1-50-1	None	5/23/13 10:30			05-23-13 14:10		

PG

of

Methodology Review

in the analytical results section. Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260 or 624. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST98 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 15 hits.

Initial calibration standards are enclosed in calibration summary report

Data qualifiers are given below for clarification.

U- The compound was not detected at the indicated PQL concentration.

J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

D- Diluted sample

B- The analyte was observed in laboratory blank as well as the sample -

E- Compound detected above the linear range of the curve. Value given is an estimated value.

Laboratory Chronicle

2 The sample injection log was verified for correct sample injection.

3 Samples were analyzed within the established holding times.

Date sampled 5/20/2013

Date received 5/21/2013

Initial Date analyzed 5/23/2013

Duration 3

Subsequent Date(s) analyzed

Duration

Date sampled

Date received

Initial Date analyzed

Duration

Duration

Subsequent Date(s) analyzed

Duration

Subsequent Date(s) analyzed

Duration

Subsequent Date(s) analyzed

Duration

Holding time 14 Days

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID: MY23_01.D BFB Injection Date: 5/23/2013
 Instrument ID: 5971 BFB Injection Time: 7:51
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	12.7
75	30.0 - 66.0% of mass 95	35.6
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.6
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	96.0
175	4.0 - 9.0% of mass 174	6.7 (7.0)1
176	93.0 - 101.0% of mass 174	99.6 (103.7)1
177	5.0 - 9.0% of mass 176	5.7 (5.7)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Sample:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTDMY23	SPCC/CCC	MY23_02.D	5/23/2013	8:26
02	QC CHK	QC	MY23_03.D	5/23/2013	9:01
03	MBLK	BLK	MY23_04.D	5/23/2013	9:36
04	8965-01	8965-01 * 84	8965_01.D	5/23/2013	10:46
05	8965-02	8965-02 * 84	8965_2.D	5/23/2013	11:21
06	8965-03	8965-03 * 84	8965_3.D	5/23/2013	11:56
07	8965-04	8965-04 10.0 ML	8965_4.D	5/23/2013	12:31
08	8967-01	8967-01 * 105	8967_01.D	5/23/2013	13:06
09	8967-02	8967-02 * 105	8967_02.D	5/23/2013	13:42
10	8967-03	8967-03 * 105	8967_03.D	5/23/2013	14:17
11	8965-01	8965-01 10.0 ML	8965_1.D	5/23/2013	14:52
12	8965-02	8965-02 10.0 ML	8965_02.D	5/23/2013	15:26
13	8965-03	8965-03 10.0 ML	8965_03.D	5/23/2013	16:01
14	8967-06	8967-06 * 84	8967_06.D	5/23/2013	16:36
15	8967-07	8967-07 * 84	8967_07.D	5/23/2013	17:11
16	8967-08	8967-08 * 84	8967_08.D	5/23/2013	17:46
17	8967-8	8967-8 * 420	8967_8.D	5/23/2013	18:21
18	8967-8MS	8967-8MS * 420	8967_8MS.D	5/23/2013	18:56
19	8967-8MSD	8967-8MSD * 420	8967_8SD.D	5/23/2013	19:31
20	8767-11	8967_11 * 84	8967_11.D	5/23/2013	21:17
21	8967-12	8967_12 * 84	8967_12.D	5/23/2013	21:52
22	8967-13	8967_13 * 84	8967_13.D	5/23/2013	22:27

VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID: MY23_06.D BFB Injection Date: 5/23/2013
 Instrument ID: 5971 BFB Injection Time: 20:06
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	14.6
75	30.0 - 66.0% of mass 95	35.9
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.3
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	89.6
175	4.0 - 9.0% of mass 174	6.8 (7.6)1
176	93.0 - 101.0% of mass 174	90.1 (100.6)1
177	5.0 - 9.0% of mass 176	5.0 (5.6)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Sample:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTDMY23_02	SPCC_02	MY23_07.D	5/23/2013	20:42
02	8767-11	8967_11 * 84	8967_11.D	5/23/2013	21:17
03	8967-12	8967_12 * 84	8967_12.D	5/23/2013	21:52
04	8967-13	8967_13 * 84	8967_13.D	5/23/2013	22:27
05	8967-16	8967_16 * 84	8967_16.D	5/23/2013	23:02
06	8967-17	8967_17 * 84	8967_17.D	5/23/2013	23:36
07	8967-18	8967_18 * 84	8967_18.D	5/24/2013	0:11
08	8967-01	8967_01 * 420	967_1.D	5/24/2013	0:46
09	8967-02	8967_02 * 420	967_2.D	5/24/2013	1:22
10	8967-03	8967_03 * 420	967_3.D	5/24/2013	1:56
11	8967-06	8967_06 * 420	967_6.D	5/24/2013	2:32
12	8967-07	8967_07 * 420	967_7.D	5/24/2013	3:07
13	8967-08	8967_08 * 420	967_8.D	5/24/2013	3:42
14	8967-11	8967_11 * 420	967_11.D	5/24/2013	4:17
15	8967-12	8967_12 * 420	967_12.D	5/24/2013	4:52
16	8967-13	8967_13 * 420	967_13.D	5/24/2013	5:27
17	8967-16	8967_16 * 420	967_16.D	5/24/2013	6:02
18	8967-17	8967_17 * 420	967_17.D	5/24/2013	6:37
19	8967-18	8967_18 * 420	967_18.D	5/24/2013	7:12
20	8965-02	8965_02 * 8.4	965_02.D	5/24/2013	7:47

Laboratory Chronology cont.

LAB ID

8965- 1 146395 IW02
8965- 2 146395 W03
8965- 3 146395 MW41
8965- 4 Trip blank

Volatile GC/MS Conformance/Non Conformance Summary

Sample Delivery Group 8965 Run Date 05/23/2013

- | | | |
|---|----------|----------|
| 1 Chromatograms Labeled/Compounds Identified
(Field Samples and Method Blanks) | <u>X</u> | |
| 2 BFB Tune Criteria Met | <u>X</u> | |
| 3 GC/MS Tuning Frequency - every 12 hours | <u>X</u> | |
| 4 GC/MS calibration requirements met. CC every 12 hours | <u>X</u> | |
| 5 GC/MS Compound Check Requirements | <u>X</u> | |
| 6 Blank Contamination - If yes indicate all compounds

_____ | | <u>X</u> |
| 7 Surrogate Recoveries meet criterial, if not indicate samples.

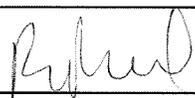
_____ | <u>X</u> | |
| 8 Matrix Spike-Matrix Spike Duplicate Meet Criteria, if not

_____ | <u>X</u> | |
| 9 Internal Standards/Retention Time shift meet criteria

_____ | <u>X</u> | |
| 10 Analysis Holding Times met.
If not indicate each sample and number of days exceeded.

_____ | <u>X</u> | |
| 11 Additional Comments

_____ | | |


6-9-13

 Randi K Rothmel, PhD Date
 Laboratory Director

2.0. Sample Summaries

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-01**Sample ID: **146395- IW02**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_1.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	5.0	U	10.0	1.0	0.50	5.00
74-87-3	chloromethane	05/23/13	5.0	U	10.0	1.0	0.53	5.00
75-01-4	vinyl chloride	05/23/13	5.0	U	10.0	1.0	0.91	5.00
74-83-9	bromomethane	05/23/13	5.0	U	10.0	1.0	1.31	5.00
75-00-3	chloroethane	05/23/13	5.0	U	10.0	1.0	0.82	5.00
75-69-4	trichlorofluoromethane	05/23/13	5.0	U	10.0	1.0	1.82	5.00
75-35-4	1,1-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.54	5.00
75-09-2	methylene chloride	05/23/13	5.0	U	10.0	1.0	0.63	5.00
156-60-5	trans-1,2-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.63	5.00
75-34-3	1,1-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.30	5.00
594-20-7	2,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	1.21	5.00
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	21.5		10.0	1.0	0.83	5.00
74-97-5	bromochloromethane	05/23/13	5.0	U	10.0	1.0	0.64	5.00
67-66-3	chloroform	05/23/13	5.0	U	10.0	1.0	0.80	5.00
71-55-6	1,1,1-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.54	5.00
56-23-5	carbon tetrachloride	05/23/13	5.0	U	10.0	1.0	0.86	5.00
563-58-6	1,1-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.67	5.00
71-43-2	benzene	05/23/13	5.0	U	10.0	1.0	1.23	5.00
107-06-2	1,2-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
79-01-6	trichloroethylene	05/23/13	114		10.0	1.0	0.72	5.00
78-87-5	1,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.52	5.00
74-95-3	dibromomethane	05/23/13	5.0	U	10.0	1.0	0.28	5.00
75-27-4	bromodichloromethane	05/23/13	5.0	U	10.0	1.0	0.58	5.00
10061-01-5	cis-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.82	5.00
108-88-3	toluene	05/23/13	5.0	U	10.0	1.0	0.50	5.00
10061-02-6	trans-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
79-00-5	1,1,2-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
127-18-4	tetrachloroethylene	05/23/13	5.0	U	10.0	1.0	1.16	5.00
142-28-9	1,3-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.37	5.00
124-48-1	Dibromochloromethane	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-93-4	1,2-Dibromoethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
108-90-7	chlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.23	5.00
100-41-4	ethylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
1330-20-7	xylenes (m/p)	05/23/13	5.0	U	10.0	1.0	0.76	5.00
95-47-6	o-xylene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
100-42-5	styrene	05/23/13	5.0	U	10.0	1.0	0.31	5.00
75-25-2	bromoform	05/23/13	5.0	U	10.0	1.0	0.86	5.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-01**Sample ID: **146395- IW02**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_1.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	05/23/13	5.0	U	10.0	1.0	0.25	5.00
108-86-1	bromobenzene	05/23/13	5.0	U	10.0	1.0	0.24	5.00
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.48	5.00
96-18-4	1,2,3-trichloropropane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
103-65-1	n-propyl benzene	05/23/13	5.0	U	10.0	1.0	0.34	5.00
95-49-8	2-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-43-4	4-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.30	5.00
108-67-8	1,3,5-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.22	5.00
98-06-6	tert-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.28	5.00
95-63-6	1,2,4-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.20	5.00
135-98-8	sec-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.43	5.00
541-73-1	1,3-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
99-87-6	4-isopropyltoluene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
106-46-7	1,4-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
95-50-1	1,2-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
104-51-8	n-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	5.0	U	10.0	1.0	2.41	5.00
120-82-1	1,2,4-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
87-68-3	hexachlorobutadiene	05/23/13	5.0	U	10.0	1.0	0.48	5.00
91-20-3	naphthalene	05/23/13	5.0	U	10.0	1.0	0.53	5.00
87-61-6	1,2,3-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.65	5.00
1634-04-4	Methyl tertiary butyl ether	05/23/13	5.0	U	10.0	1.0	0.65	5.00
67-64-1	Acetone	05/23/13	10.0	U	10.0	1.0	1.30	10.00
75-15-0	carbon disulfide	05/23/13	5.0	U	10.0	1.0	0.72	5.00
78-93-3	2-Butanone (MEK)	05/23/13	10.0	U	10.0	1.0	1.13	10.00
109-99-9	Tetrahydrofuran (THF)	05/23/13	10.0	U	10.0	1.0	1.67	10.00
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	10.0	U	10.0	1.0	0.46	10.00
591-78-6	2-hexanone	05/23/13	10.0	U	10.0	1.0	0.67	10.00
110-75-8	2-chloroethyl vinyl ether	05/23/13	10.0	U	10.0	1.0	0.89	10.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-02**Sample ID: **146395- W03**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_02.D 5/23/2013
965_02.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	5.0	U	10.0	1.0	0.50	5.00
74-87-3	chloromethane	05/23/13	5.0	U	10.0	1.0	0.53	5.00
75-01-4	vinyl chloride	05/23/13	3.0	J	10.0	1.0	0.91	5.00
74-83-9	bromomethane	05/23/13	5.0	U	10.0	1.0	1.31	5.00
75-00-3	chloroethane	05/23/13	5.0	U	10.0	1.0	0.82	5.00
75-69-4	trichlorofluoromethane	05/23/13	5.0	U	10.0	1.0	1.82	5.00
75-35-4	1,1-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.54	5.00
75-09-2	methylene chloride	05/23/13	5.0	U	10.0	1.0	0.63	5.00
156-60-5	trans-1,2-dichloroethylene	05/23/13	1.5	J	10.0	1.0	0.63	5.00
75-34-3	1,1-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.30	5.00
594-20-7	2,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	1.21	5.00
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	209	D	10.0	1.0	0.83	5.00
74-97-5	bromochloromethane	05/23/13	5.0	U	10.0	1.0	0.64	5.00
67-66-3	chloroform	05/23/13	5.0	U	10.0	1.0	0.80	5.00
71-55-6	1,1,1-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.54	5.00
56-23-5	carbon tetrachloride	05/23/13	5.0	U	10.0	1.0	0.86	5.00
563-58-6	1,1-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.67	5.00
71-43-2	benzene	05/23/13	5.0	U	10.0	1.0	1.23	5.00
107-06-2	1,2-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
79-01-6	trichloroethylene	05/23/13	413	D	1.2	8.4	6.05	42.00
78-87-5	1,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.52	5.00
74-95-3	dibromomethane	05/23/13	5.0	U	10.0	1.0	0.28	5.00
75-27-4	bromodichloromethane	05/23/13	5.0	U	10.0	1.0	0.58	5.00
10061-01-5	cis-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.82	5.00
108-88-3	toluene	05/23/13	5.0	U	10.0	1.0	0.50	5.00
10061-02-6	trans-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
79-00-5	1,1,2-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
127-18-4	tetrachloroethylene	05/23/13	5.0	U	10.0	1.0	1.16	5.00
142-28-9	1,3-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.37	5.00
124-48-1	Dibromochloromethane	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-93-4	1,2-Dibromoethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
108-90-7	chlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.23	5.00
100-41-4	ethylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
1330-20-7	xylenes (m/p)	05/23/13	5.0	U	10.0	1.0	0.76	5.00
95-47-6	o-xylene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
100-42-5	styrene	05/23/13	5.0	U	10.0	1.0	0.31	5.00
75-25-2	bromoform	05/23/13	5.0	U	10.0	1.0	0.86	5.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-02**Sample ID: **146395-W03**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_02.D 5/23/2013
965_02.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	05/23/13	5.0	U	10.0	1.0	0.25	5.00
108-86-1	bromobenzene	05/23/13	5.0	U	10.0	1.0	0.24	5.00
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.48	5.00
96-18-4	1,2,3-trichloropropane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
103-65-1	n-propyl benzene	05/23/13	5.0	U	10.0	1.0	0.34	5.00
95-49-8	2-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-43-4	4-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.30	5.00
108-67-8	1,3,5-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.22	5.00
98-06-6	tert-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.28	5.00
95-63-6	1,2,4-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.20	5.00
135-98-8	sec-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.43	5.00
541-73-1	1,3-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
99-87-6	4-isopropyltoluene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
106-46-7	1,4-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
95-50-1	1,2-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
104-51-8	n-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	5.0	U	10.0	1.0	2.41	5.00
120-82-1	1,2,4-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
87-68-3	hexachlorobutadiene	05/23/13	5.0	U	10.0	1.0	0.48	5.00
91-20-3	naphthalene	05/23/13	5.0	U	10.0	1.0	0.53	5.00
87-61-6	1,2,3-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.65	5.00
1634-04-4	Methyl tertiary butyl ether	05/23/13	5.0	U	10.0	1.0	0.65	5.00
67-64-1	Acetone	05/23/13	10.0	U	10.0	1.0	1.30	10.00
75-15-0	carbon disulfide	05/23/13	5.0	U	10.0	1.0	0.72	5.00
78-93-3	2-Butanone (MEK)	05/23/13	10.0	U	10.0	1.0	1.13	10.00
109-99-9	Tetrahydrofuran (THF)	05/23/13	10.0	U	10.0	1.0	1.67	10.00
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	10.0	U	10.0	1.0	0.46	10.00
591-78-6	2-hexanone	05/23/13	10.0	U	10.0	1.0	0.67	10.00
110-75-8	2-chloroethyl vinyl ether	05/23/13	10.0	U	10.0	1.0	0.89	10.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-03**Sample ID: **146395- MW41**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_03.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	5.0	U	10.0	1.0	0.50	5.00
74-87-3	chloromethane	05/23/13	5.0	U	10.0	1.0	0.53	5.00
75-01-4	vinyl chloride	05/23/13	5.0	U	10.0	1.0	0.91	5.00
74-83-9	bromomethane	05/23/13	5.0	U	10.0	1.0	1.31	5.00
75-00-3	chloroethane	05/23/13	5.0	U	10.0	1.0	0.82	5.00
75-69-4	trichlorofluoromethane	05/23/13	5.0	U	10.0	1.0	1.82	5.00
75-35-4	1,1-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.54	5.00
75-09-2	methylene chloride	05/23/13	5.0	U	10.0	1.0	0.63	5.00
156-60-5	trans-1,2-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.63	5.00
75-34-3	1,1-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.30	5.00
594-20-7	2,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	1.21	5.00
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	6.9		10.0	1.0	0.83	5.00
74-97-5	bromochloromethane	05/23/13	5.0	U	10.0	1.0	0.64	5.00
67-66-3	chloroform	05/23/13	5.0	U	10.0	1.0	0.80	5.00
71-55-6	1,1,1-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.54	5.00
56-23-5	carbon tetrachloride	05/23/13	5.0	U	10.0	1.0	0.86	5.00
563-58-6	1,1-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.67	5.00
71-43-2	benzene	05/23/13	5.0	U	10.0	1.0	1.23	5.00
107-06-2	1,2-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
79-01-6	trichloroethylene	05/23/13	30.3		10.0	1.0	0.72	5.00
78-87-5	1,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.52	5.00
74-95-3	dibromomethane	05/23/13	5.0	U	10.0	1.0	0.28	5.00
75-27-4	bromodichloromethane	05/23/13	5.0	U	10.0	1.0	0.58	5.00
10061-01-5	cis-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.82	5.00
108-88-3	toluene	05/23/13	5.0	U	10.0	1.0	0.50	5.00
10061-02-6	trans-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
79-00-5	1,1,2-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
127-18-4	tetrachloroethylene	05/23/13	5.0	U	10.0	1.0	1.16	5.00
142-28-9	1,3-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.37	5.00
124-48-1	Dibromochloromethane	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-93-4	1,2-Dibromoethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
108-90-7	chlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.23	5.00
100-41-4	ethylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
1330-20-7	xylene (m/p)	05/23/13	5.0	U	10.0	1.0	0.76	5.00
95-47-6	o-xylene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
100-42-5	styrene	05/23/13	5.0	U	10.0	1.0	0.31	5.00
75-25-2	bromoform	05/23/13	5.0	U	10.0	1.0	0.86	5.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-03**Sample ID: **146395- MW41**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_03.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	05/23/13	5.0	U	10.0	1.0	0.25	5.00
108-86-1	bromobenzene	05/23/13	5.0	U	10.0	1.0	0.24	5.00
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.48	5.00
96-18-4	1,2,3-trichloropropane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
103-65-1	n-propyl benzene	05/23/13	5.0	U	10.0	1.0	0.34	5.00
95-49-8	2-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-43-4	4-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.30	5.00
108-67-8	1,3,5-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.22	5.00
98-06-6	tert-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.28	5.00
95-63-6	1,2,4-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.20	5.00
135-98-8	sec-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.43	5.00
541-73-1	1,3-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
99-87-6	4-isopropyltoluene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
106-46-7	1,4-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
95-50-1	1,2-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
104-51-8	n-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	5.0	U	10.0	1.0	2.41	5.00
120-82-1	1,2,4-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
87-68-3	hexachlorobutadiene	05/23/13	5.0	U	10.0	1.0	0.48	5.00
91-20-3	naphthalene	05/23/13	5.0	U	10.0	1.0	0.53	5.00
87-61-6	1,2,3-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.65	5.00
1634-04-4	Methyl tertiary butyl ether	05/23/13	5.0	U	10.0	1.0	0.65	5.00
67-64-1	Acetone	05/23/13	10.0	U	10.0	1.0	1.30	10.00
75-15-0	carbon disulfide	05/23/13	5.0	U	10.0	1.0	0.72	5.00
78-93-3	2-Butanone (MEK)	05/23/13	10.0	U	10.0	1.0	1.13	10.00
109-99-9	Tetrahydrofuran (THF)	05/23/13	10.0	U	10.0	1.0	1.67	10.00
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	10.0	U	10.0	1.0	0.46	10.00
591-78-6	2-hexanone	05/23/13	10.0	U	10.0	1.0	0.67	10.00
110-75-8	2-chloroethyl vinyl ether	05/23/13	10.0	U	10.0	1.0	0.89	10.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8965-04 Sample ID: Trip Blank

Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_03.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	5.0	U	10.0	1.0	0.50	5.00
74-87-3	chloromethane	05/23/13	5.0	U	10.0	1.0	0.53	5.00
75-01-4	vinyl chloride	05/23/13	5.0	U	10.0	1.0	0.91	5.00
74-83-9	bromomethane	05/23/13	5.0	U	10.0	1.0	1.31	5.00
75-00-3	chloroethane	05/23/13	5.0	U	10.0	1.0	0.82	5.00
75-69-4	trichlorofluoromethane	05/23/13	5.0	U	10.0	1.0	1.82	5.00
75-35-4	1,1-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.54	5.00
75-09-2	methylene chloride	05/23/13	5.0	U	10.0	1.0	0.63	5.00
156-60-5	trans-1,2-dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.63	5.00
75-34-3	1,1-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.30	5.00
594-20-7	2,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	1.21	5.00
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	5.0	U	10.0	1.0	0.83	5.00
74-97-5	bromochloromethane	05/23/13	5.0	U	10.0	1.0	0.64	5.00
67-66-3	chloroform	05/23/13	5.0	U	10.0	1.0	0.80	5.00
71-55-6	1,1,1-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.54	5.00
56-23-5	carbon tetrachloride	05/23/13	5.0	U	10.0	1.0	0.86	5.00
563-58-6	1,1-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.67	5.00
71-43-2	benzene	05/23/13	5.0	U	10.0	1.0	1.23	5.00
107-06-2	1,2-dichloroethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
79-01-6	trichloroethylene	05/23/13	5.0	U	10.0	1.0	0.72	5.00
78-87-5	1,2-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.52	5.00
74-95-3	dibromomethane	05/23/13	5.0	U	10.0	1.0	0.28	5.00
75-27-4	bromodichloromethane	05/23/13	5.0	U	10.0	1.0	0.58	5.00
10061-01-5	cis-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.82	5.00
108-88-3	toluene	05/23/13	5.0	U	10.0	1.0	0.50	5.00
10061-02-6	trans-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
79-00-5	1,1,2-trichloroethane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
127-18-4	tetrachloroethylene	05/23/13	5.0	U	10.0	1.0	1.16	5.00
142-28-9	1,3-dichloropropane	05/23/13	5.0	U	10.0	1.0	0.37	5.00
124-48-1	Dibromochloromethane	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-93-4	1,2-Dibromoethane	05/23/13	5.0	U	10.0	1.0	0.41	5.00
108-90-7	chlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.23	5.00
100-41-4	ethylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
1330-20-7	xylenes (m/p)	05/23/13	5.0	U	10.0	1.0	0.76	5.00
95-47-6	o-xylene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
100-42-5	styrene	05/23/13	5.0	U	10.0	1.0	0.31	5.00
75-25-2	bromoform	05/23/13	5.0	U	10.0	1.0	0.86	5.00

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: **8965-04**Sample ID: **Trip Blank**Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8965_03.D 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/20/13Soil extract date: Date Received: 05/21/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	05/23/13	5.0	U	10.0	1.0	0.25	5.00
108-86-1	bromobenzene	05/23/13	5.0	U	10.0	1.0	0.24	5.00
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.0	0.48	5.00
96-18-4	1,2,3-trichloropropane	05/23/13	5.0	U	10.0	1.0	0.65	5.00
103-65-1	n-propyl benzene	05/23/13	5.0	U	10.0	1.0	0.34	5.00
95-49-8	2-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.25	5.00
106-43-4	4-chlorotoluene	05/23/13	5.0	U	10.0	1.0	0.30	5.00
108-67-8	1,3,5-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.22	5.00
98-06-6	tert-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.28	5.00
95-63-6	1,2,4-trimethylbenzene	05/23/13	5.0	U	10.0	1.0	0.20	5.00
135-98-8	sec-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.43	5.00
541-73-1	1,3-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
99-87-6	4-isopropyltoluene	05/23/13	5.0	U	10.0	1.0	0.49	5.00
106-46-7	1,4-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.40	5.00
95-50-1	1,2-dichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
104-51-8	n-butylbenzene	05/23/13	5.0	U	10.0	1.0	0.36	5.00
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	5.0	U	10.0	1.0	2.41	5.00
120-82-1	1,2,4-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.37	5.00
87-68-3	hexachlorobutadiene	05/23/13	5.0	U	10.0	1.0	0.48	5.00
91-20-3	naphthalene	05/23/13	5.0	U	10.0	1.0	0.53	5.00
87-61-6	1,2,3-trichlorobenzene	05/23/13	5.0	U	10.0	1.0	0.65	5.00
1634-04-4	Methyl tertiary butyl ether	05/23/13	5.0	U	10.0	1.0	0.65	5.00
67-64-1	Acetone	05/23/13	10.0	U	10.0	1.0	1.30	10.00
75-15-0	carbon disulfide	05/23/13	5.0	U	10.0	1.0	0.72	5.00
78-93-3	2-Butanone (MEK)	05/23/13	10.0	U	10.0	1.0	1.13	10.00
109-99-9	Tetrahydrofuran (THF)	05/23/13	10.0	U	10.0	1.0	1.67	10.00
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	10.0	U	10.0	1.0	0.46	10.00
591-78-6	2-hexanone	05/23/13	10.0	U	10.0	1.0	0.67	10.00
110-75-8	2-chloroethyl vinyl ether	05/23/13	10.0	U	10.0	1.0	0.89	10.00

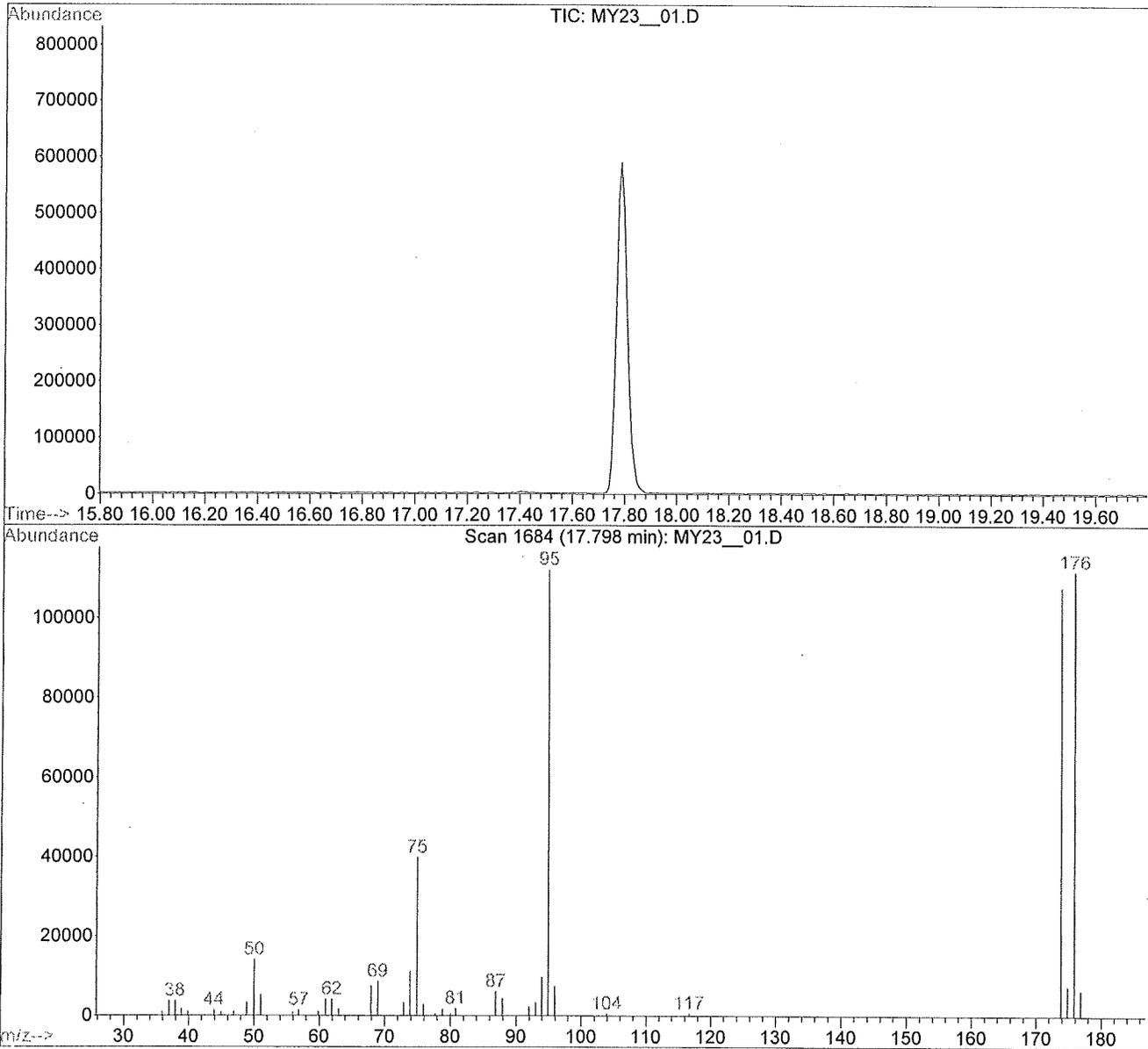
3.0 QA/QC Results

Tune Results

- 1 Instrument Tunes were performed every 12 hours.
 - 2 Tuning compound is 4 Bromofluorobenzene.
 - 3 BFB tune must meet criteria prior to the analysis of samples.
 - 4 See attached tune report(s).
BFB for Initial Calibration as well as for all SPCC/CCC runs included
-

Data File : C:\HPCHEM\1\DATA\MY23_13\MY23_01.D
 Acq On : 23 May 2013 7:51 am
 Sample : BFB
 Misc :
 MS Integration Params: ODD.P
 Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11

Vial: 1
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

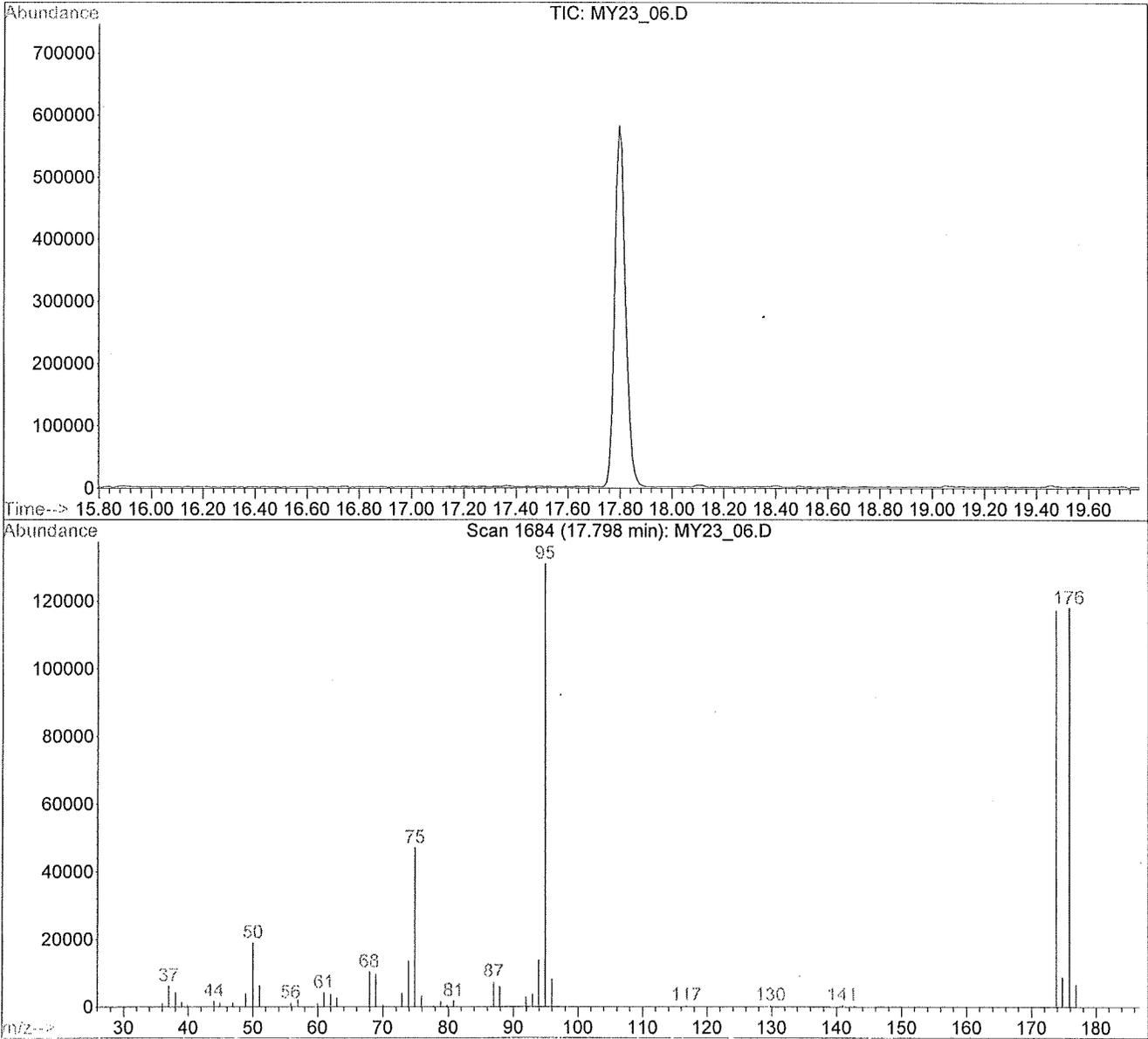


Spectrum Information: Scan 1684

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result
50	95	10	40	12.7	14218	PASS
75	95	30	68	35.6	39920	PASS
95	95	100	100	100.0	112088	PASS
96	95	4	10	6.6	7452	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	99	96.0	107656	PASS
175	174	4	9	7.0	7487	PASS
176	174	92	105	103.7	111640	PASS
177	176	4	9	5.7	6417	PASS

Data File : C:\HPCHEM\1\DATA\MY23_13\MY23_06.D
 Acq On : 23 May 2013 8:06 pm
 Sample : Bfb_02
 Misc :
 MS Integration Params: ODD.P
 Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11

Vial: 22
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00



Spectrum Information: Scan 1684

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result
50	95	10	40	14.6	19136	PASS
75	95	30	68	35.9	47120	PASS
95	95	100	100	100.0	131072	PASS
96	95	4	10	6.3	8203	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	99	89.6	117440	PASS
175	174	4	9	7.6	8903	PASS
176	174	92	105	100.6	118096	PASS
177	176	4	9	5.6	6600	PASS

Method Blank Summary

- 1 Method blanks were analyzed at the beginning and end of all sample sets.
 - 2 Method blanks indicated no TCL targeted organic compounds detected above the MDL.
 - 3 Blanks were analyzed within the requirements as established in the scope of work.
-

VOLATILE METHOD BLANK SUMMARY

mBlk

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID: MY23__04.D Lab Sample ID: Blk
 Date Analyzed: 5/23/2013 Time Analyzed: 9:36
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N
 Instrument ID: 5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Sample:	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	QC CHK	QC	MY23__03.D	9:01
02	8965-01	8965-01 * 84	8965_01.D	10:46
03	8965-02	8965-02 * 84	8965_2.D	11:21
04	8965-03	8965-03 * 84	8965_3.D	11:56
05	8965-04	8965-04 10.0 ML	8965_4.D	12:31
06	8967-01	8967-01 * 105	8967_01.D	13:06
07	8967-02	8967-02 * 105	8967_02.D	13:42
08	8967-03	8967-03 * 105	8967_03.D	14:17
09	8965-01	8965-01 10.0 ML	8965_1.D	14:52
10	8965-02	8965-02 10.0 ML	8965_02.D	15:26
11	8965-03	8965-03 10.0 ML	8965_03.D	16:01
12	8967-06	8967-06 * 84	8967_06.D	16:36
13	8967-07	8967-07 * 84	8967_07.D	17:11
14	8967-08	8967-08 * 84	8967_08.D	17:46
15	8967-8	8967-8 * 420	8967_8.D	18:21
16	8967-8MS	8967-8MS * 420	8967_8MS.D	18:56
17	8967-8MSD	8967-8MSD * 420	8967_8SD.D	19:31
18	8767-11	8967_11 * 84	8967_11.D	21:17
19	8967-12	8967_12 * 84	8967_12.D	21:52
20	8967-13	8967_13 * 84	8967_13.D	22:27
21	8967-16	8967_16 * 84	8967_16.D	23:02
22	8967-17	8967_17 * 84	8967_17.D	23:36
23	8967-18	8967_18 * 84	8967_18.D	0:11
24	8967-01	8967_01 * 420	967_1.D	0:46
25	8967-02	8967_02 * 420	967_2.D	1:22
26	8967-03	8967_03 * 420	967_3.D	1:56
27	8967-06	8967_06 * 420	967_6.D	2:32
28	8967-07	8967_07 * 420	967_7.D	3:07
29	8967-08	8967_08 * 420	967_8.D	3:42
30	8967-11	8967_11 * 420	967_11.D	4:17
31	8967-12	8967_12 * 420	967_12.D	4:52
32	8967-13	8967_13 * 420	967_13.D	5:27
33	8967-16	8967_16 * 420	967_16.D	6:02
34	8967-17	8967_17 * 420	967_17.D	6:37

COMMENTS:

4A
VOLATILE METHOD BLANK SUMMARY

Sample:

mBlk

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID: MY23_04.D Lab Sample ID: Blk
 Date Analyzed: 5/23/2013 Time Analyzed: 9:36
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N
 Instrument ID: 5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Sample:	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
35	8967-18	8967_18 * 420	967_18.D	7:12
36	8965-02	8965_02 * 8.4	965_02.D	7:47

COMMENTS:

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: BLK 5/23/13Sample ID: Method BlankMatrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) MY23__04 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/23/13Soil extract date: Date Received: 05/23/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	5.0	U	10.0	1.00	0.50	5.0
74-87-3	chloromethane	05/23/13	5.0	U	10.0	1.00	0.53	5.0
75-01-4	vinyl chloride	05/23/13	5.0	U	10.0	1.00	0.91	5.0
74-83-9	bromomethane	05/23/13	5.0	U	10.0	1.00	1.31	5.0
75-00-3	chloroethane	05/23/13	5.0	U	10.0	1.00	0.82	5.0
75-69-4	trichlorofluoromethane	05/23/13	5.0	U	10.0	1.00	1.82	5.0
75-35-4	1,1-dichloroethylene	05/23/13	5.0	U	10.0	1.00	0.54	5.0
75-09-2	methylene chloride	05/23/13	5.0	U	10.0	1.00	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	05/23/13	5.0	U	10.0	1.00	0.63	5.0
75-34-3	1,1-dichloroethane	05/23/13	5.0	U	10.0	1.00	0.30	5.0
594-20-7	2,2-dichloropropane	05/23/13	5.0	U	10.0	1.00	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	5.0	U	10.0	1.00	0.83	5.0
74-97-5	bromochloromethane	05/23/13	5.0	U	10.0	1.00	0.64	5.0
67-66-3	chloroform	05/23/13	5.0	U	10.0	1.00	0.80	5.0
71-55-6	1,1,1-trichloroethane	05/23/13	5.0	U	10.0	1.00	0.54	5.0
56-23-5	carbon tetrachloride	05/23/13	5.0	U	10.0	1.00	0.86	5.0
563-58-6	1,1-dichloropropene	05/23/13	5.0	U	10.0	1.00	0.67	5.0
71-43-2	benzene	05/23/13	5.0	U	10.0	1.00	1.23	5.0
107-06-2	1,2-dichloroethane	05/23/13	5.0	U	10.0	1.00	0.41	5.0
79-01-6	trichloroethylene	05/23/13	5.0	U	10.0	1.00	0.72	5.0
78-87-5	1,2-dichloropropane	05/23/13	5.0	U	10.0	1.00	0.52	5.0
74-95-3	dibromomethane	05/23/13	5.0	U	10.0	1.00	0.28	5.0
75-27-4	bromodichloromethane	05/23/13	5.0	U	10.0	1.00	0.58	5.0
10061-01-6	cis-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.00	0.82	5.0
108-88-3	toluene	05/23/13	5.0	U	10.0	1.00	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	05/23/13	5.0	U	10.0	1.00	0.25	5.0
79-00-5	1,1,2-trichloroethane	05/23/13	5.0	U	10.0	1.00	0.65	5.0
127-18-4	tetrachloroethylene	05/23/13	5.0	U	10.0	1.00	1.16	5.0
142-28-9	1,3-dichloropropane	05/23/13	5.0	U	10.0	1.00	0.37	5.0
124-48-1	Dibromochloromethane	05/23/13	5.0	U	10.0	1.00	0.25	5.0
106-93-4	1,2-Dibromoethane	05/23/13	5.0	U	10.0	1.00	0.41	5.0
108-90-7	chlorobenzene	05/23/13	5.0	U	10.0	1.00	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.00	0.23	5.0
100-41-4	ethylbenzene	05/23/13	5.0	U	10.0	1.00	0.36	5.0
1330-20-7	xylenes (m/p)	05/23/13	5.0	U	10.0	1.00	0.76	5.0
95-47-6	o-xylene	05/23/13	5.0	U	10.0	1.00	0.25	5.0
100-42-5	styrene	05/23/13	5.0	U	10.0	1.00	0.31	5.0
75-25-2	bromoform	05/23/13	5.0	U	10.0	1.00	0.86	5.0
98-82-8	isopropyl benzene (cumene)	05/23/13	5.0	U	10.0	1.00	0.25	5.0
108-86-1	bromobenzene	05/23/13	5.0	U	10.0	1.00	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	5.0	U	10.0	1.00	0.48	5.0
96-18-4	1,2,3-trichloropropane	05/23/13	5.0	U	10.0	1.00	0.65	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: BLK 5/23/13Sample ID: Method BlankMatrix WATERAnalyst AS%Moisture 100.00Calib date: 3/20/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) MY23_04 5/23/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 05/23/13

Soil extract date:

Date Received: 05/23/13

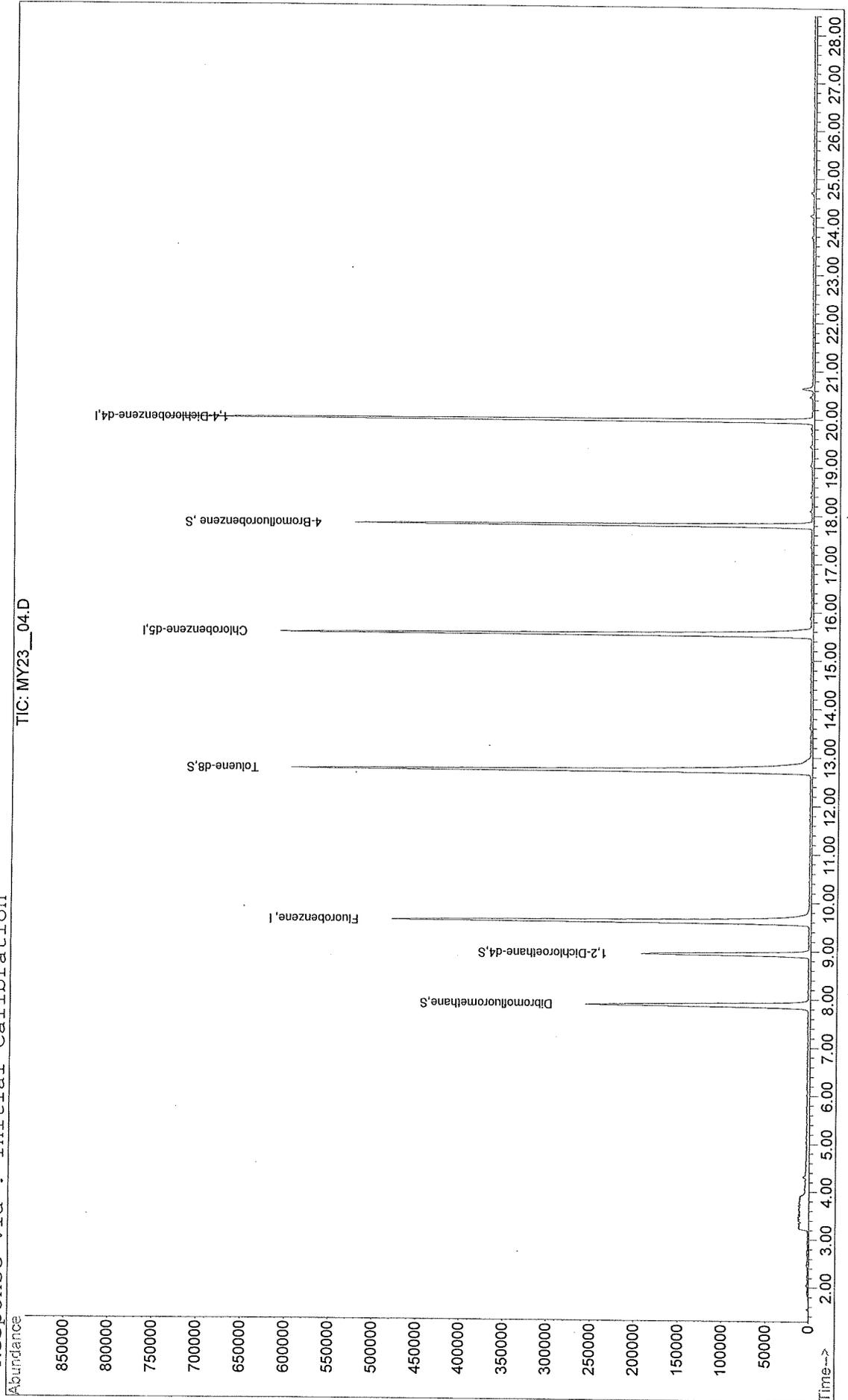
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	05/23/13	5.0	U	10.0	1.00	0.34	5.0
95-49-8	2-chlorotoluene	05/23/13	5.0	U	10.0	1.00	0.25	5.0
106-43-4	4-chlorotoluene	05/23/13	5.0	U	10.0	1.00	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	05/23/13	5.0	U	10.0	1.00	0.22	5.0
98-06-6	tert-butylbenzene	05/23/13	5.0	U	10.0	1.00	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	05/23/13	5.0	U	10.0	1.00	0.20	5.0
135-98-8	sec-butylbenzene	05/23/13	5.0	U	10.0	1.00	0.43	5.0
541-73-1	1,3-dichlorobenzene	05/23/13	5.0	U	10.0	1.00	0.49	5.0
99-87-6	4-isopropyltoluene	05/23/13	5.0	U	10.0	1.00	0.49	5.0
106-46-7	1,4-dichlorobenzene	05/23/13	5.0	U	10.0	1.00	0.40	5.0
95-50-1	1,2-dichlorobenzene	05/23/13	5.0	U	10.0	1.00	0.37	5.0
104-51-8	n-butylbenzene	05/23/13	5.0	U	10.0	1.00	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	5.0	U	10.0	1.00	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	05/23/13	5.0	U	10.0	1.00	0.37	5.0
87-68-3	hexachlorobutadiene	05/23/13	5.0	U	10.0	1.00	0.48	5.0
91-20-3	naphthalene	05/23/13	5.0	U	10.0	1.00	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	05/23/13	5.0	U	10.0	1.00	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	05/23/13	5.0	U	10.0	1.00	0.65	5.0
67-64-1	Acetone	05/23/13	10.0	U	10.0	1.00	1.30	10.0
75-15-0	carbon disulfide	05/23/13	5.0	U	10.0	1.00	0.72	5.0
78-93-3	2-Butanone (MEK)	05/23/13	10.0	U	10.0	1.00	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	05/23/13	10.0	U	10.0	1.00	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	10.0	U	10.0	1.00	0.46	10.0
591-78-6	2-hexanone	05/23/13	10.0	U	10.0	1.00	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	05/23/13	10.0	U	10.0	1.00	0.89	10.0

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	05/23/13	24.79	4.14	25.0	99.16%
17060-07-(1,2-Dichloroethane-d4	05/23/13	24.09	6.61	25.0	96.36%
2037-26-5 Toluene-d8	05/23/13	25.80	2.84	25.0	103.20%
460-00-4 4-Bromofluorobenzene	05/23/13	25.35	1.81	25.0	101.40%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\MY23_04.D Vial: 4
Acq On : 23 May 2013 9:36 am Operator:
Sample : Blk Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: May 29 13:44 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



0029

Calibration Summary

- 1 Targeted TCL volatile compounds met all required calibration criteria.
 - 2 A QC check standard was analyzed after the initial calibration to validate the accuracy of the curve. The recoveries are shown as attached in this section. The QC check is prepared from a differing manufacturer of the targeted organic compounds at a 20 ppb concentration. LCS is run at 25 ppb
 - 3 Continuing calibrations were performed every 12 hours.
-

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: A.T.L Analyst: AS
 N.J.DEP. 11001 Calib. Dat 05/06/201 GC/MS: # 2 Client: NA
 Instrument ID: 5971 Calibration Date: 5/23/2013 Time: 8:26
 Lab File ID: MY23_02.D Init. Calib. Date(s): 5/6/2013 5/6/2013
 Heated Purge: (Y/N) N Init. Calib. Times: 8:37 11:31
 GC Column: RTX 502.2 ID: 0.25 (mm)

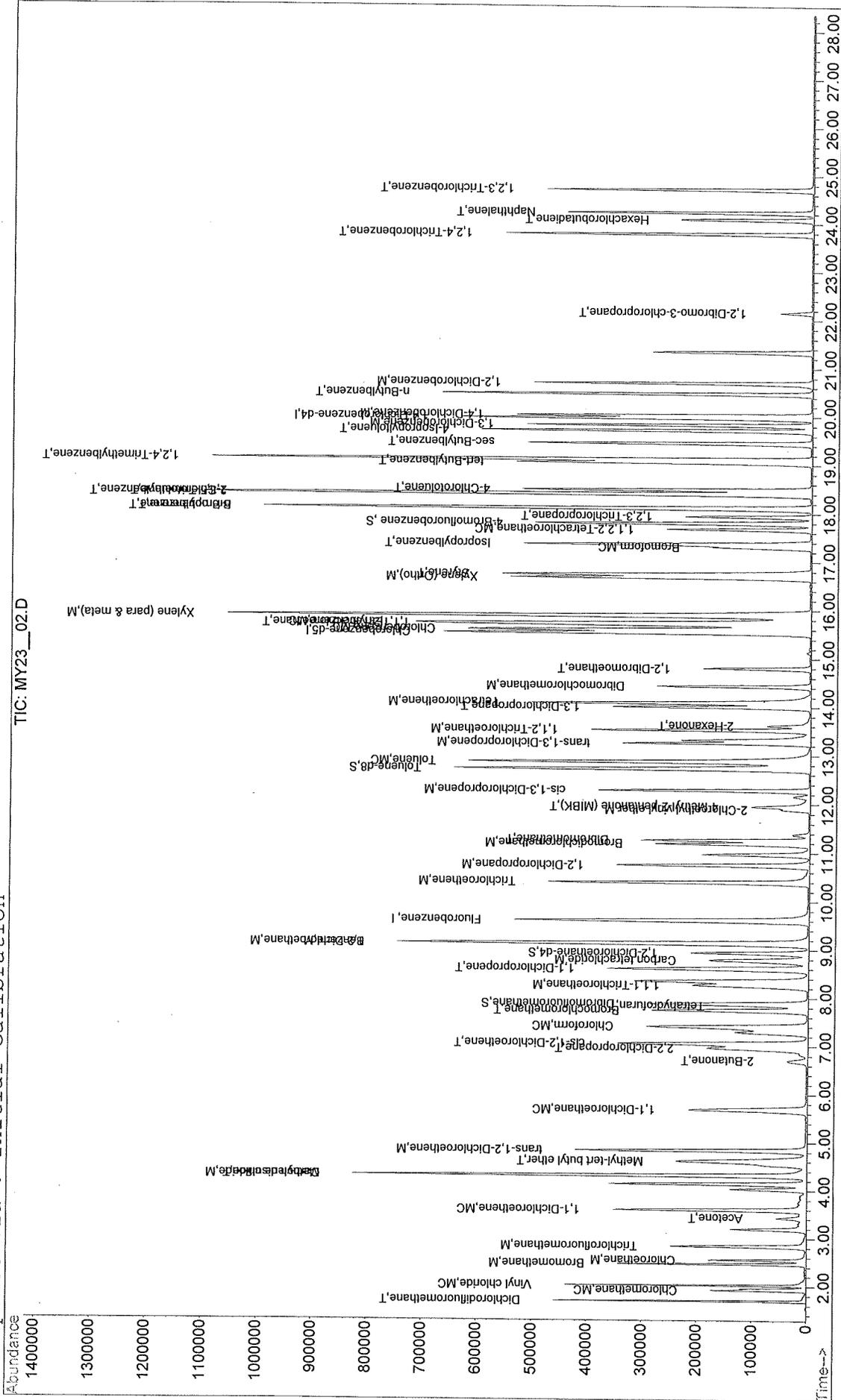
COMPOUND	RRF	RRF5	MIN RRF	% D	MAX % D
Chloromethane	0.357	0.366	0.100	-2.5	20.0
Vinyl chloride	0.319	0.362	0.100	-13.6	20.0
1,1-Dichloroethene	0.260	0.277	0.100	-6.6	20.0
1,1-Dichloroethane	0.539	0.565	0.100	-4.8	20.0
Chloroform	0.511	0.543	0.100	-6.3	20.0
Benzene	1.106	1.175		-6.2	
Trichloroethene	0.326	0.352		-8.1	
1,2-Dichloropropane	0.284	0.308		-8.5	
Toluene	0.675	0.729	0.100	-7.8	20.0
Chlorobenzene	1.034	1.032	0.100	0.2	20.0
Ethylbenzene	1.428	1.382		3.2	
Bromoform	0.205	0.203	0.100	0.6	20.0
1,1,2,2-Tetrachloroethane	0.322	0.361	0.100	-12.1	20.0
Dibromofluoromethane	0.315	0.311		1.2	
1,2-Dichloroethane-d4	0.215	0.218		-1.6	
Toluene-d8	0.904	0.933		-3.1	
4-Bromofluorobenzene	0.417	0.398		4.7	

All other compounds must meet a minimum RRF of 0.010.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\MY23_02.D Vial: 2
Acq On : 23 May 2013 8:26 am Operator: GC/MS 597
Sample : Spcc/ccc Multiplr: 1.00
Misc :
MS Integration Params: ODD.P
Quant Time: May 29 12:25 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: A.T.L Analyst: AS
 N.J.DEP. 11001 Calib. Dat 05/06/201 GC/MS: # 2 Client: NA
 Instrument ID: 5971 Calibration Date: 5/23/2013 Time: 20:42
 Lab File ID: MY23_07.D Init. Calib. Date(s): 5/6/2013 5/6/2013
 Heated Purge: (Y/N) N Init. Calib. Times: 8:37 11:31
 GC Column: RTX 502.2 ID: 0.25 (mm)

COMPOUND	RRF	RRF5	MIN RRF	% D	MAX % D
Chloromethane	0.357	0.395	0.100	-10.8	20.0
Vinyl chloride	0.319	0.381	0.100	-19.6	20.0
1,1-Dichloroethene	0.260	0.281	0.100	-8.0	20.0
1,1-Dichloroethane	0.539	0.585	0.100	-8.5	20.0
Chloroform	0.511	0.550	0.100	-7.7	20.0
Benzene	1.106	1.225		-10.8	
Trichloroethene	0.326	0.355		-8.8	
1,2-Dichloropropane	0.284	0.309		-8.6	
Toluene	0.675	0.741	0.100	-9.6	20.0
Chlorobenzene	1.034	1.059	0.100	-2.3	20.0
Ethylbenzene	1.428	1.514		-6.0	
Bromoform	0.205	0.178	0.100	12.8	20.0
1,1,2,2-Tetrachloroethane	0.322	0.328	0.100	-1.7	20.0
Dibromofluoromethane	0.315	0.312		0.8	
1,2-Dichloroethane-d4	0.215	0.204		4.9	
Toluene-d8	0.904	0.932		-3.1	
4-Bromofluorobenzene	0.417	0.437		-4.7	

All other compounds must meet a minimum RRF of 0.010.

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: QC 5/23/13Sample ID: LCSMatrix WATERAnalyst AS%Moisture 100.00Calib date: 3/20/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) MY23__03 5/23/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 05/23/13

Soil extract date:

Date Received: 05/23/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	18.8	10.0	1.00	0.50	5.0
74-87-3	chloromethane	05/23/13	20.7	10.0	1.00	0.53	5.0
75-01-4	vinyl chloride	05/23/13	20.7	10.0	1.00	0.91	5.0
74-83-9	bromomethane	05/23/13	17.7	10.0	1.00	1.31	5.0
75-00-3	chloroethane	05/23/13	21.0	10.0	1.00	0.82	5.0
75-69-4	trichlorofluoromethane	05/23/13	18.9	10.0	1.00	1.82	5.0
75-35-4	1,1-dichloroethylene	05/23/13	19.6	10.0	1.00	0.54	5.0
75-09-2	methylene chloride	05/23/13	21.4	10.0	1.00	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	05/23/13	20.7	10.0	1.00	0.63	5.0
75-34-3	1,1-dichloroethane	05/23/13	21.0	10.0	1.00	0.30	5.0
594-20-7	2,2-dichloropropane	05/23/13	19.3	10.0	1.00	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	21.1	10.0	1.00	0.83	5.0
74-97-5	bromochloromethane	05/23/13	20.2	10.0	1.00	0.64	5.0
67-66-3	chloroform	05/23/13	20.4	10.0	1.00	0.80	5.0
71-55-6	1,1,1-trichloroethane	05/23/13	18.7	10.0	1.00	0.54	5.0
56-23-5	carbon tetrachloride	05/23/13	18.8	10.0	1.00	0.86	5.0
563-58-6	1,1-dichloropropene	05/23/13	20.0	10.0	1.00	0.67	5.0
71-43-2	benzene	05/23/13	21.0	10.0	1.00	1.23	5.0
107-06-2	1,2-dichloroethane	05/23/13	20.1	10.0	1.00	0.41	5.0
79-01-6	trichloroethylene	05/23/13	20.4	10.0	1.00	0.72	5.0
78-87-5	1,2-dichloropropane	05/23/13	21.0	10.0	1.00	0.52	5.0
74-95-3	dibromomethane	05/23/13	20.0	10.0	1.00	0.28	5.0
75-27-4	bromodichloromethane	05/23/13	19.0	10.0	1.00	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	05/23/13	20.5	10.0	1.00	0.82	5.0
108-88-3	toluene	05/23/13	20.8	10.0	1.00	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	05/23/13	19.3	10.0	1.00	0.25	5.0
79-00-5	1,1,2-trichloroethane	05/23/13	20.0	10.0	1.00	0.65	5.0
127-18-4	tetrachloroethylene	05/23/13	18.7	10.0	1.00	1.16	5.0
142-28-9	1,3-dichloropropane	05/23/13	20.2	10.0	1.00	0.37	5.0
124-48-1	Dibromochloromethane	05/23/13	18.5	10.0	1.00	0.25	5.0
106-93-4	1,2-Dibromoethane	05/23/13	22.0	10.0	1.00	0.41	5.0
108-90-7	chlorobenzene	05/23/13	20.2	10.0	1.00	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	19.1	10.0	1.00	0.23	5.0
100-41-4	ethylbenzene	05/23/13	20.2	10.0	1.00	0.36	5.0
1330-20-7	xylene (m/p)	05/23/13	20.7	10.0	1.00	0.76	5.0
95-47-6	o-xylene	05/23/13	20.5	10.0	1.00	0.25	5.0
100-42-5	styrene	05/23/13	20.1	10.0	1.00	0.31	5.0
75-25-2	bromoform	05/23/13	17.1	10.0	1.00	0.86	5.0
98-82-8	isopropyl benzene (cumene)	05/23/13	20.0	10.0	1.00	0.25	5.0
108-86-1	bromobenzene	05/23/13	20.4	10.0	1.00	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	19.3	10.0	1.00	0.48	5.0
96-18-4	1,2,3-trichloropropane	05/23/13	18.7	10.0	1.00	0.65	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: QC 5/23/13Sample ID: LCSMatrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) MY23_03 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/23/13Soil extract date: Date Received: 05/23/13

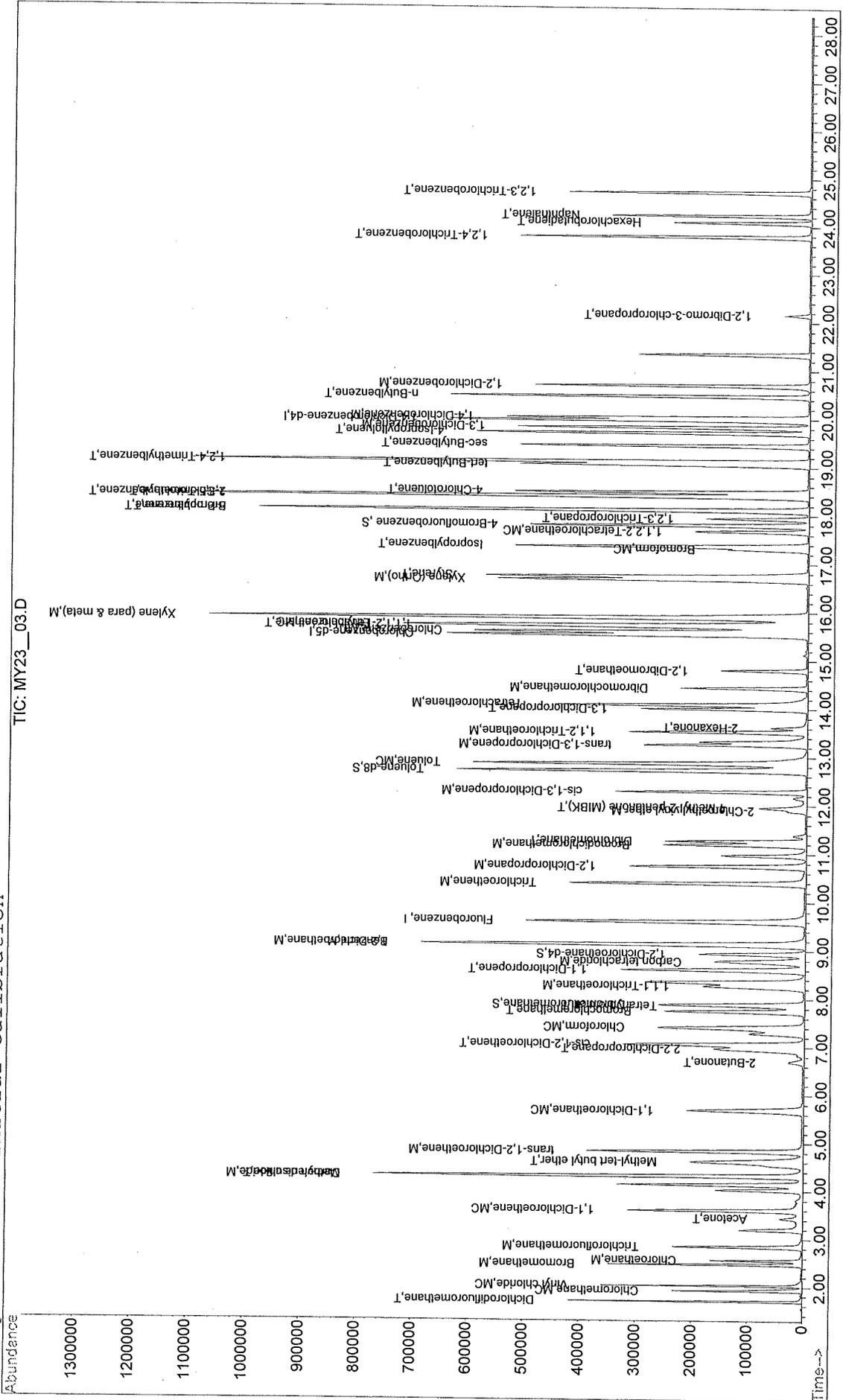
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	05/23/13	20.0	10.0	1.00	0.34	5.0
95-49-8	2-chlorotoluene	05/23/13	20.2	10.0	1.00	0.25	5.0
106-43-4	4-chlorotoluene	05/23/13	20.2	10.0	1.00	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	05/23/13	19.8	10.0	1.00	0.22	5.0
98-06-6	tert-butylbenzene	05/23/13	20.9	10.0	1.00	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	05/23/13	19.8	10.0	1.00	0.20	5.0
135-98-8	sec-butylbenzene	05/23/13	19.7	10.0	1.00	0.43	5.0
541-73-1	1,3-dichlorobenzene	05/23/13	20.1	10.0	1.00	0.49	5.0
99-87-6	4-isopropyltoluene	05/23/13	19.5	10.0	1.00	0.49	5.0
106-46-7	1,4-dichlorobenzene	05/23/13	19.2	10.0	1.00	0.40	5.0
95-50-1	1,2-dichlorobenzene	05/23/13	19.1	10.0	1.00	0.37	5.0
104-51-8	n-butylbenzene	05/23/13	19.2	10.0	1.00	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	17.0	10.0	1.00	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	05/23/13	18.6	10.0	1.00	0.37	5.0
87-68-3	hexachlorobutadiene	05/23/13	19.3	10.0	1.00	0.48	5.0
91-20-3	naphthalene	05/23/13	17.0	10.0	1.00	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	05/23/13	18.2	10.0	1.00	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	05/23/13	18.0	10.0	1.00	0.65	5.0
67-64-1	Acetone	05/23/13	20.2	10.0	1.00	1.30	10.0
75-15-0	carbon disulfide	05/23/13	18.3	10.0	1.00	0.72	5.0
78-93-3	2-Butanone (MEK)	05/23/13	16.6	10.0	1.00	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	05/23/13	17.5	10.0	1.00	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	17.1	10.0	1.00	0.46	10.0
591-78-6	2-hexanone	05/23/13	16.8	10.0	1.00	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	05/23/13	15.0	10.0	1.00	0.89	10.0

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	05/23/13	24.56	4.14	25.0	98.24%
17060-07-(1,2-Dichloroethane-d4	05/23/13	23.51	6.61	25.0	94.04%
2037-26-5 Toluene-d8	05/23/13	25.68	2.84	25.0	102.72%
460-00-4 4-Bromofluorobenzene	05/23/13	25.50	1.81	25.0	102.00%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\MY23_03.D Vial: 3
Acq On : 23 May 2013 9:01 am Operator: GC/MS 597
Sample : QC Inst : Multiplr: 1.00
Misc :
MS Integration Params: ODD.P
Quant Time: May 23 9:41 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



0037

Surrogate Summary

- 1 Surrogate recoveries are enclosed.

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____

	Sample:	SMC1 DBFM #	SMC2 DCE #	SMC3 TD8 #	SMC4 (BFB) #	TOT OUT
01	QC CHK	98	94	103	102	0
02	MBLK	99	96	103	101	0
03	8965-01	99	95	104	102	0
04	8965-02	97	93	103	99	0
05	8965-03	98	94	101	102	0
06	8965-04	98	95	100	96	0
07	8967-01	96	95	102	103	0
08	8967-02	96	93	101	105	0
09	8967-03	99	95	101	103	0
10	8965-01	95	95	101	101	0
11	8965-02	97	96	101	102	0
12	8965-03	97	96	102	102	0
13	8967-06	96	93	102	104	0
14	8967-07	99	94	102	105	0
15	8967-08	97	96	101	106	0
16	8967-8	96	95	102	103	0
17	8967-8MS	99	93	101	104	0
18	8967-8MSD	97	93	102	103	0
19	8767-11	97	93	102	102	0
20	8967-12	94	95	102	103	0
21	8967-13	98	92	103	105	0
22	8967-16	97	95	105	105	0
23	8967-17	95	97	102	100	0
24	8967-18	97	94	103	106	0
25	8967-01	97	95	101	99	0
26	8967-02	97	97	102	100	0
27	8967-03	94	93	101	101	0
28	8967-06	98	99	98	97	0
29	8967-07	98	97	99	97	0
30	8967-08	97	95	101	98	0
31	8967-11	99	101	102	100	0
32	8967-12	96	96	103	100	0
33	8967-13	98	97	101	103	0

QC LIMITS

SMC1 DBFM = Dibromofluoromethane (80-120)
 SMC2 DCE = 1,2-Dichloroethane-d4 (80-120)
 SMC3 TD8 = Toluene-d8 (80-120)
 SMC4 (BFB) = 4-Bromofluorobenzene (80-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ATL Analyzed: TSNJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____

	Sample:	SMC1 DBFM #	SMC2 DCE #	SMC3 TD8 #	SMC4 (BFB) #	TOT OUT
34	8967-16	96	97	101	106	0
35	8967-17	95	93	101	105	0
36	8967-18	93	93	103	106	0
37	8965-02	94	92	101	99	0

QC LIMITS

SMC1	DBFM	=	Dibromofluoromethane	(80-120)
SMC2	DCE	=	1,2-Dichloroethane-d4	(80-120)
SMC3	TD8	=	Toluene-d8	(80-120)
SMC4	(BFB)	=	4-Bromofluorobenzene	(80-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

MS/MSD Summary

1 MS/MSD recoveries are enclosed.

3A

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ATL Analyzed: TSNJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____Matrix Spike - Sample: 8967-8

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	8400	1500	11000	113	70 - 130
Benzene	8400	0.0	9200	110	70 - 130
Trichloroethene	8400	3700	13000	111	70 - 130
Toluene	8400	0.0	9200	110	70 - 130
Chlorobenzene	8400	0.0	8700	104	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	8400	10000	101	11	25	70 - 130
Benzene	8400	9200	110	0	25	70 - 130
Trichloroethene	8400	13000	111	0	25	70 - 130
Toluene	8400	9200	110	0	25	70 - 130
Chlorobenzene	8400	8500	101	3	25	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8967-8msd Sample ID: MSD
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 3/20/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8967_8SD. 5/23/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 05/22/13

Soil extract date:

Date Received: 05/22/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	8660	D	0.024	420	210	2100
74-87-3	chloromethane	05/23/13	8960	D	0.024	420	223	2100
75-01-4	vinyl chloride	05/23/13	10210	D	0.024	420	382	2100
74-83-9	bromomethane	05/23/13	6460	D	0.024	420	550	2100
75-00-3	chloroethane	05/23/13	9250	D	0.024	420	344	2100
75-69-4	trichlorofluoromethane	05/23/13	8440	D	0.024	420	764	2100
75-35-4	1,1-dichloroethylene	05/23/13	10470	D	0.024	420	227	2100
75-09-2	methylene chloride	05/23/13	9410	D	0.024	420	265	2100
156-60-5	trans-1,2-dichloroethylene	05/23/13	9250	D	0.024	420	265	2100
75-34-3	1,1-dichloroethane	05/23/13	10740	D	0.024	420	126	2100
594-20-7	2,2-dichloropropane	05/23/13	7570	D	0.024	420	508	2100
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	10010	D	0.024	420	349	2100
74-97-5	bromochloromethane	05/23/13	8570	D	0.024	420	269	2100
67-66-3	chloroform	05/23/13	8770	D	0.024	420	336	2100
71-55-6	1,1,1-trichloroethane	05/23/13	8400	D	0.024	420	227	2100
56-23-5	carbon tetrachloride	05/23/13	7900	D	0.024	420	361	2100
563-58-6	1,1-dichloropropene	05/23/13	8920	D	0.024	420	281	2100
71-43-2	benzene	05/23/13	9170	D	0.024	420	517	2100
107-06-2	1,2-dichloroethane	05/23/13	8420	D	0.024	420	172	2100
79-01-6	trichloroethylene	05/23/13	12690	D	0.024	420	302	2100
78-87-5	1,2-dichloropropane	05/23/13	8850	D	0.024	420	218	2100
74-95-3	dibromomethane	05/23/13	8710	D	0.024	420	118	2100
75-27-4	bromodichloromethane	05/23/13	8060	D	0.024	420	244	2100
10061-01-5	cis-1,3-dichloropropene	05/23/13	8560	D	0.024	420	344	2100
108-88-3	toluene	05/23/13	9170	D	0.024	420	210	2100
10061-02-6	trans-1,3-dichloropropene	05/23/13	8520	D	0.024	420	105	2100
79-00-5	1,1,2-trichloroethane	05/23/13	8710	D	0.024	420	273	2100
127-18-4	tetrachloroethylene	05/23/13	36780	D	0.024	420	487	2100
142-28-9	1,3-dichloropropane	05/23/13	9130	D	0.024	420	155	2100
124-48-1	Dibromochloromethane	05/23/13	7690	D	0.024	420	105	2100
106-93-4	1,2-Dibromoethane	05/23/13	9760	D	0.024	420	172	2100
108-90-7	chlorobenzene	05/23/13	8500	D	0.024	420	168	2100
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	7690	D	0.024	420	97	2100
100-41-4	ethylbenzene	05/23/13	8920	D	0.024	420	151	2100
1330-20-7	xylenes (m/p)	05/23/13	8910	D	0.024	420	319	2100
95-47-6	o-xylene	05/23/13	8920	D	0.024	420	105	2100
100-42-5	styrene	05/23/13	8660	D	0.024	420	130	2100
75-25-2	bromoform	05/23/13	7000	D	0.024	420	361	2100
98-82-8	isopropyl benzene (cumene)	05/23/13	8790	D	0.024	420	105	2100
108-86-1	bromobenzene	05/23/13	8670	D	0.024	420	101	2100
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	8060	D	0.024	420	202	2100
96-18-4	1,2,3-trichloropropane	05/23/13	8100	D	0.024	420	273	2100

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8967-8msd Sample ID: MSD
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 3/20/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8967_8SD. 5/23/2013Soil extract vol: Soil aliquot amt: Date Sampled: 05/22/13Soil extract date: Date Received: 05/22/13

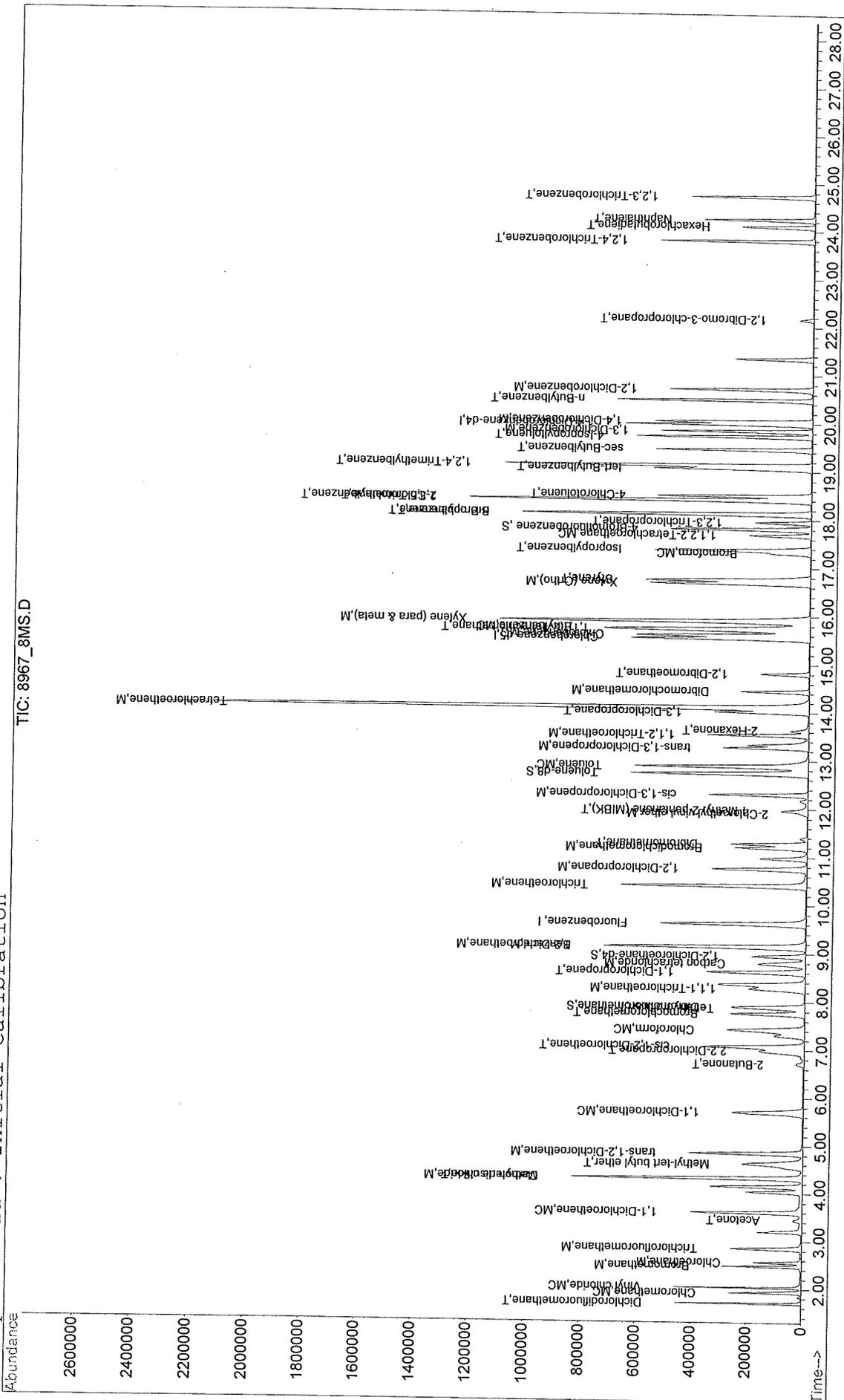
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	05/23/13	9090	D	0.024	420	143	2100
95-49-8	2-chlorotoluene	05/23/13	8980	D	0.024	420	105	2100
106-43-4	4-chlorotoluene	05/23/13	8890	D	0.024	420	126	2100
108-67-8	1,3,5-trimethylbenzene	05/23/13	8570	D	0.024	420	92	2100
98-06-6	tert-butylbenzene	05/23/13	8740	D	0.024	420	118	2100
95-63-6	1,2,4-trimethylbenzene	05/23/13	8470	D	0.024	420	84	2100
135-98-8	sec-butylbenzene	05/23/13	8840	D	0.024	420	181	2100
541-73-1	1,3-dichlorobenzene	05/23/13	8660	D	0.024	420	206	2100
99-87-6	4-isopropyltoluene	05/23/13	8480	D	0.024	420	206	2100
106-46-7	1,4-dichlorobenzene	05/23/13	8100	D	0.024	420	168	2100
95-50-1	1,2-dichlorobenzene	05/23/13	7880	D	0.024	420	155	2100
104-51-8	n-butylbenzene	05/23/13	8180	D	0.024	420	151	2100
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	7830	D	0.024	420	1012	2100
120-82-1	1,2,4-trichlorobenzene	05/23/13	7660	D	0.024	420	155	2100
87-68-3	hexachlorobutadiene	05/23/13	8330	D	0.024	420	202	2100
91-20-3	naphthalene	05/23/13	7180	D	0.024	420	223	2100
87-61-6	1,2,3-trichlorobenzene	05/23/13	7580	D	0.024	420	273	2100
1634-04-4	Methyl tertiary butyl ether	05/23/13	6900	D	0.024	420	273	2100
67-64-1	Acetone	05/23/13	6640	D	0.024	420	546	4200
75-15-0	carbon disulfide	05/23/13	7770	D	0.024	420	302	2100
78-93-3	2-Butanone (MEK)	05/23/13	6360	D	0.024	420	475	4200
109-99-9	Tetrahydrofuran (THF)	05/23/13	7620	D	0.024	420	701	4200
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	7800	D	0.024	420	193	4200
591-78-6	2-hexanone	05/23/13	7310	D	0.024	420	281	4200
110-75-8	2-chloroethyl vinyl ether	05/23/13	4090	JD	0.024	420	374	4200

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	05/23/13	24.31	4.14	25.0	97.24%
17060-07-0 1,2-Dichloroethane-d4	05/23/13	23.29	6.61	25.0	93.16%
2037-26-5 Toluene-d8	05/23/13	25.47	2.84	25.0	101.88%
460-00-4 4-Bromofluorobenzene	05/23/13	25.78	1.81	25.0	103.12%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\8967_8MS.D
Acq On : 23 May 2013 6:56 pm
Sample : 8967-8ms * 420
Misc :
MS Integration Params: ODD.P
Quant Time: May 29 12:24 2013
Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration

Quant Results File: MY06_13.RES



CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8967-8ms Sample ID: MS
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 3/20/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8967_8MS 5/23/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 05/22/13

Soil extract date:

Date Received: 05/22/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	05/23/13	8690	D	0.024	420	210	2100
74-87-3	chloromethane	05/23/13	8930	D	0.024	420	223	2100
75-01-4	vinyl chloride	05/23/13	10380	D	0.024	420	382	2100
74-83-9	bromomethane	05/23/13	5890	D	0.024	420	550	2100
75-00-3	chloroethane	05/23/13	9030	D	0.024	420	344	2100
75-69-4	trichlorofluoromethane	05/23/13	8610	D	0.024	420	764	2100
75-35-4	1,1-dichloroethylene	05/23/13	10680	D	0.024	420	227	2100
75-09-2	methylene chloride	05/23/13	9720	D	0.024	420	265	2100
156-60-5	trans-1,2-dichloroethylene	05/23/13	9160	D	0.024	420	265	2100
75-34-3	1,1-dichloroethane	05/23/13	10930	D	0.024	420	126	2100
594-20-7	2,2-dichloropropane	05/23/13	7740	D	0.024	420	508	2100
156-59-2	Cis 1,2- Dichloroethylene	05/23/13	10050	D	0.024	420	349	2100
74-97-5	bromochloromethane	05/23/13	8940	D	0.024	420	269	2100
67-66-3	chloroform	05/23/13	8930	D	0.024	420	336	2100
71-55-6	1,1,1-trichloroethane	05/23/13	8580	D	0.024	420	227	2100
56-23-5	carbon tetrachloride	05/23/13	8040	D	0.024	420	361	2100
563-58-6	1,1-dichloropropene	05/23/13	8950	D	0.024	420	281	2100
71-43-2	benzene	05/23/13	9160	D	0.024	420	517	2100
107-06-2	1,2-dichloroethane	05/23/13	8730	D	0.024	420	172	2100
79-01-6	trichloroethylene	05/23/13	13170	D	0.024	420	302	2100
78-87-5	1,2-dichloropropane	05/23/13	8930	D	0.024	420	218	2100
74-95-3	dibromomethane	05/23/13	9100	D	0.024	420	118	2100
75-27-4	bromodichloromethane	05/23/13	8040	D	0.024	420	244	2100
10061-01-5	cis-1,3-dichloropropene	05/23/13	8730	D	0.024	420	344	2100
108-88-3	toluene	05/23/13	9220	D	0.024	420	210	2100
10061-02-6	trans-1,3-dichloropropene	05/23/13	8430	D	0.024	420	105	2100
79-00-5	1,1,2-trichloroethane	05/23/13	9140	D	0.024	420	273	2100
127-18-4	tetrachloroethylene	05/23/13	38180	D	0.024	420	487	2100
142-28-9	1,3-dichloropropane	05/23/13	9610	D	0.024	420	155	2100
124-48-1	Dibromochloromethane	05/23/13	8020	D	0.024	420	105	2100
106-93-4	1,2-Dibromoethane	05/23/13	10250	D	0.024	420	172	2100
108-90-7	chlorobenzene	05/23/13	8730	D	0.024	420	168	2100
630-20-6	1,1,1,2-tetrachloroethane	05/23/13	7850	D	0.024	420	97	2100
100-41-4	ethylbenzene	05/23/13	8870	D	0.024	420	151	2100
1330-20-7	xylenes (m/p)	05/23/13	8810	D	0.024	420	319	2100
95-47-6	o-xylene	05/23/13	9000	D	0.024	420	105	2100
100-42-5	styrene	05/23/13	8530	D	0.024	420	130	2100
75-25-2	bromoform	05/23/13	7070	D	0.024	420	361	2100
98-82-8	isopropyl benzene (cumene)	05/23/13	8740	D	0.024	420	105	2100
108-86-1	bromobenzene	05/23/13	8670	D	0.024	420	101	2100
79-34-5	1,1,2,2-tetrachloroethane	05/23/13	8840	D	0.024	420	202	2100
96-18-4	1,2,3-trichloropropane	05/23/13	8260	D	0.024	420	273	2100

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8967-8ms Sample ID: MS
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 3/20/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8967_8MS 5/23/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 05/22/13

Soil extract date:

Date Received: 05/22/13

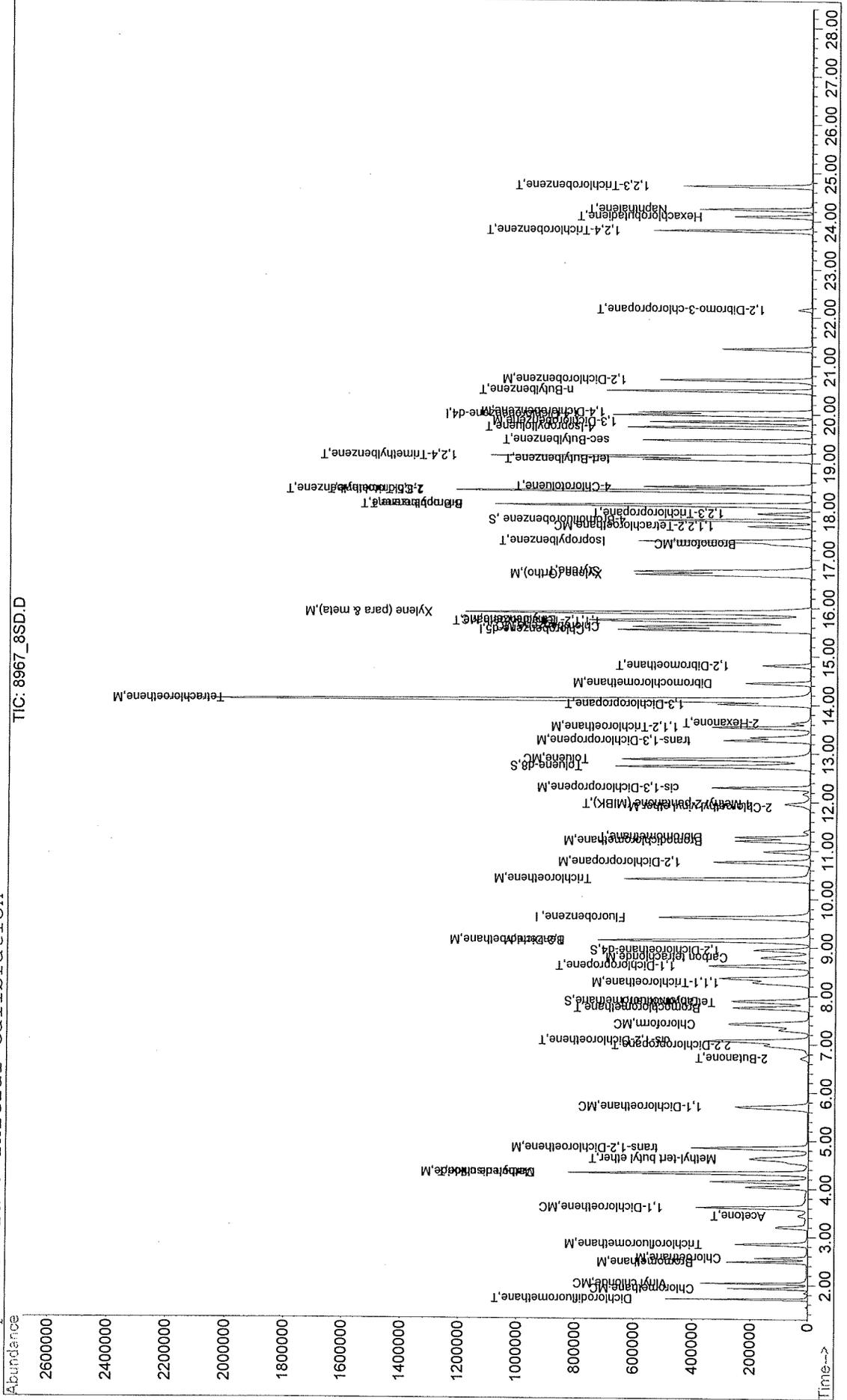
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	05/23/13	8790	D	0.024	420	143	2100
95-49-8	2-chlorotoluene	05/23/13	8860	D	0.024	420	105	2100
106-43-4	4-chlorotoluene	05/23/13	8750	D	0.024	420	126	2100
108-67-8	1,3,5-trimethylbenzene	05/23/13	8680	D	0.024	420	92	2100
98-06-6	tert-butylbenzene	05/23/13	9150	D	0.024	420	118	2100
95-63-6	1,2,4-trimethylbenzene	05/23/13	8680	D	0.024	420	84	2100
135-98-8	sec-butylbenzene	05/23/13	8810	D	0.024	420	181	2100
541-73-1	1,3-dichlorobenzene	05/23/13	8540	D	0.024	420	206	2100
99-87-6	4-isopropyltoluene	05/23/13	8610	D	0.024	420	206	2100
106-46-7	1,4-dichlorobenzene	05/23/13	8300	D	0.024	420	168	2100
95-50-1	1,2-dichlorobenzene	05/23/13	8150	D	0.024	420	155	2100
104-51-8	n-butylbenzene	05/23/13	8290	D	0.024	420	151	2100
96-12-8	1,2-dibromo-3-chloropropane	05/23/13	7770	D	0.024	420	1012	2100
120-82-1	1,2,4-trichlorobenzene	05/23/13	7980	D	0.024	420	155	2100
87-68-3	hexachlorobutadiene	05/23/13	7860	D	0.024	420	202	2100
91-20-3	naphthalene	05/23/13	7780	D	0.024	420	223	2100
87-61-6	1,2,3-trichlorobenzene	05/23/13	8070	D	0.024	420	273	2100
1634-04-4	Methyl tertiary butyl ether	05/23/13	7520	D	0.024	420	273	2100
67-64-1	Acetone	05/23/13	7050	D	0.024	420	546	4200
75-15-0	carbon disulfide	05/23/13	8160	D	0.024	420	302	2100
78-93-3	2-Butanone (MEK)	05/23/13	6970	D	0.024	420	475	4200
109-99-9	Tetrahydrofuran (THF)	05/23/13	7700	D	0.024	420	701	4200
108-10-1	4-methyl-2-Pentanone (MIBK)	05/23/13	8340	D	0.024	420	193	4200
591-78-6	2-hexanone	05/23/13	7810	D	0.024	420	281	4200
110-75-8	2-chloroethyl vinyl ether	05/23/13	4070	JD	0.024	420	374	4200

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	05/23/13	24.71	4.14	25.0	98.84%
17060-07-0 1,2-Dichloroethane-d4	05/23/13	23.29	6.61	25.0	93.16%
2037-26-5 Toluene-d8	05/23/13	25.36	2.84	25.0	101.44%
460-00-4 4-Bromofluorobenzene	05/23/13	25.93	1.81	25.0	103.72%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\8967_8SD.D
Acq On : 23 May 2013 7:31 pm
Sample : 8967-8msd * 420
Misc :
MS Integration Params: ODD.P
Quant Time: May 29 12:24 2013
Vial: 21
Operator: GC/MS 597
Inst :
Multiplr: 1.00
Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Internal Standards Summary

1 The internal standards data are attached as shown.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID (Standard): MY23_02.D Date Analyzed: 5/23/2013
 Instrument ID: 5971 Time Analyzed: 8:26
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

	IS1(FBZ) AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	1158929	9.60	929816	15.53	341894	19.97
UPPER LIMIT	2317858	10.10	1859632	16.03	683788	20.47
LOWER LIMIT	579465	9.10	464908	15.03	170947	19.47
Sample:						
01 QC CHK	1105893	9.60	863078	15.53	343910	19.97
02 MBLK	1112923	9.60	867652	15.53	393121	19.96
03 8965-01	1096991	9.61	847593	15.53	378898	19.97
04 8965-02	1078705	9.61	819940	15.54	364807	19.96
05 8965-03	1094380	9.61	817524	15.53	377106	19.97
06 8965-04	1088624	9.61	794155	15.53	364891	19.97
07 8967-01	1107091	9.61	830782	15.53	381270	19.97
08 8967-02	1084091	9.61	835238	15.53	389966	19.97
09 8967-03	1112816	9.61	858879	15.54	388364	19.97
10 8965-01	1101073	9.62	837930	15.54	390319	19.97
11 8965-02	1140521	9.61	860096	15.53	394027	19.97
12 8965-03	1137505	9.62	848645	15.53	375028	19.97
13 8967-06	1077534	9.62	827625	15.54	378146	19.97
14 8967-07	1097569	9.62	846453	15.55	388274	19.97
15 8967-08	1106581	9.62	842606	15.54	392776	19.97
16 8967-8	1072569	9.62	847910	15.54	389488	19.97
17 8967-8MS	1111752	9.62	870341	15.54	353893	19.98
18 8967-8MSD	1107243	9.61	883980	15.53	366127	19.97
19 8767-11	1111939	9.62	851373	15.54	370363	19.97
20 8967-12	1127987	9.62	889022	15.54	405535	19.98
21 8967-13	1146838	9.62	912863	15.54	415083	19.98

IS1 (FBZ) = Fluorobenzene
 IS2 = Chlorobenzene-d5
 IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID (Standard): MY23_07.D Date Analyzed: 5/23/2013
 Instrument ID: 5971 Time Analyzed: 20:42
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

	IS1(FBZ)		IS2		IS3		
	AREA #	RT #	AREA #	RT #	AREA #	RT #	
12 HOUR STD	1150580	9.61	906759	15.54	364628	19.98	
UPPER LIMIT	2301160	10.11	1813518	16.04	729256	20.48	
LOWER LIMIT	575290	9.11	453380	15.04	182314	19.48	
Sample:							
01	8767-11	1111939	9.62	851373	15.54	370363	19.97
02	8967-12	1127987	9.62	889022	15.54	405535	19.98
03	8967-13	1146838	9.62	912863	15.54	415083	19.98
04	8967-16	1127376	9.62	916212	15.54	415485	19.98
05	8967-17	1120788	9.62	872110	15.54	407430	19.98
06	8967-18	1104588	9.62	876157	15.54	405921	19.98
07	8967-01	1099742	9.62	827031	15.54	371924	19.98
08	8967-02	1121308	9.62	859657	15.54	376688	19.98
09	8967-03	1087045	9.62	819443	15.54	364639	19.98
10	8967-06	1089696	9.63	801690	15.54	363000	19.98
11	8967-07	1108416	9.63	816674	15.54	377650	19.98
12	8967-08	1062538	9.63	805817	15.54	364797	19.98
13	8967-11	1077963	9.62	818107	15.54	377226	19.98
14	8967-12	1074803	9.63	830041	15.54	369185	19.98
15	8967-13	1093612	9.62	829080	15.55	385468	19.98
16	8967-16	1125707	9.62	873678	15.54	381798	19.98
17	8967-17	1098318	9.62	832502	15.54	371696	19.98
18	8967-18	1085782	9.62	855593	15.54	384446	19.98
19	8965-02	1072653	9.62	821428	15.54	357299	19.98

IS1 (FBZ) = Fluorobenzene
 IS2 = Chlorobenzene-d5
 IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area
 AREA LOWER LIMIT = - 50% of internal standard area
 RT UPPER LIMIT = +0.50 minutes of internal standard RT
 RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

4.0 Raw Data and Chromatograms

Raw data and Chromatograms are attached.

Data File : C:\HPCHEM\1\DATA\MY23_13\8965_1.D Vial: 13 0053
 Acq On : 23 May 2013 2:52 pm Operator:
 Sample : 8965-01 10.0 ml Inst : GC/MS 597
 Misc : Multiplr: 1.00
 MS Integration Params: ODD.P
 Quant Time: May 29 13:47 2013 Quant Results File: MY06_13.RES

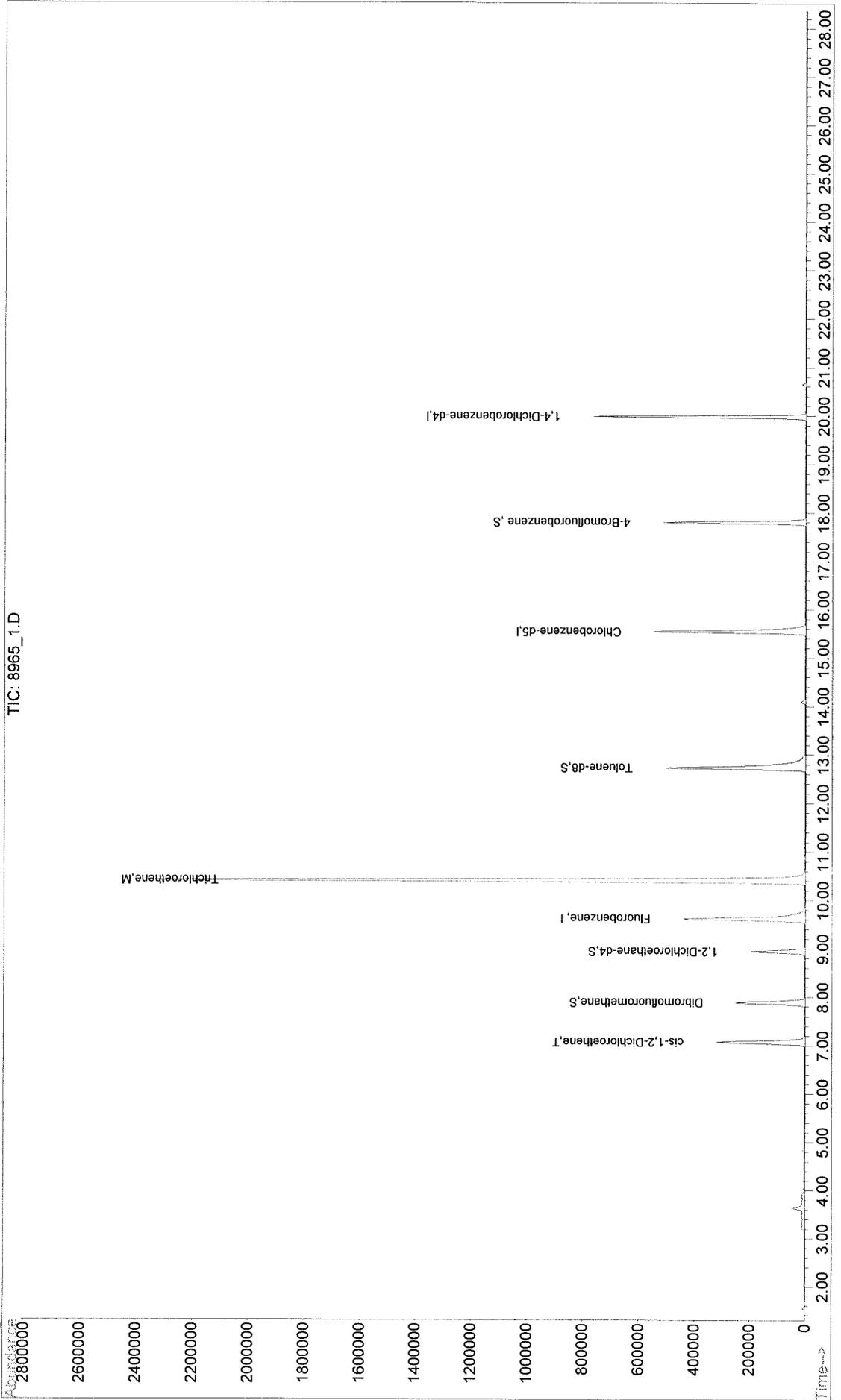
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Fluorobenzene	9.62	96	1101073	25.00	ug/L	0.06
36) Chlorobenzene-d5	15.54	117	837930	25.00	ug/L	0.05
58) 1,4-Dichlorobenzene-d4	19.97	152	390319	25.00	ug/L	0.03
System Monitoring Compounds						
16) Dibromofluoromethane	7.89	113	330523	23.84	ug/L	0.05
Spiked Amount			Recovery	=	95.36%	
19) 1,2-Dichloroethane-d4	8.94	65	225057	23.82	ug/L	0.04
Spiked Amount			Recovery	=	95.28%	
28) Toluene-d8	12.73	98	1000691	25.13	ug/L	0.04
Spiked Amount			Recovery	=	100.52%	
45) 4-Bromofluorobenzene	17.80	95	354319	25.33	ug/L	0.04
Spiked Amount			Recovery	=	101.32%	
Target Compounds						
13) cis-1,2-Dichloroethene	7.07	96	345495	21.48	ug/L	Qvalue 98
23) Trichloroethene	10.41	95	1630781	113.64	ug/L	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\8965_1.D
Acq On : 23 May 2013 2:52 pm Vial: 13
Sample : 8965-01 10.0 ml Operator: GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: May 29 13:47 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\MY23_13\8965_02.D

Vial: 14

Acq On : 23 May 2013 3:26 pm

Operator:

Sample : 8965-02 10.0 ml

Inst : GC/MS 597

Misc :

Multiplr: 1.00

MS Integration Params: ODD.P

Quant Time: May 29 13:46 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11

Last Update : Tue May 07 16:06:17 2013

Response via : Initial Calibration

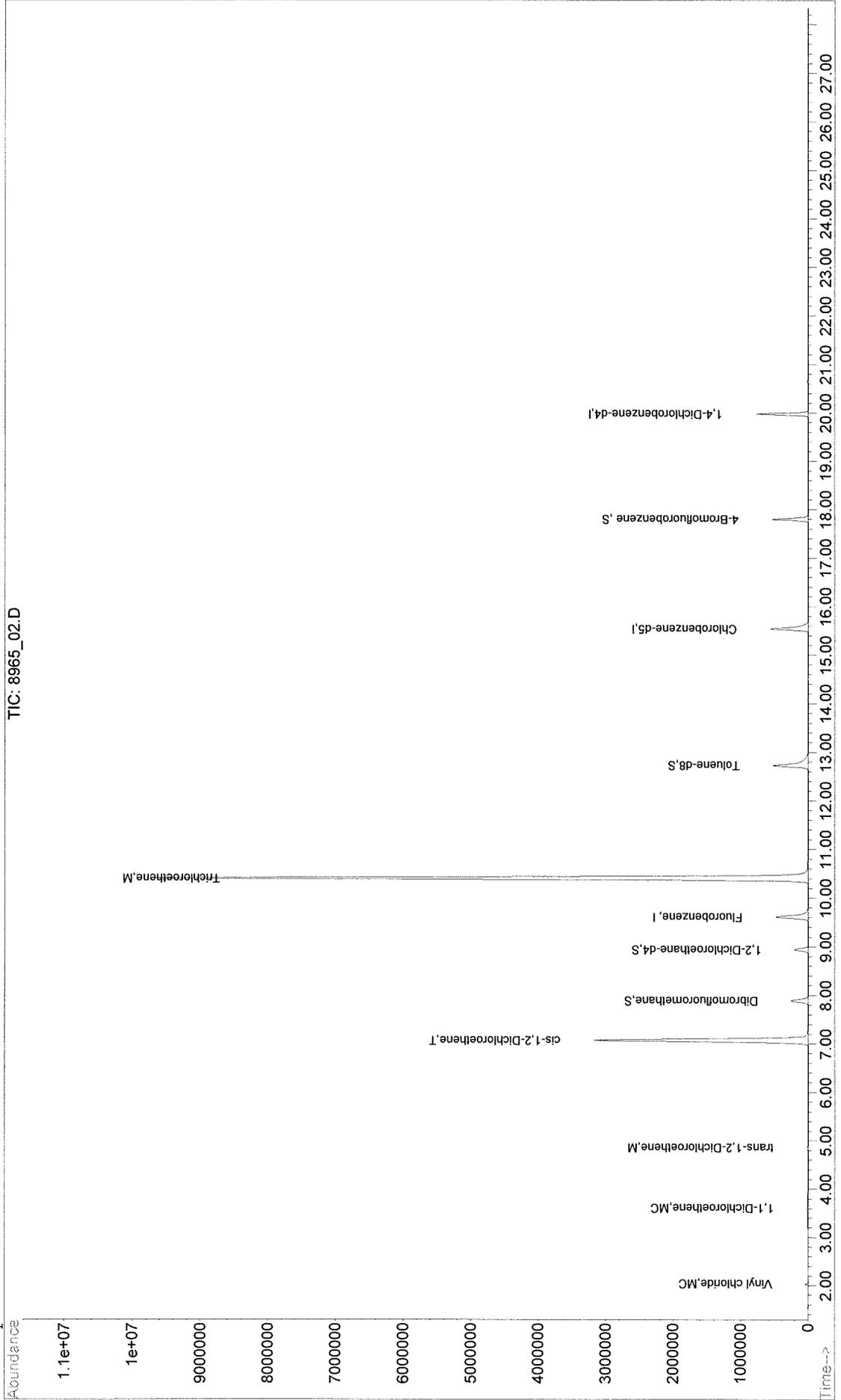
DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Fluorobenzene	9.61	96	1140521	25.00	ug/L	0.05
36) Chlorobenzene-d5	15.53	117	860096	25.00	ug/L	0.04
58) 1,4-Dichlorobenzene-d4	19.97	152	394027	25.00	ug/L	0.03
System Monitoring Compounds						
16) Dibromofluoromethane	7.89	113	348259	24.25	ug/L	0.05
Spiked Amount			Recovery	=	97.00%	
19) 1,2-Dichloroethane-d4	8.95	65	234249	23.94	ug/L	0.05
Spiked Amount			Recovery	=	95.76%	
28) Toluene-d8	12.73	98	1046043	25.36	ug/L	0.04
Spiked Amount			Recovery	=	101.44%	
45) 4-Bromofluorobenzene	17.80	95	367370	25.59	ug/L	0.04
Spiked Amount			Recovery	=	102.36%	
Target Compounds						
4) Vinyl chloride	2.04	62	43309	2.98	ug/L	97
8) 1,1-Dichloroethene	3.61	96	6370	0.54	ug/L	95
10) trans-1,2-Dichloroethene	4.85	96	23036	1.47	ug/L	92
13) cis-1,2-Dichloroethene	7.07	96	3482068	209.03	ug/L	97
23) Trichloroethene	10.41	95	6708327	451.30	ug/L	97

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\8965_02.D Vial: 14
Acq On : 23 May 2013 3:26 pm Operator:
Sample : 8965-02 10.0 ml Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: May 29 13:46 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\MY23_13\965_02.D Vial: 42 0057
 Acq On : 24 May 2013 7:47 am Operator:
 Sample : 8965_02 * 8.4 Inst : GC/MS 597
 Misc : Multiplr: 1.00

MS Integration Params: ODD.P
 Quant Time: May 29 13:57 2013 Quant Results File: MY06_13.RES

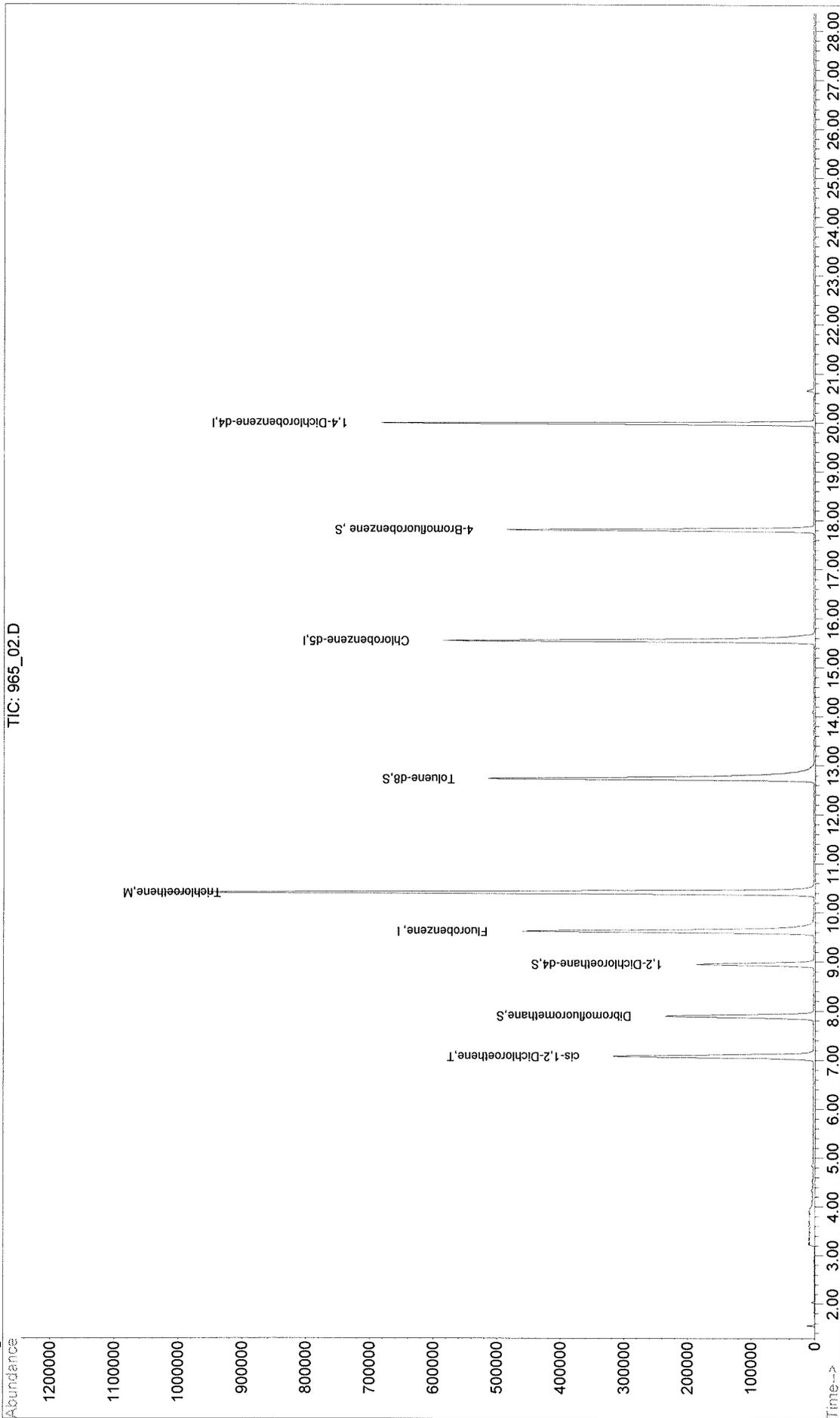
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Fluorobenzene	9.62	96	1072653	25.00	ug/L	0.06
36) Chlorobenzene-d5	15.54	117	821428	25.00	ug/L	0.05
58) 1,4-Dichlorobenzene-d4	19.98	152	357299	25.00	ug/L	0.04
System Monitoring Compounds						
16) Dibromofluoromethane	7.90	113	318985	23.62	ug/L	0.06
Spiked Amount			Recovery	=	94.48%	
19) 1,2-Dichloroethane-d4	8.95	65	210984	22.93	ug/L	0.05
Spiked Amount			Recovery	=	91.72%	
28) Toluene-d8	12.74	98	982784	25.33	ug/L	0.05
Spiked Amount			Recovery	=	101.32%	
45) 4-Bromofluorobenzene	17.81	95	338927	24.72	ug/L	0.05
Spiked Amount			Recovery	=	98.88%	
Target Compounds						
13) cis-1,2-Dichloroethene	7.07	96	341807	21.82	ug/L	97
23) Trichloroethene	10.41	95	687081	49.15	ug/L	99

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\965_02.D
 Acq On : 24 May 2013 7:47 am Vial: 42
 Sample : 8965_02 * 8.4 Operator: GC/MS 597
 Misc : Multiplr: 1.00
 MS Integration Params: ODD.P
 Quant Time: May 29 13:57 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\MY23_13\8965_03.D
 Acq On : 23 May 2013 4:01 pm
 Sample : 8965-03 10.0 ml
 Misc :

Vial: 15
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

MS Integration Params: ODD.P
 Quant Time: May 29 13:46 2013

Quant Results File: MY06_13.RES

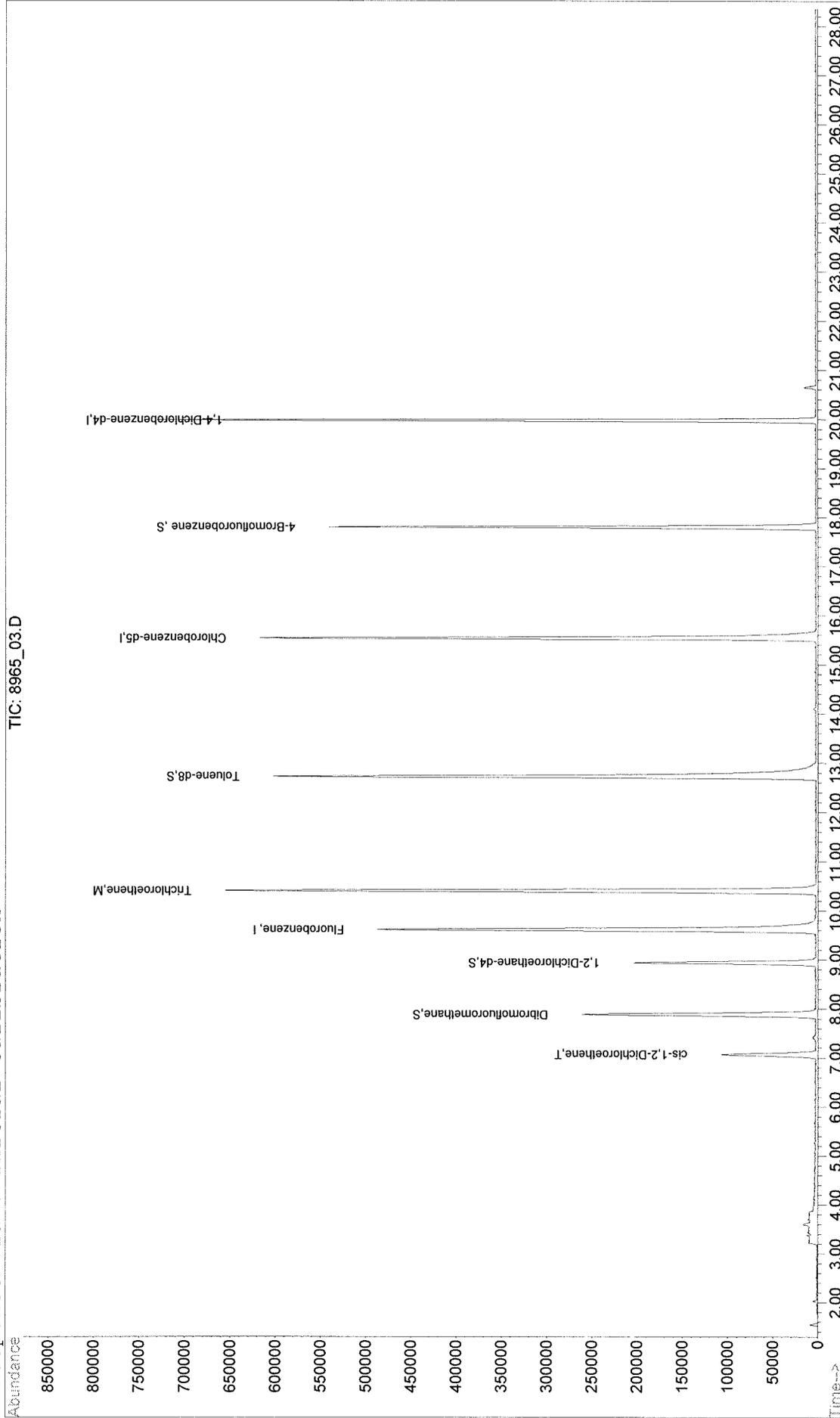
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Fluorobenzene	9.62	96	1137505	25.00	ug/L	0.06
36) Chlorobenzene-d5	15.53	117	848645	25.00	ug/L	0.04
58) 1,4-Dichlorobenzene-d4	19.97	152	375028	25.00	ug/L	0.03
System Monitoring Compounds						
16) Dibromofluoromethane	7.89	113	347332	24.25	ug/L	0.05
Spiked Amount			Recovery	=	97.00%	
19) 1,2-Dichloroethane-d4	8.94	65	234468	24.02	ug/L	0.04
Spiked Amount			Recovery	=	96.08%	
28) Toluene-d8	12.73	98	1044568	25.39	ug/L	0.04
Spiked Amount			Recovery	=	101.56%	
45) 4-Bromofluorobenzene	17.80	95	362292	25.58	ug/L	0.04
Spiked Amount			Recovery	=	102.32%	
Target Compounds						
13) cis-1,2-Dichloroethene	7.07	96	113899	6.86	ug/L	95
23) Trichloroethene	10.41	95	449413	30.31	ug/L	99

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\8965_03.D
Acq On : 23 May 2013 4:01 pm
Sample : 8965-03 10.0 ml
Misc :
MS Integration Params: ODD.P
Quant Time: May 29 13:46 2013
Vial: 15
Operator:
Inst : GC/MS 597
Multiplr: 1.00
Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\MY23_13\8965_4.D

Vial: 9

Acq On : 23 May 2013 12:31 pm

Operator:

Sample : 8965-04 10.0 ml

Inst : GC/MS 597

Misc :

Multiplr: 1.00

MS Integration Params: ODD.P

Quant Time: May 29 13:48 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11

Last Update : Tue May 07 16:06:17 2013

Response via : Initial Calibration

DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Fluorobenzene	9.61	96	1088624	25.00	ug/L	0.05
36) Chlorobenzene-d5	15.53	117	794155	25.00	ug/L	0.04
58) 1,4-Dichlorobenzene-d4	19.97	152	364891	25.00	ug/L	0.03

System Monitoring Compounds

16) Dibromofluoromethane	7.89	113	334723	24.42	ug/L	0.05
Spiked Amount	25.000		Recovery	=	97.68%	
19) 1,2-Dichloroethane-d4	8.94	65	222780	23.85	ug/L	0.04
Spiked Amount	25.000		Recovery	=	95.40%	
28) Toluene-d8	12.73	98	982605	24.96	ug/L	0.04
Spiked Amount	25.000		Recovery	=	99.84%	
45) 4-Bromofluorobenzene	17.80	95	317521	23.95	ug/L	0.04
Spiked Amount	25.000		Recovery	=	95.80%	

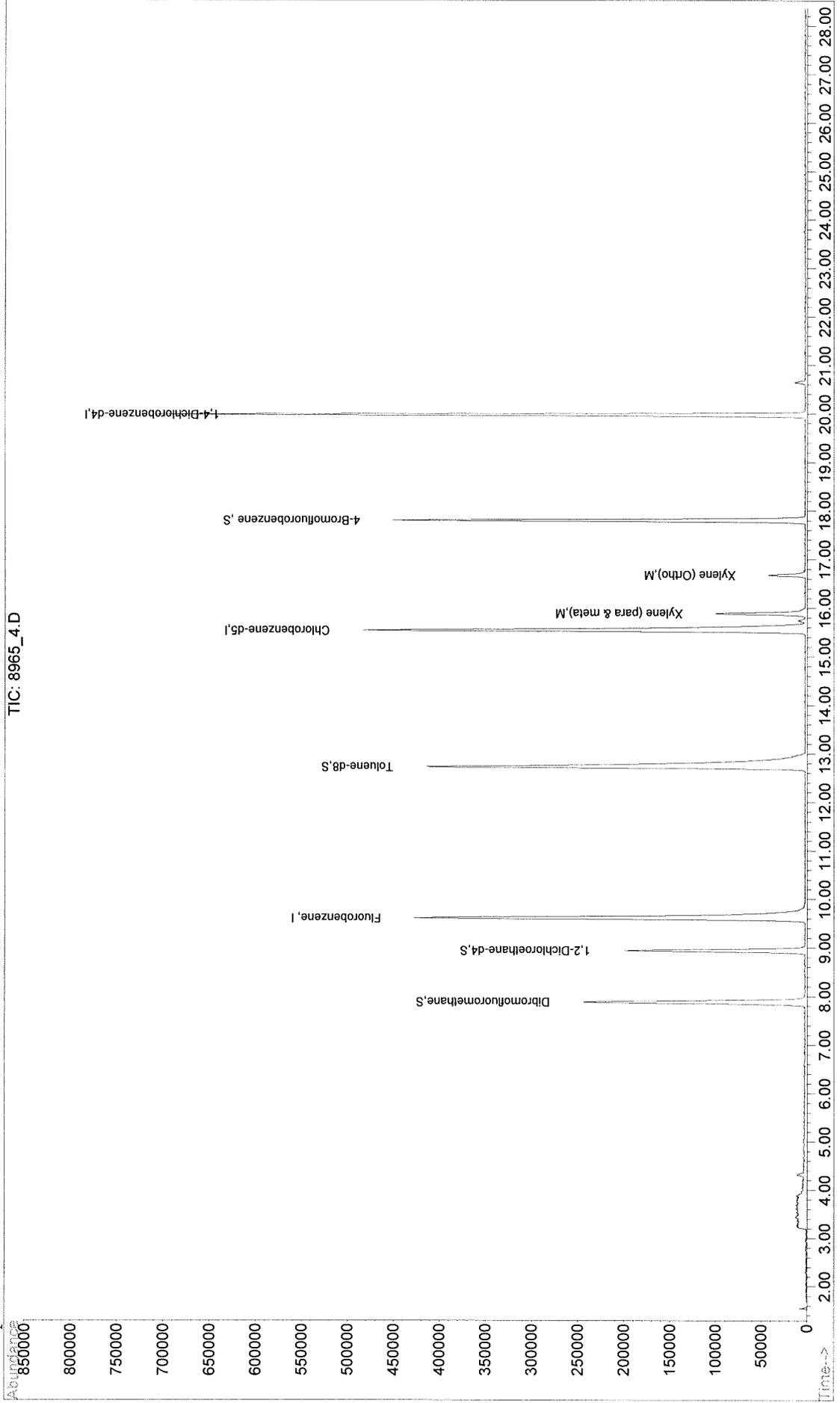
Target Compounds

40) Xylene (para & meta)	15.89	106	66576	1.85	ug/L	Qvalue 90
41) Xylene (Ortho)	16.68	106	25510	1.50	ug/L	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\MY23_13\8965_4.D
Acq On : 23 May 2013 12:31 pm
Sample : 8965-04 10.0 ml
Misc :
MS Integration Params: ODD.P
Quant Time: May 29 13:48 2013
Vial: 9
Operator: GC/MS 597
Inst :
Multiplr: 1.00
Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration





17 Princess Rd

Lawrenceville, New Jersey 08648

Tel: 609/895-5370

Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indianhead Proton Reduction**

**Lab ID
8965**

Project Number: 146395

**Samples Received
21-May-13**

**Report
3-Jun-13**

NJDEP Certified Lab 11001

 6-3-13
Randi K Rothmel, PhD Date
Laboratory Director

Table of Contents**1.0 General Information**

Sample ID Table

Chain of custody

Internal chains of custody

Methodology Review

Data Reporting Qualifiers

2.0 Sample Summary Results**3.0 QA/QC Report**

[REDACTED]

[REDACTED]



17 Princess Rd
Lawrenceville, NJ 08648
609-895-5370 / 609-895-1858

CB&I - Federal Services, LLC

LAB ID # 78D USE 8965 R&D

Project Contact: Dave Lippin
(Name of phone #)

Send Report To: D. Lippin
Phone/Fax Number:
Address: (as above)
City/State:

Sampler's Name(s): Teresa Addis

Lab No.	Sample ID Number	Sample Description
1	146395IW02-052013-CBT	Groundwater
2	146395FW03-052013-CBT	↓
3	146395SCMWH-052013-CBT	↓
4	trip BLK	↓

Special Instructions:
See Dave for level of QC required

Relinquished By: [Signature] Date: 5/20/13 Time: 11:30

Relinquished By: [Signature] Date: _____ Time: _____

Relinquished By: _____ Date: _____ Time: _____

Instructions: Do not Fill Shaded Areas. Check R&D Box if R&D samples Only

CHAIN OF CUSTODY

Ref. Document # _____

Page _____ of _____

Project Number/Cost code: 146385 /
Project Name / Location: Potomac Road / Cedar Road
Purchase Order #: _____

Shipment Date: 5/20/13
Waybill/Airbill Number: _____
Lab Destination: Lawrenceville
Lab Contact Name / ph. #: R. Koehn

Collection Information		Preservative				
Date	Time	G/C	HCL	HNO ₃	H ₂ SO ₄	Ice
5/20/13	1405	G	A9	7	VAR	X
↓	1540	↓	↓	↓	↓	X
↓	1715	↓	↓	↓	↓	X

Known Waste Stream Circle:
RCRA PCB/dioxin PAH/ol RAD Corrosive Flammable Reactive
QC/Data Package Level Required: I II III IV
Received By: [Signature] Date: 5/20/13 Time: 11:30

Received By: _____ Date: _____ Time: _____

Received By: _____ Date: _____ Time: _____

Analyses Requested	Turn Around Time Requested
WOC	X
MFE	X
VFA	X
ANIONS	X
Hydrogen	X
Any Additional Information	See

8965

Show ESI Analytical and Testability Laboratories Internal Chain of Custody

Lab ID

Client

Date Received:

Page 1 of 1

Sample ID	Parameter	Bottle Type	Prepervative	Date/Time Removed	Relinquishing Custodian Initials	Receiving Analyst Initials	Date/Time Returned	Relinquishing Custodian Initials	Receiving Custodian Initials	Relinquishing Analyst Initials
8965-1	VOC's	3-400	HEI	05-23-13 7:00	HEI	HEI	05-23-13 17:00	HEI	HEI	HEI
8965-2	VOC's	3-400	HEI	05-23-13 8:50	HEI	HEI	05-23-13 17:00	HEI	HEI	HEI
8965-3	MEEP	2-40-1	HEI	5/23/13 10:30	HEI	HEI	deposited	HEI	HEI	HEI
8965-4	MEEP	2-40-1	HEI	5/23/13 10:30	HEI	HEI	deposited	HEI	HEI	HEI
8965-1	VFA	1-500	None	5-23-13 10:00	HEI	HEI	5-23-13 14:00	HEI	HEI	HEI
8965-2	VFA	1-500	None	5-23-13 11:00	HEI	HEI	5-23-13 15:00	HEI	HEI	HEI
8965-3	anions	1-500	None	5-23-13 11:00	HEI	HEI	5-23-13 15:00	HEI	HEI	HEI
8965-1	MEP	1-1500	HEI	5/23/13 10:30	HEI	HEI	deposited	HEI	HEI	HEI
8965-2	MEP	1-1500	HEI	5/23/13 10:30	HEI	HEI	deposited	HEI	HEI	HEI

Volatile Organics

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260b. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST05 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 10 hits.

Other Organics

Other Organics such as alcohols, and dissolved gases (methane, ethane, ethene, propane) are analyzed using EPA methods 8015 or RSK-175 unless specified. Dissolved Hydrogen is analysed by RSK-175 using a GC equipped with a PDHID detector. Dissolved gases are prepared by a modification of Kampbell, and Vandegrift (Journal of Chromatographic Science, 1998, Vol 38, p253-256. Volatile fatty acids (acetate, formate, butyrate, propionate) are analyzed by ion chromatography. Nitroaromatics are analyzed using Method 8330.

All Microbiology and Inorganic analysis is done by standard methods as specified in Test Method for Evaluating Solid Wastes, SW846, on line methods; EPA methods and Guidance of Analysis of Water, 1999; or Standard Methods for the examination of Water and Wastewater, 20th ed.

Microbiology

<u>Parameter</u>	<u>Method Code (s)</u>
Total Heterotrophs	SM9215C
Specific Heterotrophs	SM9215C-BSM
Biological Oxygen Demand	EPA405.1 SM5210B
Biological Oxygen Demand, Carbon	SM5210B SM5210B

Wet Chemistry -Inorganics

Anions (F, Cl, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄)	EPA300.0
Perchlorate, sol	EPA314.0
Chlorate, sol	EPA300.0m
Ammonia as NH ₃ -N	EPA350.2 SM4500-NH ₃ B+C
TKN	EPA351.3 SM4500-OrgB/C
Alkalinity as CaCO ₃	EPA310.1 SM2320B
Hardness as CaCO ₃	EPA130.2 SM2340 B/C
Carbon Dioxide	SM4500-CO ₂
Total Organic Carbon	EPA415.1 SM5310 B,C,D; SW-846 9060
Chemical Oxygen Demand	EPA410.4 SM5220D
pH	EPA150.1 SM4500-H B; SW-846 9045C
Total Dissolved Solids (TDS)	EPA160.1 SM2540 C
Total Solids	EPA160.3 SM2540 B
Total Suspended Solids (TSS)	EPA160.2 SM2540 D
Volatile Suspended Solids (VSS)	EPA160.4 SM2540G
Turbidity	EPA180.1 SM2130 B
Conductivity	EPA120.1 SW-846 9050A
Phosphorus (all forms)	EPA365.2 SM4500-P
Total Residual Chlorine	EPA330.5 SM4500-Cl G

Organics

Methane ethane ethene	EPA3810, RSK-175
Volatile fatty acids	IC, EPA300m
Alcohols (methanol, ethanol etc)	SW846-8015

U- The compound was not detected at the indicated PQL concentration.

J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

D- Diluted sample

B- The analyte was observed in laboratory blank as well as the sample - for EPA SW856 8260b and EPA 624 analysis

E- Compound detected above the linear range of the curve. Value given is an estimated value.

[REDACTED]

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8965-01	Date Sampled	05/20/2013
Sample ID	146395-IW02	Date Received	05/21/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	05/21/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	05/21/2013	19.7		mg/L	0.2	0.065	1	EPA 300.0
Nitrite as N	05/21/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	05/21/2013	4.04		mg/L	0.2	0.047	1	EPA 300.0
Bromide	05/21/2013	0.2	U	mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	05/21/2013	1.45		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	05/21/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Methane	05/30/2013	1.57		ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	05/30/2013	4.0	U	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	05/30/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	05/30/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Hydrogen	05/29/2013	0.0104		ug/L	0.0080	0.0008	2	EPA3810, RSK-175
Lactic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Sample Information			
Lab ID	8965-02	Date Sampled	05/20/2013
Sample ID	146395 -W03	Date Received	05/21/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	05/21/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	05/21/2013	19.7		mg/L	0.2	0.065	1	EPA 300.0
Nitrite as N	05/21/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	05/21/2013	4.00		mg/L	0.2	0.047	1	EPA 300.0
Bromide	05/21/2013	0.2	U	mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	05/21/2013	0.43		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	05/21/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Methane	05/30/2013	2,440	D	ug/L	20.0	3.889	10	EPA3810, RSK-175
Ethane	05/30/2013	2.49	J	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	05/30/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	05/30/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Hydrogen	05/29/2013	0.125		ug/L	0.0080	0.0008	2	EPA3810, RSK-175
Lactic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m

Shaw Environmental NJDEP certified Lab ID 11001.

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(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8965-03	Date Sampled	05/20/2013
Sample ID	146395-MW41	Date Received	05/21/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	05/21/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	05/21/2013	19.3		mg/L	0.2	0.065	1	EPA 300.0
Nitrite as N	05/21/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	05/21/2013	4.21		mg/L	0.2	0.047	1	EPA 300.0
Bromide	05/21/2013	0.2	U	mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	05/21/2013	0.24		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	05/21/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Methane	05/30/2013	129		ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	05/30/2013	4.0	U	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	05/30/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	05/30/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Hydrogen	05/29/2013	0.0157		ug/L	0.0080	0.0008	2	EPA3810, RSK-175
Lactic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	05/23/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m

Shaw Environmental NJDEP certified Lab ID 11001.

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(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

SECRET

Sample Batch: Anions

Lab ID	Analysis date
8965- 1	5/21/2013
8965- 2	5/21/2013
8965- 3	5/21/2013

Initial Calibration Summary: Anions

Calibration Standard recoveries:

Initial Calibration Date:		3/15/2013					
Sample:							
Std ppm	0.2	0.5	1.0	5.0	20.0	R ² =	
Fluoride*	0.1902	0.534	1.060	5.411	19.620		
%rec	95.1	106.7	106.0	108.2	20.3	0.99963	
Chloride	0.2277	0.6215	1.086	5.038	20.02		
%rec	0.2	124.3	108.6	100.8	100.1	0.99999	
Nitrite*	0.209	0.561	1.089	5.382	19.670		
%rec	104.3	112.2	108.9	107.6	98.4	0.99973	
Sulfate	0.2224	0.491	1.000	4.967	20.286		
%rec	111.2	98.3	100.0	99.3	101.4	0.99992	
Bromide	0.184	0.505	0.929	4.914	20.060		
%rec	92.0	100.9	92.9	98.3	100.3	0.99981	
Nitrate	0.196	0.507	0.991	4.973	19.999		
%rec	98.2	101.4	99.1	99.5	100.0	0.99998	
Chlorate	0.160	0.509	1.068	4.984	19.650		
%rec	79.8	101.8	106.8	99.7	98.3	0.99978	
Phosphate	0.160	0.454	0.971	4.976	21.360		
%rec	80.0	90.9	97.1	99.5	106.8	0.99950	

*linear only to 10.0ppm

QC Check Date:		3/15/2013			
Sample:	Std ppm	Obs ppm	% recovery	Control Limits	
QC Check-Fluoride	10.0	10.260	102.6%	80.0-120.0%	
QC Check-Chloride	10.0	10.010	100.1%	80.0-120.0%	
QC Check-Nitrite	10.0	10.210	102.1%	80.0-120.0%	
QC Check-Sulfate	10.0	9.880	98.8%	80.0-120.0%	
QC Check-Bromide	10.0	10.070	100.7%	80.0-120.0%	
QC Check-Nitrate	10.0	10.008	100.1%	80.0-120.0%	
QC Check-Chlorate	10.0	10.088	100.9%	80.0-120.0%	
QC Check-Phosphate	10.0	9.752	97.5%	80.0-120.0%	

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	3/15/2013	u	ppm	0.2
Blank-Chloride	3/15/2013	u	ppm	0.2
Blank-Nitrite	3/15/2013	u	ppm	0.2
Blank-Sulfate	3/15/2013	u	ppm	0.2
Blank-Bromide	3/15/2013	u	ppm	0.2
Blank-Nitrate	3/15/2013	u	ppm	0.2
Blank-Chlorate	3/15/2013	u	ppm	0.2
Blank-Phosphate	3/15/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Anions

Check Standard recoveries:

Sample:	Date	Std ppm	Obs ppm	% recovery
Fluoride check	5/21/2013	5.00	6.37	127.3
			Control Limits: 847.5-137.5	
Chloride check	5/21/2013	5.00	5.42	108.4
			Control Limits: 80.5-125.2	
Nitrite check	5/21/2013	5.00	6.16	123.1
			Control Limits: 82.8-129.1	
Sulfate check	5/21/2013	5.00	4.84	96.8
			Control Limits: 82.5-125.6	
Bromide check	5/21/2013	5.00	5.38	107.5
			Control Limits: 77-128.2	
Nitrate check	5/21/2013	5.00	5.84	116.8
			Control Limits: 83.3-121.2	
Chlorate check	5/21/2013	5.00	5.58	111.6
			Control Limits: 79.6-121.7	
Phosphate check	5/21/2013	5.00	4.83	96.6
			Control Limits: 82.5-122.6	

QC Check:

Sample:	Date	Std ppm	Obs ppm	% recovery
QC Check-Fluoride	5/21/2013	1.00	1.23	123.0
QC Check-Chloride	5/21/2013	1.00	1.09	108.9
QC Check-Nitrite	5/21/2013	1.00	1.25	125.0
QC Check-Sulfate	5/21/2013	1.00	1.30	129.9
QC Check-Bromide	5/21/2013	1.00	1.06	106.0
QC Check-Nitrate	5/21/2013	1.00	1.12	111.9
QC Check-Phosphate	5/21/2013	1.00	0.91	90.9

Control Limits: 80.0-120.0%

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	5/21/2013	u	ppm	0.2
Blank-Chloride	5/21/2013	u	ppm	0.2
Blank-Nitrite	5/21/2013	u	ppm	0.2
Blank-Sulfate	5/21/2013	u	ppm	0.2
Blank-Bromide	5/21/2013	u	ppm	0.2
Blank-Nitrate	5/21/2013	u	ppm	0.2
Blank-Chlorate	5/21/2013	u	ppm	0.2
Blank-Phosphate	5/21/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Method Duplicates Summary: Anions

Sample:	Batch MS/MSD	8965-3			
	Date	MS	MSD	Units	
Fluoride MS/MSD	5/21/2013	132.2	134.2	mg/L	
		142.9	1.5%		% Max RPD= 17.0%
Chloride MS/MSD	5/21/2013	134.2	134.7	mg/L	
		111.9	0.4%		% Max RPD= 9.8%
Nitrite MS/MSD	5/21/2013	131.5	131.6	mg/L	
		340.7	0.1%		% Max RPD= 13.7%
Sulfate MS/MSD	5/21/2013	112.6	113.2	mg/L	
		106.7	0.5%		% Max RPD= 7.2%
Bromide MS/MSD	5/21/2013	115.2	113.6	mg/L	
		108.9	1.4%		% Max RPD= 14.3%
Nitrate MS/MSD	5/21/2013	120.4	120.6	mg/L	
		106.6	0.2%		% Max RPD= 14.7%
Chlorate MS/MSD	5/21/2013	113.6	112.0	mg/L	
		93.4	1.4%		% Max RPD= 21.8%
Phosphate MS/MSD	5/21/2013	82.2	85.6	mg/L	
			% RPD= 4.1%		% Max RPD= 17.3%

Method Spike Summary: Anions

Sample:	Batch MS/MSD	8965-3		
	Date	MS Recovery	MSD Recovery	Control Limits
Fluoride MS/MSD	5/21/2013	132.2%	134.2%	74.2-136.9%
Chloride MS/MSD	5/21/2013	114.4%	114.9%	67.5-131.8%
Nitrite MS/MSD	5/21/2013	131.5%	131.6%	92.8-129.1
Sulfate MS/MSD	5/21/2013	106.8%	107.4%	72-132.1
Bromide MS/MSD	5/21/2013	115.2%	113.6%	73.4-132.2%
Nitrate MS/MSD	5/21/2013	120.4%	120.6%	79.2-126.2
Chlorate MS/MSD	5/21/2013	113.6%	112.0%	63.8-130.7
Phosphate MS/MSD	5/21/2013	82.2%	85.6%	77.1-123.9

Sample Batch: MEEP

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8965- 1	5/30/2013		
8965- 2	5/30/2013		
8965- 3	5/30/2013		

Method Blank Summary: MEEP

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Methane	5/30/2013	u	ppmv	10.0
Blank-Ethane	5/30/2013	u	ppmv	10.0
Blank-Ethene	5/30/2013	u	ppmv	10.0
Blank-Propane	5/30/2013	u	ppmv	10.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: MEEP

Calibration Standard recoveries:

Initial Calibration Date:		2/21/2013					
Sample:							
Std ppm	5.0	10	100.0	1000.0	10000.0	R ² =	
Methane	4.36	10.15	92.5	1014.0	10262		
%rec	87.2	101.5	92.5	101.4	102.6	0.99990	
Ethane	3.95	9.32	89.2	992.8	9940		
%rec	79.0	93.2	89.2	99.3	99.4	0.99980	
Ethene	3.93	9.38	89.3	993.2	9938		
%rec	78.6	93.8	89.3	99.3	99.4	0.99987	
Propane	4.0	9.3	89.6	1004.0	10029		
%rec	79.6	93.3	89.6	502.0	1002.9	0.99970	
Acetylene*	4.56	10.57	103.60	1171.0	11809		
%rec	77.0	89.2	87.4	98.8	99.7	0.99990	

*acetylene std 11,850ppmv, other gases 10,000 ppmv

QC Check Date:		2/21/2013			
Sample:	Std ppm-v	obs ppm-v	% recovery	Control Limits	
QC Check-Methane	500	516.5	103.3%	80-120%	
QC Check-Ethane	500	508.5	101.7%	80-120%	
QC Check-Ethene	500	507.6	101.5%	80-120%	
QC Check-Propane	500	514.1	102.8%	80-120%	
QC Check-acetylene	593	590.7	99.6%	80-120%	

Method Blank Summary: MEEP

Sample	Date	Concentration	Units	PQL
Blank-Methane	2/21/2013	u	ppm-v	10.0
Blank-Ethane	2/21/2013	u	ppm-v	10.0
Blank-Ethene	2/21/2013	u	ppm-v	10.0
Blank-Propane	2/21/2013	u	ppm-v	10.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: MEEP

Check Standard recoveries:

Sample:	Date	Std ppmv	Obs ppmv	% recovery
Methane check	5/30/2013	20.0	21.4	107.0
			Control Limits:	73.4-127.7
Ethane check	5/30/2013	20.0	21.6	108.2
			Control Limits:	71.77-130.9
Ethene check	5/30/2013	20.0	21.5	107.7
			Control Limits:	75.1-125.8
Propne check	5/30/2013	20.0	225.5	1127.5
			Control Limits:	72.4-129.6

LCS CHECK

Methane check	5/30/2013	10000.0	9455.0	94.6
			Control Limits:	73.4-127.7
Ethane check	5/30/2013	10000.0	9261.0	92.6
			Control Limits:	71.77-130.9
Ethene check	5/30/2013	10000.0	9240.0	92.4
			Control Limits:	75.1-125.8
Propne check	5/30/2013	10000.0	9375.0	93.8
			Control Limits:	72.4-129.6

Method Duplicates Summary: MEEP

Sample:	Batch MS-	8965-2		
	Date	Result (ppmv)	dup Result	Units
Methane	5/30/2013	2,073.00	2,067.00	mg/L
		% RPD=	0.3%	% Max RPD= 15.1
Ethane	5/30/2013	990.87	972.60	mg/L
		% RPD=	1.9%	% Max RPD= 18
Ethene	5/30/2013	985.30	967.50	mg/L*
		% RPD=	1.8%	% Max RPD= 20.4
Propane	5/30/2013	1,007.00	987.40	mg/L
		% RPD=	2.0%	% Max RPD= 18.4

Method Spike Summary: MEEP

Sample 8965-2					
	Date	MS Sample	MSD Recovery	Control Limits	Spike conc
Methane MS/MSD	5/30/2013	99.90%	99.30%	75.9-119.3%	1000.0
Ethane MS/MSD	5/30/2013	99.09%	97.26%	70.52-129.8%	1000.0
Ethene MS/MSD	5/30/2013	98.53%	96.75%	73.2-123.4%	1000.0
Propane MS/MSD	5/30/2013	100.70%	98.74%	74.3-129.5%	1000.0

Sample Batch:volatile Fatty acids

<u>Lab ID</u>	<u>Analysis dates</u>
8965- 1	5/23/2013
8965- 2	5/23/2013
8965- 3	5/23/2013

Initial Calibration Summary: volatile fatty acids

Calibration Standard recoveries:

Initial Calibration Date:		2/26/2013					R ² =
Std ppm	1.0	5.0	10.0	20.0	100.0		
Sample:							
Lactate	0.88	4.97	9.76	19.57	100.17	0.99990	
%rec	88.06	99.4	97.62	97.85	100.17		
Acetate*	1.15	6.04	11.42	21.73	84.14	0.99890	
%rec	115.00	120.78	114.20	108.65	168.28		
propionic	1.08	5.93	11.20	21.72	86.75	0.99890	
%rec	108.00	118.58	112.00	22.27	173.50		
Formic	1.00	5.55	10.47	20.82	99.58	0.99990	
%rec	100.00	110.98	104.66	18.61	102.10		
Pyruvic	0.72	4.43	8.94	18.85	101.30	0.99970	
%rec	72.2	88.58	89.39	94.25	101.3		
Valeric	1.15	6.34	12.17	23.53	97.53	0.99880	
%rec	115.00	126.84	121.70	117.65	97.07		

*linear curve only to 50 ppm

Initial Calibration Date:		2/26/2013					R ² =
Std ppm	1.0	5.0	10.0	20.0	100.0		
Sample:							
n-butyric	0.96	5.42	10.76	20.82	100.30	1.0	
%rec	95.90	108.40	107.60	104.10	100.04	0.99880	

QC Check Date:		2/26/2013			Control Limits
Sample:	Std ppm	Obs ppm	% recovery		
QC Check-Lactic	50.0	49.86	99.7	75.0-130.0%	
QC Check-Acetic	50.0	48.92	97.8	75.0-130.0%	
QC Check-propionic	50.0	48.98	98.0	75.0-130.0%	
QC Check-formic	50.0	50.35	100.7	75.0-130.0%	
QC Check-pyruvic	50.0	48.18	96.4	75.0-130.0%	
QC Check-n-Valeric	50.0	52.95	105.9	75.0-130.0%	
QC Check-n-butyric	50.0	48.99	98.0	75.0-130.0%	

Calibration Verification Summary: VFAs

Check Standard recoveries:

Sample:	Date	Act Conc	Obs ppm	% recovery
Lactic Acid	5/23/2013	10.0	7.78	77.8 Control Limits: 69-107.6
Acetic Acid	5/23/2013	10.0	10.73	107.3 Control Limits: 83.3-121.7
Propionic Acid	5/23/2013	10.0	10.55	105.5 Control Limits: 82.7-116.8
FormicAcid	5/23/2013	10.0	9.07	90.7 Control Limits: 75-120.2
pyruvic	5/23/2013	10.0	8.17	81.7 Control Limits: 68.3-112.1
n-Valeric	5/23/2013	10.0	10.61	106.1 Control Limits: 66.3-134.9

Method Blank Summary: VFAs

Sample	Date	Concentration	Units	PQL
Lactic	5/23/2013	u	ppm	1.0
Acetic	5/23/2013	u	ppm	1.0
propionic	5/23/2013	u	ppm	1.0
Formic	5/23/2013	u	ppm	1.0
pyruvic	5/23/2013	u	ppm	1.0
n-Valeric	5/23/2013	u	ppm	1.0
n-butyric	5/23/2013	u	ppm	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: VFAs

LCS recoveries:

Sample:	Date	Act Conc	Obs ppm	% recovery
Acetic Acid	5/23/2013	5.0	4.17	83.4
			Control Limits: 83.3-121.7	
Propionic Acid	5/23/2013	5.0	4.03	80.6
			Control Limits: 82.7-116.8	
Valeric	5/23/2013	5.0	3.87	77.4
			Control Limits: 66.3-134.9	
n-butyric	5/23/2013	5.0	4.61	92.2
			Control Limits: 73.4-119.9	

Method Duplicates Summary: VFAs

Sample:	Batch MS/MSD 8965-3		MSD Result	Units
	Date	MS Result		
lactic Acid MS/MSD	5/23/2013	23.6	23.3	mg/L
		% RPD= 1.6%		% Max RPD= 5.1%
Acetic Acid MS/MSD	5/23/2013	29.4	29.1	mg/L
		% RPD= 0.9%		% Max RPD= 5.0%
Propionic Acid MS/MSD	5/23/2013	29.1	28.9	mg/L
		% RPD= 0.8%		% Max RPD= 7.6%
Formic Acid MS/MSD	5/23/2013	26.8	26.9	mg/L
		% RPD= 0.5%		% Max RPD= 3.9%
Pyruvic Acid MS/MSD	5/23/2013	21.6	21.4	mg/L
		% RPD= 1.2%		% Max RPD= 9.1%
Valeric Acid MS/MSD	5/23/2013	30.1	29.4	mg/L
		% RPD= 2.4%		% Max RPD= 11.3%

Method Spike Summary: VFAs

Sample:	Batch MS/MSD 8965-3		MSD Recovery	Control Limits
	Date	MS Recovery		
lactic Acid MS/MSD	5/23/2013	94.5%	93.0%	71.7-114.6%
Acetic Acid MS/MSD	5/23/2013	117.6%	116.6%	75.4-125.5%
Propionic Acid MS/MSD	5/23/2013	116.3%	115.4%	65.9-136%
Formic Acid MS/MSD	5/23/2013	107.0%	107.5%	81.1-124.9%
Pyruvic Acid MS/MSD	5/23/2013	86.5%	85.5%	71.4-117.4%
Valeric Acid MS/MSD	5/23/2013	120.3%	117.5%	77.2-132.4%

Sample Batch: Hydrogen

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8965- 1	5/29/2013		
8965- 2	5/29/2013		
8965- 3	5/29/2013		

Method Blank Summary: Hydrogen

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Hydrogen	5/29/2013	u	ppmv	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: Hydrogen

Calibration Standard recoveries:

Initial Calibration Date:		3/29/2013					
Sample:	Std ppm	1.0	5.0	20.0	50.0	100.0	R ² =
Hydrogen	0.99	4.96	207.00	46.70	91.10		
	%rec	99.0	99.2	1035.0	93.4	91.1	0.99995

QC Check Date:	3/29/2013			Control Limits
Sample:	Std ppm-v	obs ppm-v	% recovery	
QC Check-Hydrogen	2	2.08	104.0%	80-120%

Method Blank Summary: Hydrogen

Sample	Date	Concentration	Units	PQL
Blank-Hydrogen	3/29/2013	u	ppm-v	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Hydrogen

Check Standard recoveries:

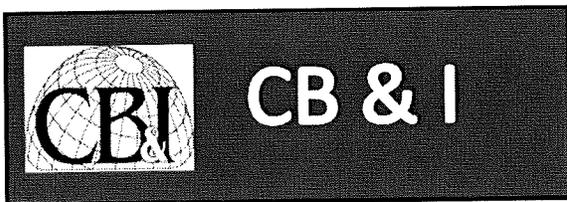
Sample:	Date	Std ppmv	Obs ppmv	% recovery
Hydrogen check	5/29/2013	10.0	10.7	106.6
			Control Limits:	73.8-133.9
Hydrogen check	5/29/2013	20.0	22.46	112.3
			Control Limits:	73.8-133.9

Method Duplicates Summary: H2

Sample:	8965-2			
	Date	dup Result	dup Result	Units
Batch dup	5/29/2013	28.55	27.27	ppmv
		RPD=	4.6%	
		% Max RPD=	27.2%	

Method Spike Summary:H2

Sample:	8965-2			
	Date	MS Recovery	MSD Recovery	Control Limits
Batch MS/MSD	5/29/2013	101.3%	94.9%	75-125%



17 Princess Rd
Lawrenceville, New Jersey 08648
Tel: 609/895-5370
Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indianhead Proton Reduction**

**Lab ID
8969**

Project Number: 146395

**Samples Received
22-May-13**

**Report
3-Jun-13**

NJDEP Certified Lab 11001

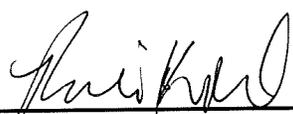
 6/3/13
Randi K Rothmel, PhD **Date**
Laboratory Director

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1.0 General Information

Chain of Custody (s)

Methodology Review

Volatile Organics

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260b. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST05 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 10 hits.

Other Organics

Other Organics such as alcohols, and dissolved gases (methane,ethane, ethene, propane) are analyzed using EPA methods 8015 or RSK-175 unless specified. Dissolved Hydrogen is analysed by RSK-175 using a GC equipped with a PDHID detector. Dissolved gases are prepared by a modification of Kampbell, and Vandegrift(Journal of Chromatographic Science, 1998, Vol 38, p253-256. Volatile fatty acids (acetate, formate, butyrate, proprionate) are analyzed by ion chromatography. Nitroaromatics are analyzed using Method 8330.

All Microbiology and Inorganic analysis is done by standard methods as specified in Test Method for Evaluating Solid Wastes, SW846, on line methods; EPA methods and Guidance of Analysis of Water, 1999; or Standard Methods for the examination of Water and Wastewater, 20th ed.

Microbiology

<u>Parameter</u>	<u>Method Code (s)</u>
Total Heterotrophs	SM9215C
Specific Heterotrophs	SM9215C-BSM
Biological Oxygen Demand	EPA405.1 SM5210B
Biological Oxygen Demand, Carbon	SM5210B SM5210B

Wet Chemistry -Inorganics

Anions (F,Cl, Br, NO3,NO2,PO4, SO4)	EPA300.0
Perchlorate,sol	EPA314.0
Chlorate,sol	EPA300.0m
Ammonia as NH3-N	EPA350.2 SM4500-NH3 B+C
TKN	EPA351.3 SM4500-OrgB/C
Alkalinity as CaCO3	EPA310.1 SM2320B
Hardness as CaCO3	EPA130.2 SM2340 B/C
Carbon Dioxide	SM4500-CO2
Total Organic Carbon	EPA415.1 SM5310 B,C,D; SW-846 9060
Chemical Oxygen Demand	EPA410.4 SM5220D
pH	EPA150.1 SM4500-H B; SW-846 9045C
Total Dissolved Solids (TDS)	EPA160.1 SM2540 C
Total Solids	EPA160.3 SM2540 B
Total Suspended Solids (TSS)	EPA160.2 SM2540 D
Volatile Suspended Solids (VSS)	EPA160.4 SM2540G
Turbidity	EPA180.1 SM2130 B
Conductivity	EPA120.1 SW-846 9050A
Phosphorus (all forms)	EPA365.2 SM4500-P
Total Residual Chlorine	EPA330.5 SM4500-Cl G

Organics

Methane ethane ethene	EPA3810, RSK-175
Volatile fatty acids	IC, EPA300m
Alcohols (methanol, ethanol etc)	SW846-8015

Reporting Qualifiers

- U- The compound was not detected at the indicated PQL concentration.
 - J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.
 - D- Diluted sample
 - B- The analyte was observed in laboratory blank as well as the sample - for EPA SW856 8260b and EPA 624 analysis
 - E- Compound detected above the linear range of the curve. Value given is an estimated value.
-

2.0 Sample Results

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8969-01	Date Sampled	05/21/2013
Sample ID	IW02-1	Date Received	05/24/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	05/29/2013	25.9000	D	ug/L	1.0000	0.1000	250	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8969-02	Date Sampled	05/21/2013
Sample ID	IW03-1	Date Received	05/24/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	05/29/2013	0.0205	D	ug/L	0.0080	0.0008	2	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

- (1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.
 (2) Not available as a certified parameter under the NJDEP lab certification program.
 () no qualification - sample run undiluted
 (U) Compound not detected above method practical quantitation limit.
 (D) Sample analyzed at indicated dilution
 (J) Estimated value above MDL and less than PQL
 (E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8969-03	Date Sampled	05/21/2013
Sample ID	IW02-2	Date Received	05/24/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	05/29/2013	51.8	D	ug/L	1.0000	0.1000	250	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8969-04	Date Sampled	05/21/2013
Sample ID	IW02-3	Date Received	05/24/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	05/29/2013	44.9	D	ug/L	1.0000	0.1000	250	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8969-05	Date Sampled	05/21/2013
Sample ID	IW02	Date Received	05/24/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	05/29/2013	47.9	D	ug/L	1.0000	0.1000	250	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

3.0 QC Summary

Sample Batch: Hydrogen

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8969- 1	5/29/2013		
8969- 2	5/29/2013		
8969- 3	5/29/2013		
8969- 4	5/29/2013		
8969- 5	5/29/2013		

Method Blank Summary: Hydrogen

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Hydrogen	5/29/2013	u	ppmv	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: Hydrogen

Calibration Standard recoveries:

Initial Calibration Date:		3/29/2013					
Sample:	Std ppm	1.0	5.0	20.0	50.0	100.0	R ² =
Hydrogen		0.99	4.96	207.00	46.70	91.10	
	%rec	99.0	99.2	1035.0	93.4	91.1	0.99995

QC Check Date:		3/29/2013			
Sample:	Std ppm-v	obs ppm-v	% recovery	Control Limits	
QC Check-Hydrogen	2	2.08	104.0%	80-120%	

Method Blank Summary: Hydrogen

Sample	Date	Concentration	Units	PQL
Blank-Hydrogen	3/29/2013	u	ppm-v	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Hydrogen

Check Standard recoveries:

Sample:	Date	Std ppmv	Obs ppmv	% recovery
Hydrogen check	5/29/2013	10.0	10.7	106.6
			Control Limits:	73.8-133.9
Hydrogen check	5/29/2013	20.0	22.46	112.3
			Control Limits:	73.8-133.9

Method Duplicates Summary: H2

Sample:	8965-2			
	Date	dup Result	dup Result	Units
Batch dup	5/29/2013	28.55	27.27	ppmv
		RPD=	4.6%	
		% Max RPD=	27.2%	

Method Spike Summary:H2

Sample:	8965-2			
	Date	MS Recovery	MSD Recovery	Control Limits
Batch MS/MSD	5/29/2013	101.3%	94.9%	75-125%

Run Date	Sample	Obs									
		Liquid Volume (mL)	Headspace Volume (mL)	Room temp. (°C)	Room temp. (K)	Hydrogen (ppmV)	dilution	Hydrogen (ug/L)	Hydrogen uM		
5/29/2013	blank	30	30	22	295.0	0.00	1	0.0000	0.000		
	10ppmv	30	30	22	295.0	10.66	1	0.8978	0.449		
	8965-1	155	5	22	295.0	1.22	2	0.0104	0.005		
	8965-2	155	5	22	295.0	14.69	2	0.1252	0.063		
	8965-2	155	5	22	295.0	8.30	5	0.1769	0.088		
	8965-2 MS	155	5	22	295.0	28.55	5	0.6085	0.304		
	8965-2 MSD	155	5	22	295.0	27.27	5	0.5812	0.291		
	8965-3	155	5	22	295.0	1.84	2	0.0157	0.008		
	8969-1	155	5	22	295.0	67.84	100	28.9188	14.459		
	8969-1	155	5	22	295.0	24.33	250	25.9285	12.964		
	8969-2	155	5	22	295.0	1.23	2	0.0105	0.005		
	8969-3	155	5	22	295.0	142.71	100	60.8344	30.417		
	8969-3	155	5	22	295.0	48.57	250	51.7610	25.880		
	8969-4	155	5	22	295.0	126.30	100	53.8391	26.920		
	8969-4	155	5	22	295.0	42.14	250	44.9085	22.454		
	8969-5	155	5	22	295.0	131.68	100	56.1325	28.066		
	8969-5	155	5	22	295.0	44.98	250	47.9351	23.968		
	8972-1	155	5	22	295.0	86.18	250	91.8419	45.921		
	8972-2	155	5	22	295.0	0.57	2	0.0049	0.002		
	blank	30	30	22	295.0	0.00	1	0.0000	0.000		
	20ppmv	30	30	22	295.0	22.46	1	1.8917	0.946		



17 Princess Rd

Lawrenceville, New Jersey 08648

Tel: 609/895-5370

Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indianhead Proton Reduction**

**Lab ID
8972**

Project Number: 146395

**Samples Received
29-May-13**

**Report
10-Jun-13**

NJDEP Certified Lab 11001

Randi K Rothmel 6-10-13
Randi K Rothmel, PhD Date
Laboratory Director

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1.0 General Information

Chain of Custody (s)

Methodology Review

Volatile Organics

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260b. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST05 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 10 hits.

Other Organics

Other Organics such as alcohols, and dissolved gases (methane,ethane, ethene, propane) are analyzed using EPA methods 8015 or RSK-175 unless specified. Dissolved Hydrogen is analysed by RSK-175 using a GC equipped with a PDHID detector. Dissolved gases are prepared by a modification of Kampbell, and Vandegrift(Journal of Chromatographic Science, 1998, Vol 38, p253-256. Volatile fatty acids (acetate, formate, butyrate, proprionate) are analyzed by ion chromatography. Nitroaromatics are analyzed using Method 8330.

All Microbiology and Inorganic analysis is done by standard methods as specified in Test Method for Evaluating Solid Wastes, SW846, on line methods; EPA methods and Guidance of Analysis of Water, 1999; or Standard Methods for the examination of Water and Wastewater, 20th ed.

Microbiology

<u>Parameter</u>	<u>Method Code (s)</u>
Total Heterotrophs	SM9215C
Specific Heterotrophs	SM9215C-BSM
Biological Oxygen Demand	EPA405.1 SM5210B
Biological Oxygen Demand, Carbon	SM5210B SM5210B

Wet Chemistry -Inorganics

Anions (F,Cl, Br, NO3,NO2,PO4, SO4)	EPA300.0
Perchlorate,sol	EPA314.0
Chlorate,sol	EPA300.0m
Ammonia as NH3-N	EPA350.2 SM4500-NH3 B+C
TKN	EPA351.3 SM4500-OrgB/C
Alkalinity as CaCO3	EPA310.1 SM2320B
Hardness as CaCO3	EPA130.2 SM2340 B/C
Carbon Dioxide	SM4500-CO2
Total Organic Carbon	EPA415.1 SM5310 B,C,D; SW-846 9060
Chemical Oxygen Demand	EPA410.4 SM5220D
pH	EPA150.1 SM4500-H B; SW-846 9045C
Total Dissolved Solids (TDS)	EPA160.1 SM2540 C
Total Solids	EPA160.3 SM2540 B
Total Suspended Solids (TSS)	EPA160.2 SM2540 D
Volatile Suspended Solids (VSS)	EPA160.4 SM2540G
Turbidity	EPA180.1 SM2130 B
Conductivity	EPA120.1 SW-846 9050A
Phosphorus (all forms)	EPA365.2 SM4500-P
Total Residual Chlorine	EPA330.5 SM4500-Cl G

Organics

Methane ethane ethene	EPA3810, RSK-175
Volatile fatty acids	IC, EPA300m
Alcohols (methanol, ethanol etc)	SW846-8015

Reporting Qualifiers

- U- The compound was not detected at the indicated PQL concentration.

 - J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

 - D- Diluted sample

 - B- The analyte was observed in laboratory blank as well as the sample - for EPA SW856 8260b and EPA 624 analysis

 - E- Compound detected above the linear range of the curve. Value given is an estimated value.
-

2.0 Sample Results

Sample Information			
Lab ID	8972-01	Date Sampled	05/24/2013
Sample ID	146395-IW02	Date Received	05/29/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	05/29/2013	91.8	D	ug/L	1.0000	0.1000	250	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8972-02	Date Sampled	05/28/2013
Sample ID	S57MW41-146395	Date Received	05/29/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	05/29/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	05/29/2013	21.3	D	mg/L	4.0	1.304	20	EPA 300.0
Nitrite as N	05/29/2013	0.10	J	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	05/29/2013	4.35		mg/L	0.2	0.047	1	EPA 300.0
Bromide	05/29/2013	0.2	U	mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	05/29/2013	0.25		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	05/29/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Hydrogen	05/29/2013	0.0049	JD	ug/L	0.0080	0.0008	2	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

3.0 QC Summary

Sample Batch: Anions

Lab ID	Analysis date
8972- 2	5/29/2013

Initial Calibration Summary: Anions

Calibration Standard recoveries:

Initial Calibration Date:		5/22/2013					
Sample:							
Std ppm	0.2	0.5	1.0	5.0	20.0	R ² =	
Fluoride*	0.2289	0.567	1.078	5.537	19.620		
%rec	114.5	113.4	107.8	110.7	98.1	0.99919	
Chloride	0.2587	0.5561	0.950	5.000	19.85		
%rec	0.2	111.2	95.0	100.0	99.3	0.99986	
Nitrite*	0.237	0.533	1.144	5.702	19.350		
%rec	118.7	106.6	114.4	114.0	96.8	0.99789	
Sulfate	0.2266	0.582	1.100	5.007	19.920		
%rec	113.3	116.3	110.0	100.1	99.6	0.99983	
Bromide	0.254	0.537	0.916	4.954	19.980		
%rec	127.0	107.4	91.6	99.1	99.9	0.99990	
Nitrate	0.190	0.450	0.984	4.982	19.880		
%rec	94.8	90.0	98.4	99.6	99.4	0.99989	
Chlorate	0.203	0.434	0.960	4.814	19.810		
%rec	101.6	86.8	96.0	96.3	99.1	0.99952	
Phosphate	0.222	0.512	1.026	5.184	19.995		
%rec	111.2	102.3	102.6	103.7	100.0	0.99990	

*linear only to 10.0ppm

QC Check Date:		5/22/2013			
Sample:	Std ppm	Obs ppm	% recovery	Control Limits	
QC Check-Fluoride	10.0	10.440	104.4%	80.0-120.0%	
QC Check-Chloride	10.0	10.260	102.6%	80.0-120.0%	
QC Check-Nitrite	10.0	10.860	108.6%	80.0-120.0%	
QC Check-Sulfate	10.0	10.110	101.1%	80.0-120.0%	
QC Check-Bromide	10.0	10.060	100.6%	80.0-120.0%	
QC Check-Nitrate	10.0	10.230	102.3%	80.0-120.0%	
QC Check-Chlorate	10.0	10.490	104.9%	80.0-120.0%	
QC Check-Phosphate	10.0	9.888	98.9%	80.0-120.0%	

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	5/22/2013	u	ppm	0.2
Blank-Chloride	5/22/2013	u	ppm	0.2
Blank-Nitrite	5/22/2013	u	ppm	0.2
Blank-Sulfate	5/22/2013	u	ppm	0.2
Blank-Bromide	5/22/2013	u	ppm	0.2
Blank-Nitrate	5/22/2013	u	ppm	0.2
Blank-Chlorate	5/22/2013	u	ppm	0.2
Blank-Phosphate	5/22/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Anions

Check Standard recoveries:

Sample:	Date	Std ppm	Obs ppm	% recovery
Fluoride check	5/29/2013	2.00	2.20	109.9
			Control Limits: 847.5-137.5	
Chloride check	5/29/2013	2.00	2.33	116.3
			Control Limits: 80.5-125.2	
Nitrite check	5/29/2013	2.00	2.69	134.7
			Control Limits: 82.8-129.1	
Sulfate check	5/29/2013	2.00	2.29	114.6
			Control Limits: 82.5-125.6	
Bromide check	5/29/2013	2.00	2.49	124.5
			Control Limits: 77-128.2	
Nitrate check	5/29/2013	2.00	2.11	105.5
			Control Limits: 83.3-121.2	
Chlorate check	5/29/2013	2.00	2.18	109.0
			Control Limits: 79.6-121.7	
Phosphate check	5/29/2013	2.00	2.20	109.8
			Control Limits: 82.5-122.6	

QC Check:

Sample:	Date	Std ppm	Obs ppm	% recovery
QC Check-Fluoride	5/29/2013	100.00	88.98	89.0
QC Check-Chloride	5/29/2013	200.00	213.60	106.8
QC Check-Nitrite	5/29/2013	200.00	229.70	114.9
QC Check-Sulfate	5/29/2013	300.00	322.80	107.6
QC Check-Bromide	5/29/2013	200.00	223.50	111.8
QC Check-Nitrate	5/29/2013	200.00	217.50	108.8
QC Check-Phosphate	5/29/2013	300.00	330.20	110.1
			Control Limits:	80.0-120.0%

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	5/29/2013	u	ppm	0.2
Blank-Chloride	5/29/2013	u	ppm	0.2
Blank-Nitrite	5/29/2013	u	ppm	0.2
Blank-Sulfate	5/29/2013	u	ppm	0.2
Blank-Bromide	5/29/2013	u	ppm	0.2
Blank-Nitrate	5/29/2013	u	ppm	0.2
Blank-Chlorate	5/29/2013	u	ppm	0.2
Blank-Phosphate	5/29/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Method Duplicates Summary: Anions

Sample:	Batch MS/MSD	8972-2			
	Date	MS	MSD		Units
Fluoride MS/MSD	5/29/2013	113.3	112.3		mg/L
		142.9	0.9%		% Max RPD= 17.0%
Chloride MS/MSD	5/29/2013	123.5	120.3		mg/L
		111.9	2.6%		% Max RPD= 9.8%
Nitrite MS/MSD	5/29/2013	121.6	117.9		mg/L
		340.7	3.1%		% Max RPD= 13.7%
Sulfate MS/MSD	5/29/2013	107.5	104.9		mg/L
		106.7	2.4%		% Max RPD= 7.2%
Bromide MS/MSD	5/29/2013	108.5	104.2		mg/L
		108.9	4.0%		% Max RPD= 14.3%
Nitrate MS/MSD	5/29/2013	104.7	101.5		mg/L
		106.6	3.1%		% Max RPD= 14.7%
Chlorate MS/MSD	5/29/2013	98.7	100.7		mg/L
		93.4	2.0%		% Max RPD= 21.8%
Phosphate MS/MSD	5/29/2013	110.4	108.5		mg/L
			% RPD= 1.7%		% Max RPD= 17.3%

Method Spike Summary: Anions

Sample:	Batch MS/MSD	8972-2		
	Date	MS Recovery	MS Recovery	Control Limits
Fluoride MS/MSD	5/29/2013	113.3%	112.3%	74.2-136.9%
Chloride MS/MSD	5/29/2013	102.2%	99.0%	67.5-131.8%
Nitrite MS/MSD	5/29/2013	120.6%	116.9%	92.8-129.1
Sulfate MS/MSD	5/29/2013	102.3%	99.7%	72-132.1
Bromide MS/MSD	5/29/2013	108.5%	104.2%	73.4-132.2%
Nitrate MS/MSD	5/29/2013	104.7%	101.5%	79.2-126.2
Chlorate MS/MSD	5/29/2013	98.7%	100.7%	63.8-130.7
Phosphate MS/MSD	5/29/2013	110.4%	108.5%	77.1-123.9

Sample Batch: Hydrogen

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8972- 1	5/29/2013		
8972- 2	5/29/2013		

Method Blank Summary: Hydrogen

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Hydrogen	5/29/2013	u	ppmv	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: Hydrogen

Calibration Standard recoveries:

Initial Calibration Date:		3/29/2013				
Sample:						
Std ppm	1.0	5.0	20.0	50.0	100.0	R ² =
Hydrogen	0.99	4.96	207.00	46.70	91.10	
%rec	99.0	99.2	1035.0	93.4	91.1	0.99995

QC Check Date:	3/29/2013			
Sample:	Std ppm-v	obs ppm-v	% recovery	Control Limits
QC Check-Hydrogen	2	2.08	104.0%	80-120%

Method Blank Summary: Hydrogen

Sample	Date	Concentration	Units	PQL
Blank-Hydrogen	3/29/2013	u	ppm-v	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Hydrogen

Check Standard recoveries:

Sample:	Date	Std ppmv	Obs ppmv	% recovery
Hydrogen check	5/29/2013	10.0	10.7	106.6
			Control Limits:	73.8-133.9
Hydrogen check	5/29/2013	20.0	22.46	112.3
			Control Limits:	73.8-133.9

Method Duplicates Summary: H2

Sample:	8965-2			
	Date	dup Result	dup Result	Units
Batch dup	5/29/2013	28.55	27.27	ppmv
		RPD=	4.6%	
		% Max RPD=	27.2%	

Method Spike Summary:H2

Sample:	8965-2			
	Date	MS Recovery	MSD Recovery	Control Limits
Batch MS/MSD	5/29/2013	101.3%	94.9%	75-125%



17 Princess Rd

Lawrenceville, New Jersey 08648

Tel: 609/895-5370

Fax: 609/895-1858

**Volatile Organic Compound
Reduced Deliverable Package**

**Prepared for
Indianhead Proton Reduction
Project Number: 146395**

**Lab ID
8976**

**Samples Received
7-Jun-13**

**Reported
1-Jul-13**

NJDEP Certified Lab 11001


Randi K Rothmel, PhD
Laboratory Director

7-1-13
Date

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1.0 General Information

Chain of Custody

Samples were received at Shaw E& I within required temperature and transportation requirements. Samples were received in good condition with custody seals intact. Internal and external chains of custody are enclosed for review. No peculiarities were observed during the chain of custody process.

8976



COC Number: 146395-060513
Purchase Order Number:

CHAIN-OF-CUSTODY RECORD

SHAW (A CB&I Company) - 500 E. Main Street, Suite 1630, Norfolk, VA 23510 - (757) 363-7190

Lab Receiving Address:
CB&I Federal Services
 17 Princess Road
 Lawrenceville, NJ 08648
 Sample Location:
Indian Head Site 57
 Show Contact:
Natasha Kelley Sullivan
 Show Contact Number:
(410) 529-7598
 Project Name:
Ground Water Samples Day 14
 Project Number:
146395
 Client Reps:
NAVY
 Project Manager:
Bill Hughes

Item No.	Sample Number	Date	Time	Year	Month	Day	Sample Description	Number of Containers	Hydrogen	Antons	VFA	MEE	eVOC	Analysis Desired
1	S57W03	06/05/13	15:08	X	1		1st 5 minutes of purging S57W03	1 x 125 clear glass 1:1 HCL	X					
2	S57W03	06/05/13	15:44	X	2		S57W03	1 x 125 clear glass 1:1 HCL 1 x 125 ml halgene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
3	S57MW41	06/05/13	17:02	X	3		S57MW41	1 x 125 clear glass 1:1 HCL 1 x 125 ml halgene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
4	S57W02	06/05/13	17:23	X	4		1st 5 minutes of purging S57W02	1 x 125 clear glass 1:1 HCL	X					
5	S57W02	06/05/13	17:50	X	5		S57W02	1 x 125 clear glass 1:1 HCL 1 x 125 ml halgene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
6	Trip Blank-0605213	06/05/13		X	6		Trip Blank	2 x 40 ml vial 1:1 HCL					X	
7														
8														

Lab Contact: Randy Rothmel
Project Contact: Dave Lippincott
Send Report To: Dave Lippincott

Turnaround Time Required: **Comments:**
 Sampled By: **Natasha Kelley Sullivan, CB&I**

Transfer Number	Relinquished By	Date	Time	Transferred/ Accepted By	Date	Time	Remarks
1	Sampler's Signature						
2		6/5/2013	18:30	Laboratory Sample Custody Signature			
3		6/6/2013	14:50	UPS STORE			
4							

Report Format: Summary Report
Deliverables: EDD Excel
*** Fax results to Natasha Sullivan (410) 529-7599

Methodology Review

in the analytical results section. Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260 or 624. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST98 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 15 hits.

Initial calibration standards are enclosed in calibration summary report

Data qualifiers are given below for clarification.

U- The compound was not detected at the indicated PQL concentration.

J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

D- Diluted sample

B- The analyte was observed in laboratory blank as well as the sample -

E- Compound detected above the linear range of the curve. Value given is an estimated value.

Laboratory Chronicle

2 The sample injection log was verified for correct sample injection.

3 Samples were analyzed within the established holding times.

Date sampled	6/5/2013
Date received	6/7/2013
Initial Date analyzed	6/10/2013
Duration	5

Subsequent Date(s) analyzed
Duration

Date sampled
Date received
Initial Date analyzed
Duration
Duration

Subsequent Date(s) analyzed
Duration

Subsequent Date(s) analyzed
Duration

Subsequent Date(s) analyzed
Duration

Holding time 14 Days

5A

**VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)**

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID: JN10_01.D BFB Injection Date: 6/10/2013
 Instrument ID: 5971 BFB Injection Time: 7:13
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	16.1
75	30.0 - 66.0% of mass 95	36.8
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	6.7
173	Less than 2.0% of mass 174	0.0 (0.0)1
174	50.0 - 120.0% of mass 95	92.4
175	4.0 - 9.0% of mass 174	5.4 (5.8)1
176	93.0 - 101.0% of mass 174	88.6 (95.9)1
177	5.0 - 9.0% of mass 176	6.3 (7.1)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Sample:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTDJUN10	SPCC/CCC	JN10_02.D	6/10/2013	7:48
02	QC CHK	QC	JN10_03.D	6/10/2013	8:23
03	MBLK	BLK	JN10_04.D	6/10/2013	8:58
04	8976-2	8976_2 * 84	8976_2.D	6/10/2013	9:32
05	8976-2MS	8976_2MS * 84	8976_2MS.D	6/10/2013	10:07
06	8976-2MSD	8976_2MSD * 84	8976_2SD.D	6/10/2013	10:42
07	8976-3	8976_3 * 84	8976_3.D	6/10/2013	11:17
08	8976-5	8976_5 * 84	8976_5.D	6/10/2013	11:52
09	8976-6	8976_6 * 84	8976_6.D	6/10/2013	12:26
10	8976-02	8976_02 * 8.4	8976_02.D	6/10/2013	13:01
11	8976-03	8976_03 * 8.4	8976_03.D	6/10/2013	13:36
12	8976-05	8976_05 * 8.4	8976_05.D	6/10/2013	14:11
13	8976-06	8976_06 * 8.4	8976_06.D	6/10/2013	14:46
14	8976-02	8976_02 10.OML	976_02.D	6/10/2013	16:31
15	8976-03	8976_03 10.OML	976_03.D	6/10/2013	17:05
16	8976-05	8976_05 10.OML	976_05.D	6/10/2013	17:40
17	8976-06	8976_06 10.OML	976_06.D	6/10/2013	18:15

Laboratory Chronology cont.

LAB ID

8976- 1 S57IW03
8976- 2 S57MW42
8976- 3 S57IW02
8976- 4 Trip blank

Volatile GC/MS Conformance/Non Conformance Summary

Sample Delivery Group 8946 Run Date 06/10/2013

- | | | |
|---|----------|----------|
| 1 Chromatograms Labeled/Compounds Identified
(Field Samples and Method Blanks) | <u>X</u> | |
| 2 BFB Tune Criteria Met | <u>X</u> | |
| 3 GC/MS Tuning Frequency - every 12 hours | <u>X</u> | |
| 4 GC/MS calibration requirements met. CC every 12 hours | <u>X</u> | |
| 5 GC/MS Compound Check Requirements | <u>X</u> | |
| 6 Blank Contamination - If yes indicate all compounds
_____ | | <u>X</u> |
| 7 Surrogate Recoveries meet criterial, if not indicate samples.

_____ | <u>X</u> | |
| 8 Matrix Spike-Matrix Spike Duplicate Meet Criteria, if not

_____ | <u>X</u> | |
| 9 Internal Standards/Retention Time shift meet criteria

_____ | <u>X</u> | |
| 10 Analysis Holding Times met.
If not indicate each sample and number of days exceeded.
_____ | <u>X</u> | |
| 11 Additional Comments

_____ | | |

Randi K Rothmel 7-1-13

Date

Laboratory Director

2.0. Sample Summaries

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-02 Sample ID: S571W03
--

Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 976_02.D 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/05/13

Soil extract date:

Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	06/10/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	06/10/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	06/10/13	1.9	J	10.0	1.0	0.91	5.0
74-83-9	bromomethane	06/10/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	06/10/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	06/10/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	06/10/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	06/10/13	1.0	J	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	06/10/13	147		10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	06/10/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	06/10/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	06/10/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	06/10/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	06/10/13	305	D	1.2	8.4	6.05	42.0
78-87-5	1,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	06/10/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	06/10/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	06/10/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	06/10/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	06/10/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	06/10/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	06/10/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-02 Sample ID: S571W03
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 976_02.D 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/05/13Soil extract date: Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	06/10/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	06/10/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	06/10/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	06/10/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	06/10/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	06/10/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	06/10/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	06/10/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	06/10/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	06/10/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	06/10/13	10.0	U	10.0	1.0	0.89	10.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-03 Sample ID: S57MW41
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 976_03.D 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/05/13
Soil extract date: Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
75-71-8	Dichlorodifluoromethane	06/10/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	06/10/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	06/10/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	06/10/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	06/10/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	06/10/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	06/10/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2-Dichloroethylene	06/10/13	7.9	U	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	06/10/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	06/10/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	06/10/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	06/10/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	06/10/13	29.4	U	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	06/10/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	06/10/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	06/10/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	06/10/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylene (m/p)	06/10/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	06/10/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	06/10/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-03 Sample ID: S57MW41
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 976_03.D 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/05/13Soil extract date: Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	06/10/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	06/10/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	06/10/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	06/10/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	06/10/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	06/10/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	06/10/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	06/10/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	06/10/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	06/10/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	06/10/13	10.0	U	10.0	1.0	0.89	10.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-05 Sample ID: S571W02
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 976_05.D 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/05/13Soil extract date: Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	06/10/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	06/10/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	06/10/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	06/10/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	06/10/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	06/10/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	06/10/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	06/10/13	11.9		10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	06/10/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	06/10/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	06/10/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	06/10/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	06/10/13	32.3		10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	06/10/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	06/10/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	06/10/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	06/10/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	06/10/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	06/10/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	06/10/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-05 Sample ID: S57IW02
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 976_05.D 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/05/13
Soil extract date: Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	06/10/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	06/10/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	06/10/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	06/10/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	06/10/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	06/10/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	06/10/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	06/10/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	06/10/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	06/10/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	06/10/13	10.0	U	10.0	1.0	0.89	10.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-06 Sample ID: Trip Blank

Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 976_06.D 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/05/13

Soil extract date:

Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	06/10/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	06/10/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	06/10/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	06/10/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	06/10/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	06/10/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	06/10/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	06/10/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	06/10/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	06/10/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	06/10/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	06/10/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	06/10/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	06/10/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	06/10/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	06/10/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	06/10/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	06/10/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8976-06 Sample ID: Trip Blank

Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 976_06.D 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/05/13Soil extract date: Date Received: 06/07/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
98-82-8	isopropyl benzene (cumene)	06/10/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	06/10/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	06/10/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	06/10/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	06/10/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	06/10/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	06/10/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	06/10/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	06/10/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	06/10/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	06/10/13	10.0	U	10.0	1.0	0.89	10.0

3.0 QA/QC Results

Tune Results

- 1 Instrument Tunes were performed every 12 hours.
 - 2 Tuning compound is 4 Bromofluorobenzene.
 - 3 BFB tune must meet criteria prior to the analysis of samples.
 - 4 See attached tune report(s).
BFB for Initial Calibration as well as for all SPCC/CCC runs included
-

Data File : C:\HPCHEM\1\DATA\JUN10_13\JN10_01.D

Vial: 1

Acq On : 10 Jun 2013 7:13 am

Operator:

Sample : BFB

Inst : GC/MS 597

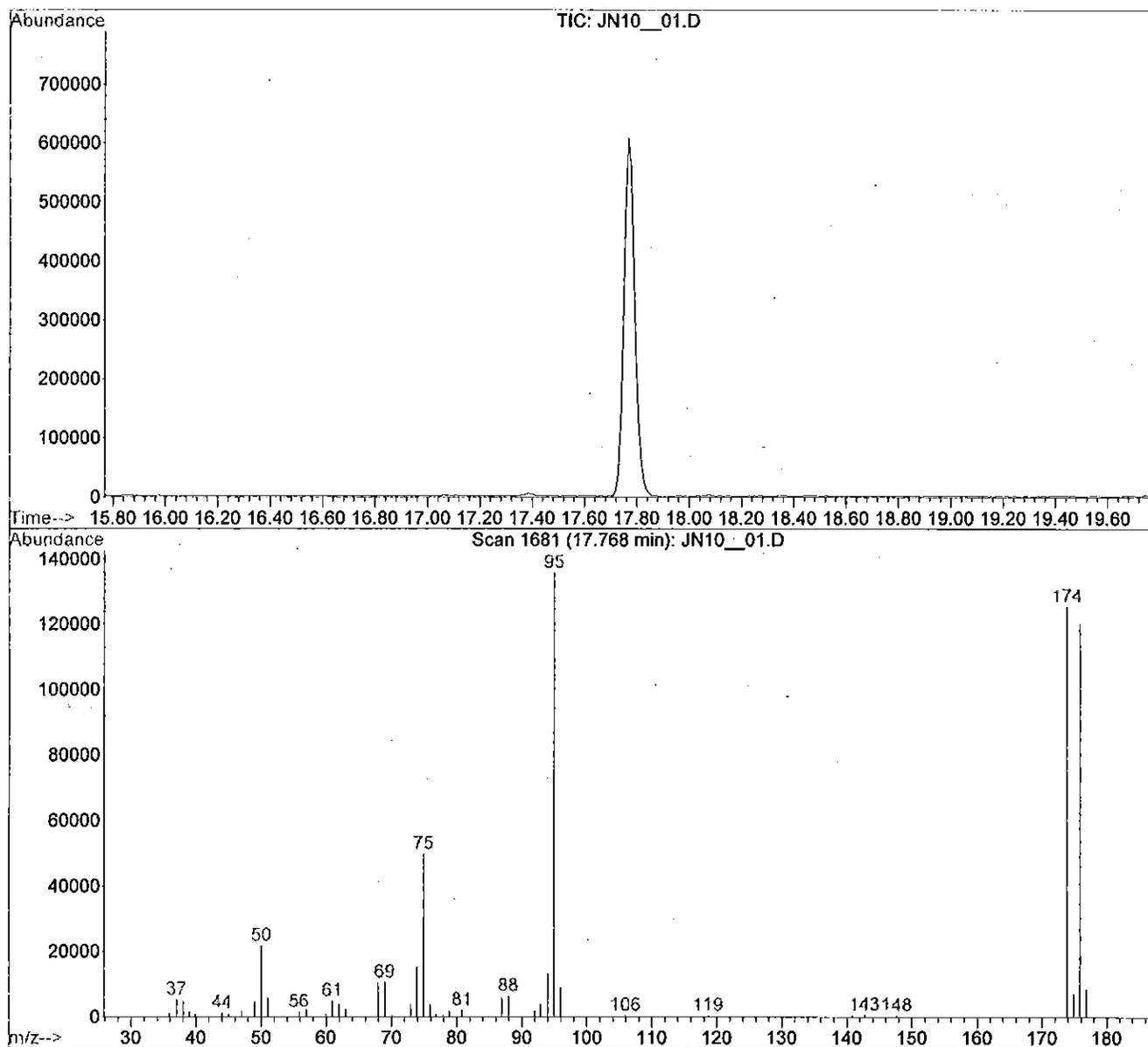
Misc :

Multiplr: 1.00

MS Integration Params: ODD.P

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11



Spectrum Information: Scan 1681

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	10	40	16.1	21896	PASS
75	95	30	68	36.8	49912	PASS
95	95	100	100	100.0	135808	PASS
96	95	4	10	6.7	9084	PASS
173	174	0.00	2	0.0	0	PASS
174	95	50	99	92.4	125552	PASS
175	174	4	9	5.8	7273	PASS
176	174	92	105	95.9	120392	PASS
177	176	4	9	7.1	8575	PASS

Method Blank Summary

- 1 Method blanks were analyzed at the beginning and end of all sample sets.
 - 2 Method blanks indicated no TCL targeted organic compounds detected above the MDL.
 - 3 Blanks were analyzed within the requirements as established in the scope of work.
-

VOLATILE METHOD BLANK SUMMARY

mBlk

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID: JN10_04.D Lab Sample ID: BLK
 Date Analyzed: 6/10/2013 Time Analyzed: 8:58
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N
 Instrument ID: 5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Sample:	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	QC CHK	QC	JN10_03.D	8:23
02	8976-2	8976_2 * 84	8976_2.D	9:32
03	8976-2MS	8976_2MS * 84	8976_2MS.D	10:07
04	8976-2MSD	8976_2MSD * 84	8976_2SD.D	10:42
05	8976-3	8976_3 * 84	8976_3.D	11:17
06	8976-5	8976_5 * 84	8976_5.D	11:52
07	8976-6	8976_6 * 84	8976_6.D	12:26
08	8976-02	8976_02 * 8.4	8976_02.D	13:01
09	8976-03	8976_03 * 8.4	8976_03.D	13:36
10	8976-05	8976_05 * 8.4	8976_05.D	14:11
11	8976-06	8976_06 * 8.4	8976_06.D	14:46
12	8976-02	8976_02 10.0ML	976_02.D	16:31
13	8976-03	8976_03 10.0ML	976_03.D	17:05
14	8976-05	8976_05 10.0ML	976_05.D	17:40
15	8976-06	8976_06 10.0ML	976_06.D	18:15

COMMENTS:

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information

Laboratory ID: BLK 6-0-13Sample ID: Method BlankNJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) JN10_04. 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
75-71-8	Dichlorodifluoromethane	06/10/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	06/10/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	06/10/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	06/10/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	06/10/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	06/10/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	06/10/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	06/10/13	5.0	U	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	06/10/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	06/10/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	06/10/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	06/10/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	06/10/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	06/10/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	06/10/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	06/10/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	06/10/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	06/10/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	06/10/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	06/10/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	06/10/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	06/10/13	5.0	U	10.0	1.0	0.86	5.0
98-82-8	isopropyl benzene (cumene)	06/10/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	06/10/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	06/10/13	5.0	U	10.0	1.0	0.65	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information

Laboratory ID: BLK 6-0-13Sample ID: Method BlankMatrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) JN10_04. 6/10/2013Soil extract vol: Soil aliquot amt: Date Sampled: 06/10/13Soil extract date: Date Received: 06/10/13

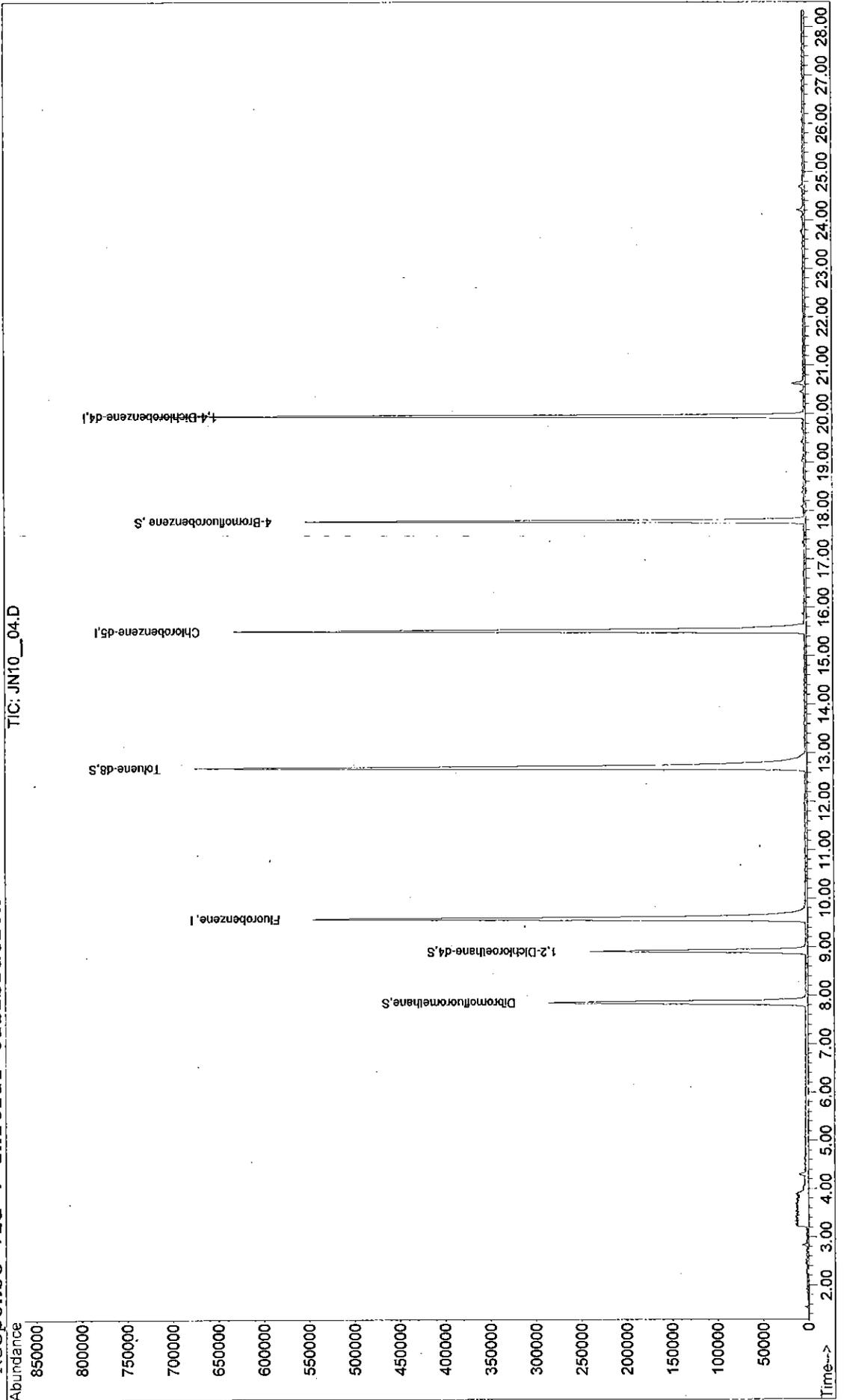
CAS NO.	Compound	Date	Concentration		Smp Amt mL	Dilution	MDL	PQL
		Analyzed	ug/L	Q				
103-65-1	n-propyl benzene	06/10/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	06/10/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	06/10/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	06/10/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	06/10/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	06/10/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	06/10/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	06/10/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	06/10/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	06/10/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	06/10/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	06/10/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	06/10/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	06/10/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	06/10/13	10.0	U	10.0	1.0	0.89	10.0

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	06/10/13	24.53	4.14	25.0	98.12%
17060-07-(1,2-Dichloroethane-d4	06/10/13	24.65	6.61	25.0	98.60%
2037-26-5 Toluene-d8	06/10/13	24.74	2.84	25.0	98.96%
460-00-4 4-Bromofluorobenzene	06/10/13	25.64	1.81	25.0	102.56%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\JN10_04.D Vial: 4
Acq On : 10 Jun 2013 8:58 am Operator:
Sample : BLK Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jun 24 10:01 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Calibration Summary

- 1 Targeted TCL volatile compounds met all required calibration criteria.
 - 2 A QC check standard was analyzed after the initial calibration to validate the accuracy of the curve. The recoveries are shown as attached in this section. The QC check is prepared from a differing manufacturer of the targeted organic compounds at a 20 ppb concentration. LCS is run at 25 ppb
 - 3 Continuing calibrations were performed every 12 hours.
-

VOLATILE CONTINUING CALIBRATION CHECK

Lab Name: A.T.L Analyst: AS
 N.J.DEP. 11001 Calib. Dat 05/06/201 GC/MS: # 2 Client: NA
 Instrument ID: 5971 Calibration Date: 6/10/2013 Time: 7:48
 Lab File ID: JN10_02.D Init. Calib. Date(s): 5/6/2013 5/6/2013
 Heated Purge: (Y/N) N Init. Calib. Times: 8:37 11:31
 GC Column: RTX 502.2 ID: 0.25 (mm)

COMPOUND	RRF	RRF5	MIN RRF	% D	MAX % D
Chloromethane	0.357	0.308	0.100	13.7	20.0
Vinyl chloride	0.319	0.275	0.100	13.6	20.0
1,1-Dichloroethene	0.260	0.215	0.100	17.3	20.0
1,1-Dichloroethane	0.539	0.488	0.100	9.5	20.0
Chloroform	0.511	0.463	0.100	9.5	20.0
Benzene	1.106	0.979		11.5	
Trichloroethene	0.326	0.282		13.6	
1,2-Dichloropropane	0.284	0.263		7.6	
Toluene	0.675	0.600	0.100	11.1	20.0
Chlorobenzene	1.034	0.998	0.100	3.5	20.0
Ethylbenzene	1.428	1.331		6.8	
Bromoform	0.205	0.219	0.100	-6.8	20.0
1,1,2,2-Tetrachloroethane	0.322	0.359	0.100	-11.3	20.0
Dibromofluoromethane	0.315	0.313		0.7	
1,2-Dichloroethane-d4	0.215	0.221		-3.0	
Toluene-d8	0.904	0.914		-1.0	
4-Bromofluorobenzene	0.417	0.419		-0.4	

All other compounds must meet a minimum RRF of 0.010.

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information

Laboratory ID: QC 6-0-13Sample ID: LCSNJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) JN10_03. 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	06/10/13	18.1	10.0	1.0	0.50	5.0
74-87-3	chloromethane	06/10/13	19.0	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	06/10/13	20.1	10.0	1.0	0.91	5.0
74-83-9	bromomethane	06/10/13	16.9	10.0	1.0	1.31	5.0
75-00-3	chloroethane	06/10/13	19.5	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	06/10/13	18.2	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	06/10/13	18.6	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	06/10/13	19.4	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	06/10/13	19.1	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	06/10/13	19.1	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	06/10/13	18.2	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2-Dichloroethylene	06/10/13	18.8	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	06/10/13	17.9	10.0	1.0	0.64	5.0
67-66-3	chloroform	06/10/13	17.9	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	06/10/13	17.6	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	06/10/13	17.6	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	06/10/13	18.4	10.0	1.0	0.67	5.0
71-43-2	benzene	06/10/13	18.5	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	06/10/13	17.5	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	06/10/13	18.1	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	06/10/13	18.4	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	06/10/13	17.1	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	06/10/13	17.2	10.0	1.0	0.58	5.0
10061-01-6	cis-1,3-dichloropropene	06/10/13	18.5	10.0	1.0	0.82	5.0
108-88-3	toluene	06/10/13	18.8	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	06/10/13	17.7	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	06/10/13	18.0	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	06/10/13	17.1	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	06/10/13	18.5	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	06/10/13	17.0	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	06/10/13	18.6	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	06/10/13	19.7	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	18.9	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	06/10/13	19.6	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	06/10/13	20.4	10.0	1.0	0.76	5.0
95-47-6	o-xylene	06/10/13	20.5	10.0	1.0	0.25	5.0
100-42-5	styrene	06/10/13	19.9	10.0	1.0	0.31	5.0
75-25-2	bromoform	06/10/13	17.1	10.0	1.0	0.86	5.0
98-82-8	isopropyl benzene (cumene)	06/10/13	20.2	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	06/10/13	19.6	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	18.8	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	06/10/13	18.8	10.0	1.0	0.65	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information

Laboratory ID: QC 6-0-13Sample ID: LCSNJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) JN10__03. 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

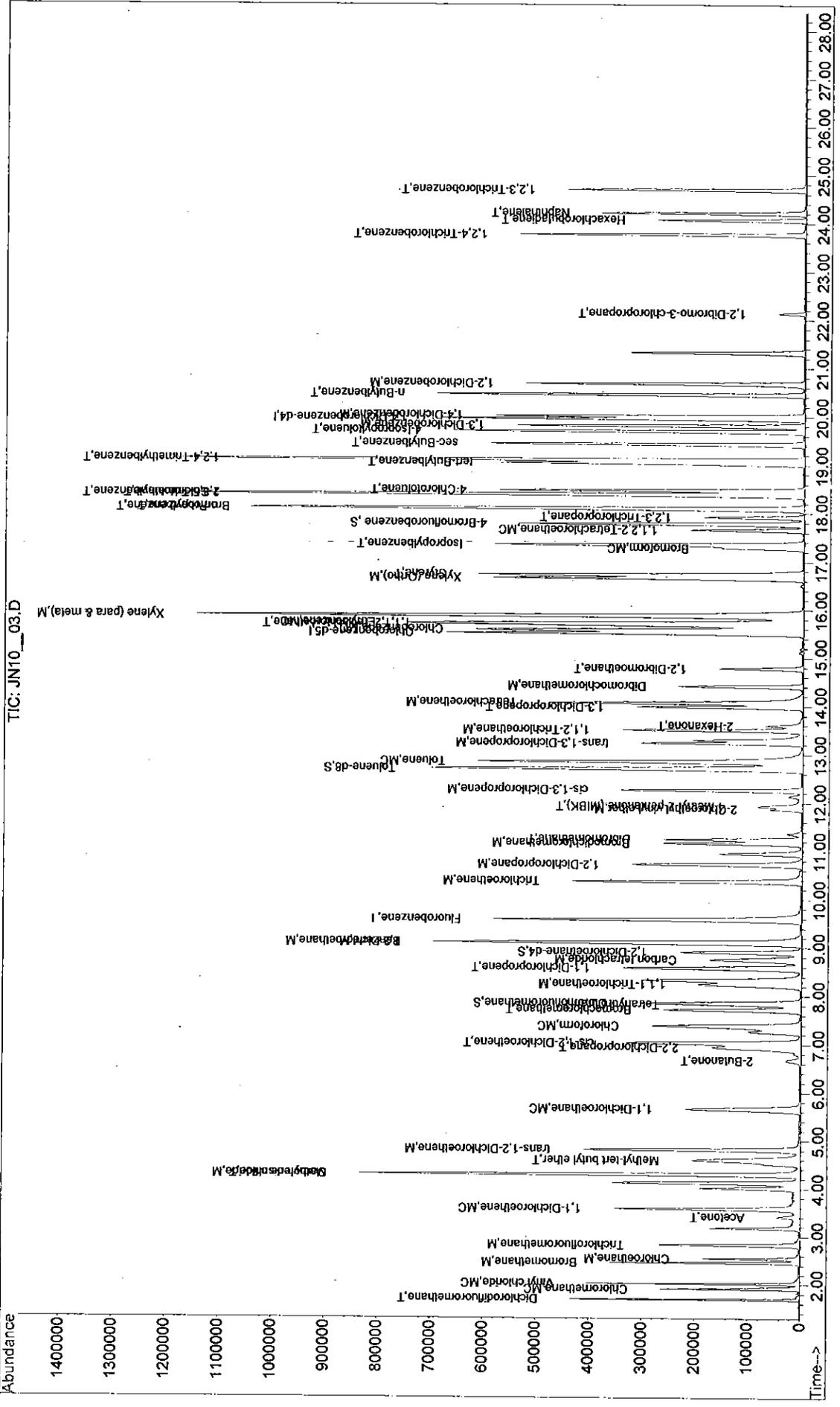
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	06/10/13	20.4	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	06/10/13	20.1	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	06/10/13	20.4	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	06/10/13	19.8	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	06/10/13	20.9	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	06/10/13	19.9	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	06/10/13	20.7	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	06/10/13	19.6	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	06/10/13	20.4	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	06/10/13	19.6	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	06/10/13	19.2	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	06/10/13	19.7	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	17.8	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	06/10/13	18.7	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	06/10/13	19.7	10.0	1.0	0.48	5.0
91-20-3	naphthalene	06/10/13	17.9	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	06/10/13	18.3	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	06/10/13	17.8	10.0	1.0	0.65	5.0
67-64-1	Acetone	06/10/13	20.7	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	06/10/13	19.1	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	06/10/13	17.8	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	06/10/13	17.2	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	19.2	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	06/10/13	18.1	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	06/10/13	19.7	10.0	1.0	0.89	10.0

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	06/10/13	24.33	4.14	25.0	97.32%
17060-07-(1,2-Dichloroethane-d4	06/10/13	23.74	6.61	25.0	94.96%
2037-26-5 Toluene-d8	06/10/13	25.36	2.84	25.0	101.44%
460-00-4 4-Bromofluorobenzene	06/10/13	25.20	1.81	25.0	100.80%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\JN10_03.D Vial: 3
 Acq On : 10 Jun 2013 8:23 am Operator:
 Sample : QC Inst : GC/MS 597
 Misc : Multiplr: 1.00
 MS Integration Params: ODD.P
 Quant Time: Jun 24 10:00 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration



Surrogate Summary

1 Surrogate recoveries are enclosed.

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____

	Sample:	SMC1 DBFM #	SMC2 DCE #	SMC3 TD8 #	SMC4 (BFB) #	TOT OUT
01	QC CHK	97	95	101	101	0
02	MBLK	98	99	99	103	0
03	8976-2	97	94	98	106	0
04	8976-2MS	101	99	94	92	0
05	8976-2MSD	97	95	100	104	0
06	8976-3	95	97	97	99	0
07	8976-5	95	99	100	103	0
08	8976-6	97	97	96	99	0
09	8976-02	100	100	98	101	0
10	8976-03	97	100	98	101	0
11	8976-05	97	96	101	101	0
12	8976-06	98	97	99	100	0
13	8976-02	95	95	98	103	0
14	8976-03	96	98	98	99	0
15	8976-05	95	94	99	101	0
16	8976-06	98	100	98	102	0

QC LIMITS

SMC1 DBFM = Dibromofluoromethane (80-120)
 SMC2 DCE = 1,2-Dichloroethane-d4 (80-120)
 SMC3 TD8 = Toluene-d8 (80-120)
 SMC4 (BFB) = 4-Bromofluorobenzene (80-120)

Column to be used to flag recovery values
 * Values outside of contract required QC limits
 D System Monitoring Compound diluted out

MS/MSD Summary

1 MS/MSD recoveries are enclosed.

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

Lab Name: ATL Analyzed: TSNJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____Matrix Spike - Sample: 8976-2

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	1700	0.0	1600	94	70 - 130
Benzene	1700	0.0	1600	94	70 - 130
Trichloroethene	1700	310	1900	94	70 - 130
Toluene	1700	0.0	1500	88	70 - 130
Chlorobenzene	1700	0.0	1600	94	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	1700	1600	94	0	25	70 - 130
Benzene	1700	1500	88	7	25	70 - 130
Trichloroethene	1700	1800	88	7	25	70 - 130
Toluene	1700	1500	88	0	25	70 - 130
Chlorobenzene	1700	1600	94	0	25	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 0 out of 10 outside limits

COMMENTS: _____

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8976-2ms Sample ID: MS
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8976_2MS 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
75-71-8	Dichlorodifluoromethane	06/10/13	1530	D	0.1	84.0	42.0	420
74-87-3	chloromethane	06/10/13	1530	D	0.1	84.0	44.5	420
75-01-4	vinyl chloride	06/10/13	1690	D	0.1	84.0	76.4	420
74-83-9	bromomethane	06/10/13	1550	D	0.1	84.0	110.0	420
75-00-3	chloroethane	06/10/13	1600	D	0.1	84.0	68.9	420
75-69-4	trichlorofluoromethane	06/10/13	1540	D	0.1	84.0	152.9	420
75-35-4	1,1-dichloroethylene	06/10/13	1600	D	0.1	84.0	45.4	420
75-09-2	methylene chloride	06/10/13	1610	D	0.1	84.0	52.9	420
156-60-5	trans-1,2-dichloroethylene	06/10/13	1590	D	0.1	84.0	52.9	420
75-34-3	1,1-dichloroethane	06/10/13	1580	D	0.1	84.0	25.2	420
594-20-7	2,2-dichloropropane	06/10/13	1440	D	0.1	84.0	101.6	420
156-59-2	Cis 1,2- Dichloroethylene	06/10/13	1740	D	0.1	84.0	69.7	420
74-97-5	bromochloromethane	06/10/13	1560	D	0.1	84.0	53.8	420
67-66-3	chloroform	06/10/13	1580	D	0.1	84.0	67.2	420
71-55-6	1,1,1-trichloroethane	06/10/13	1500	D	0.1	84.0	45.4	420
56-23-5	carbon tetrachloride	06/10/13	1470	D	0.1	84.0	72.2	420
563-58-6	1,1-dichloropropene	06/10/13	1570	D	0.1	84.0	56.3	420
71-43-2	benzene	06/10/13	1560	D	0.1	84.0	103.3	420
107-06-2	1,2-dichloroethane	06/10/13	1530	D	0.1	84.0	34.4	420
79-01-6	trichloroethylene	06/10/13	1940	D	0.1	84.0	60.5	420
78-87-5	1,2-dichloropropane	06/10/13	1560	D	0.1	84.0	43.7	420
74-95-3	dibromomethane	06/10/13	1540	D	0.1	84.0	23.5	420
75-27-4	bromodichloromethane	06/10/13	1480	D	0.1	84.0	48.7	420
10061-01-5	cis-1,3-dichloropropene	06/10/13	1410	D	0.1	84.0	68.9	420
108-88-3	toluene	06/10/13	1450	D	0.1	84.0	42.0	420
10061-02-6	trans-1,3-dichloropropene	06/10/13	1360	D	0.1	84.0	21.0	420
79-00-5	1,1,2-trichloroethane	06/10/13	1550	D	0.1	84.0	54.6	420
127-18-4	tetrachloroethylene	06/10/13	1580	D	0.1	84.0	97.4	420
142-28-9	1,3-dichloropropane	06/10/13	1440	D	0.1	84.0	31.1	420
124-48-1	Dibromochloromethane	06/10/13	1390	D	0.1	84.0	21.0	420
106-93-4	1,2-Dibromoethane	06/10/13	1320	D	0.1	84.0	34.4	420
108-90-7	chlorobenzene	06/10/13	1620	D	0.1	84.0	33.6	420
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	1620	D	0.1	84.0	19.3	420
100-41-4	ethylbenzene	06/10/13	1440	D	0.1	84.0	30.2	420
1330-20-7	xylenes (m/p)	06/10/13	1460	D	0.1	84.0	63.8	420
95-47-6	o-xylene	06/10/13	1480	D	0.1	84.0	21.0	420
100-42-5	styrene	06/10/13	1410	D	0.1	84.0	26.0	420
75-25-2	bromoform	06/10/13	1400	D	0.1	84.0	72.2	420
98-82-8	isopropyl benzene (cumene)	06/10/13	1370	D	0.1	84.0	21.0	420
108-86-1	bromobenzene	06/10/13	1520	D	0.1	84.0	20.2	420
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	1640	D	0.1	84.0	40.3	420
96-18-4	1,2,3-trichloropropane	06/10/13	1600	D	0.1	84.0	54.6	420

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8976-2ms Sample ID: MS
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8976_2MS 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

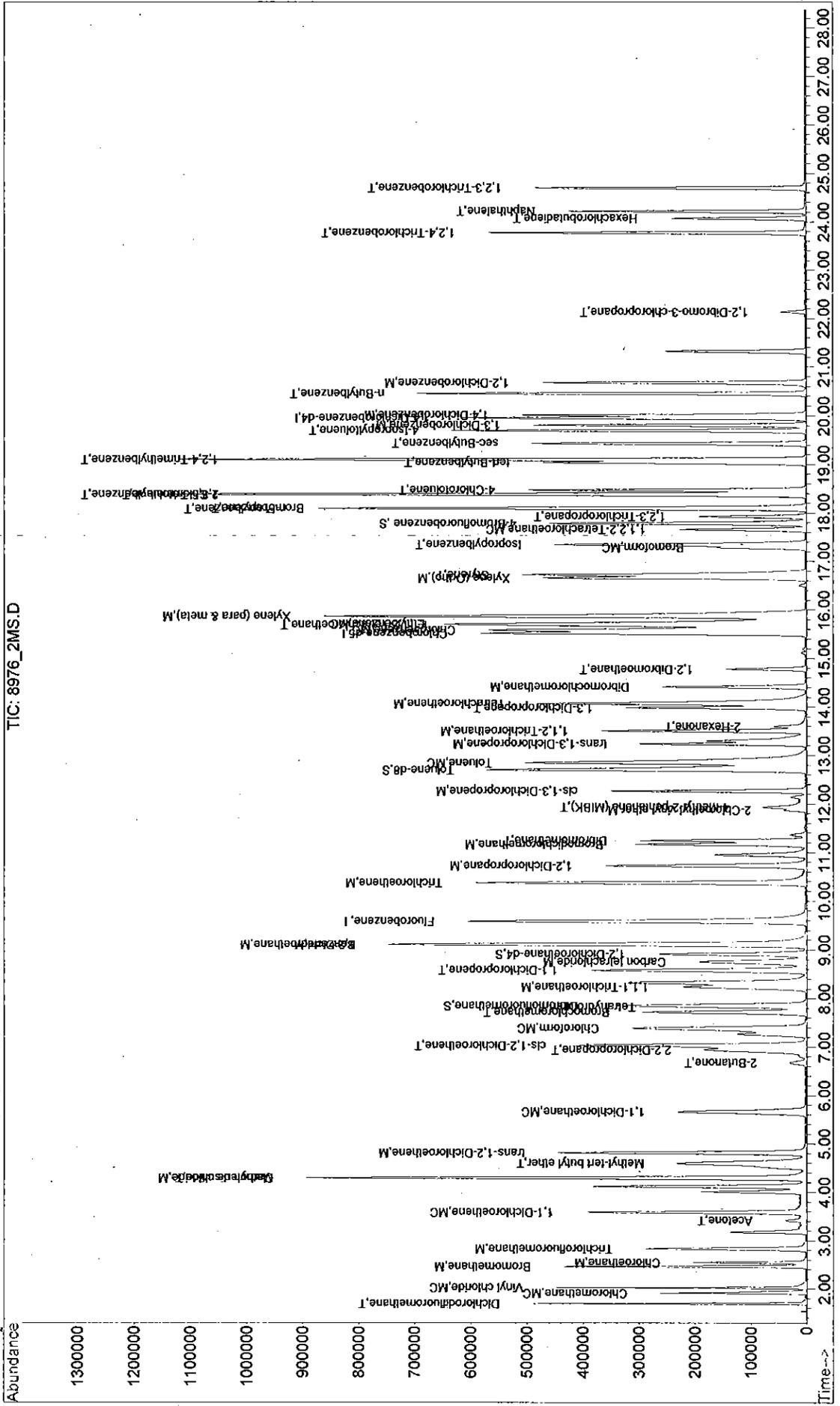
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	06/10/13	1430	D	0.1	84.0	28.6	420
95-49-8	2-chlorotoluene	06/10/13	1450	D	0.1	84.0	21.0	420
106-43-4	4-chlorotoluene	06/10/13	1470	D	0.1	84.0	25.2	420
108-67-8	1,3,5-trimethylbenzene	06/10/13	1630	D	0.1	84.0	18.5	420
98-06-6	tert-butylbenzene	06/10/13	1470	D	0.1	84.0	23.5	420
95-63-6	1,2,4-trimethylbenzene	06/10/13	1670	D	0.1	84.0	16.8	420
135-98-8	sec-butylbenzene	06/10/13	1450	D	0.1	84.0	36.1	420
541-73-1	1,3-dichlorobenzene	06/10/13	1450	D	0.1	84.0	41.2	420
99-87-6	4-isopropyltoluene	06/10/13	1560	D	0.1	84.0	41.2	420
106-46-7	1,4-dichlorobenzene	06/10/13	1650	D	0.1	84.0	33.6	420
95-50-1	1,2-dichlorobenzene	06/10/13	1660	D	0.1	84.0	31.1	420
104-51-8	n-butylbenzene	06/10/13	1890	D	0.1	84.0	30.2	420
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	1570	D	0.1	84.0	202.4	420
120-82-1	1,2,4-trichlorobenzene	06/10/13	1890	D	0.1	84.0	31.1	420
87-68-3	hexachlorobutadiene	06/10/13	1710	D	0.1	84.0	40.3	420
91-20-3	naphthalene	06/10/13	1850	D	0.1	84.0	44.5	420
87-61-6	1,2,3-trichlorobenzene	06/10/13	1910	D	0.1	84.0	54.6	420
1634-04-4	Methyl tertiary butyl ether	06/10/13	1950	D	0.1	84.0	54.6	420
67-64-1	Acetone	06/10/13	1730	D	0.1	84.0	109.2	840
75-15-0	carbon disulfide	06/10/13	2060	D	0.1	84.0	60.5	420
78-93-3	2-Butanone (MEK)	06/10/13	1720	D	0.1	84.0	94.9	840
109-99-9	Tetrahydrofuran (THF)	06/10/13	2080	D	0.1	84.0	140.3	840
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	1860	D	0.1	84.0	38.6	840
591-78-6	2-hexanone	06/10/13	1520	D	0.1	84.0	56.3	840
110-75-8	2-chloroethyl vinyl ether	06/10/13	1370	D	0.1	84.0	74.8	840

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	06/10/13	25.27	4.14	25.0	101.08%
17060-07-0 1,2-Dichloroethane-d4	06/10/13	24.82	6.61	25.0	99.28%
2037-26-5 Toluene-d8	06/10/13	23.40	2.84	25.0	93.60%
460-00-4 4-Bromofluorobenzene	06/10/13	23.06	1.81	25.0	92.24%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\8976_2MS.D Vial: 6
Acq On : 10 Jun 2013 10:07 am Operator: GC/MS 597
Sample : 8976_2ms * 84 Inst : Multiplr: 1.00
Misc :
MS Integration Params: ODD.P
Quant Time: Jun 24 10:00 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8976-2msd Sample ID: MSD
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8976_2SD 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

CAS NO.	Compound	Date	Concentration	Smp Amt	Dilution	MDL	PQL
		Analyzed	ug/L Q				
75-71-8	Dichlorodifluoromethane	06/10/13	1470 D	0.1	84.0	42.0	420
74-87-3	chloromethane	06/10/13	1550 D	0.1	84.0	44.5	420
75-01-4	vinyl chloride	06/10/13	1640 D	0.1	84.0	76.4	420
74-83-9	bromomethane	06/10/13	1520 D	0.1	84.0	110.0	420
75-00-3	chloroethane	06/10/13	1590 D	0.1	84.0	68.9	420
75-69-4	trichlorofluoromethane	06/10/13	1500 D	0.1	84.0	152.9	420
75-35-4	1,1-dichloroethylene	06/10/13	1580 D	0.1	84.0	45.4	420
75-09-2	methylene chloride	06/10/13	1580 D	0.1	84.0	52.9	420
156-60-5	trans-1,2-dichloroethylene	06/10/13	1540 D	0.1	84.0	52.9	420
75-34-3	1,1-dichloroethane	06/10/13	1560 D	0.1	84.0	25.2	420
594-20-7	2,2-dichloropropane	06/10/13	1370 D	0.1	84.0	101.6	420
156-59-2	Cis 1,2- Dichloroethylene	06/10/13	1650 D	0.1	84.0	69.7	420
74-97-5	bromochloromethane	06/10/13	1490 D	0.1	84.0	53.8	420
67-66-3	chloroform	06/10/13	1490 D	0.1	84.0	67.2	420
71-55-6	1,1,1-trichloroethane	06/10/13	1460 D	0.1	84.0	45.4	420
56-23-5	carbon tetrachloride	06/10/13	1430 D	0.1	84.0	72.2	420
563-58-6	1,1-dichloropropene	06/10/13	1530 D	0.1	84.0	56.3	420
71-43-2	benzene	06/10/13	1540 D	0.1	84.0	103.3	420
107-06-2	1,2-dichloroethane	06/10/13	1380 D	0.1	84.0	34.4	420
79-01-6	trichloroethylene	06/10/13	1790 D	0.1	84.0	60.5	420
78-87-5	1,2-dichloropropane	06/10/13	1520 D	0.1	84.0	43.7	420
74-95-3	dibromomethane	06/10/13	1440 D	0.1	84.0	23.5	420
75-27-4	bromodichloromethane	06/10/13	1370 D	0.1	84.0	48.7	420
10061-01-5	cis-1,3-dichloropropene	06/10/13	1410 D	0.1	84.0	68.9	420
108-88-3	toluene	06/10/13	1540 D	0.1	84.0	42.0	420
10061-02-6	trans-1,3-dichloropropene	06/10/13	1440 D	0.1	84.0	21.0	420
79-00-5	1,1,2-trichloroethane	06/10/13	1460 D	0.1	84.0	54.6	420
127-18-4	tetrachloroethylene	06/10/13	1340 D	0.1	84.0	97.4	420
142-28-9	1,3-dichloropropane	06/10/13	1480 D	0.1	84.0	31.1	420
124-48-1	Dibromochloromethane	06/10/13	1330 D	0.1	84.0	21.0	420
106-93-4	1,2-Dibromoethane	06/10/13	1420 D	0.1	84.0	34.4	420
108-90-7	chlorobenzene	06/10/13	1630 D	0.1	84.0	33.6	420
630-20-6	1,1,1,2-tetrachloroethane	06/10/13	1560 D	0.1	84.0	19.3	420
100-41-4	ethylbenzene	06/10/13	1670 D	0.1	84.0	30.2	420
1330-20-7	xylene (m/p)	06/10/13	1690 D	0.1	84.0	63.8	420
95-47-6	o-xylene	06/10/13	1710 D	0.1	84.0	21.0	420
100-42-5	styrene	06/10/13	1650 D	0.1	84.0	26.0	420
75-25-2	bromoform	06/10/13	1400 D	0.1	84.0	72.2	420
98-82-8	isopropyl benzene (cumene)	06/10/13	1710 D	0.1	84.0	21.0	420
108-86-1	bromobenzene	06/10/13	1620 D	0.1	84.0	20.2	420
79-34-5	1,1,2,2-tetrachloroethane	06/10/13	1520 D	0.1	84.0	40.3	420
96-18-4	1,2,3-trichloropropane	06/10/13	1480 D	0.1	84.0	54.6	420

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8976-2msd Sample ID: MSD
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NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8976_2SD 6/10/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 06/10/13

Soil extract date:

Date Received: 06/10/13

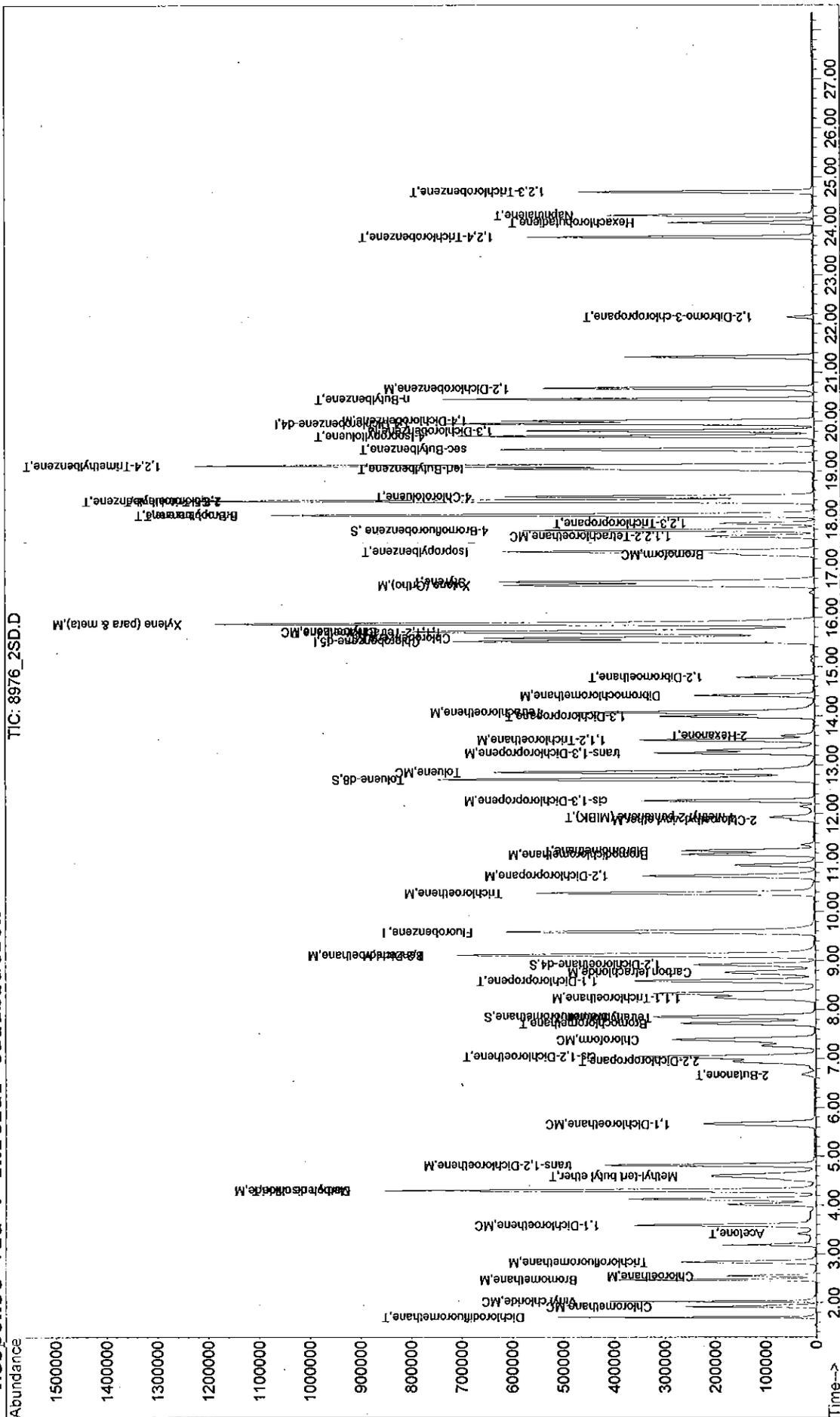
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	06/10/13	1740	D	0.1	84.0	28.6	420
95-49-8	2-chlorotoluene	06/10/13	1760	D	0.1	84.0	21.0	420
106-43-4	4-chlorotoluene	06/10/13	1670	D	0.1	84.0	25.2	420
108-67-8	1,3,5-trimethylbenzene	06/10/13	1690	D	0.1	84.0	18.5	420
98-06-6	tert-butylbenzene	06/10/13	1800	D	0.1	84.0	23.5	420
95-63-6	1,2,4-trimethylbenzene	06/10/13	1700	D	0.1	84.0	16.8	420
135-98-8	sec-butylbenzene	06/10/13	1790	D	0.1	84.0	36.1	420
541-73-1	1,3-dichlorobenzene	06/10/13	1700	D	0.1	84.0	41.2	420
99-87-6	4-isopropyltoluene	06/10/13	1720	D	0.1	84.0	41.2	420
106-46-7	1,4-dichlorobenzene	06/10/13	1640	D	0.1	84.0	33.6	420
95-50-1	1,2-dichlorobenzene	06/10/13	1610	D	0.1	84.0	31.1	420
104-51-8	n-butylbenzene	06/10/13	1640	D	0.1	84.0	30.2	420
96-12-8	1,2-dibromo-3-chloropropane	06/10/13	1480	D	0.1	84.0	202.4	420
120-82-1	1,2,4-trichlorobenzene	06/10/13	1500	D	0.1	84.0	31.1	420
87-68-3	hexachlorobutadiene	06/10/13	1640	D	0.1	84.0	40.3	420
91-20-3	naphthalene	06/10/13	1480	D	0.1	84.0	44.5	420
87-61-6	1,2,3-trichlorobenzene	06/10/13	1550	D	0.1	84.0	54.6	420
1634-04-4	Methyl tertiary butyl ether	06/10/13	1460	D	0.1	84.0	54.6	420
67-64-1	Acetone	06/10/13	1320	D	0.1	84.0	109.2	840
75-15-0	carbon disulfide	06/10/13	1610	D	0.1	84.0	60.5	420
78-93-3	2-Butanone (MEK)	06/10/13	1260	D	0.1	84.0	94.9	840
109-99-9	Tetrahydrofuran (THF)	06/10/13	1320	D	0.1	84.0	140.3	840
108-10-1	4-methyl-2-Pentanone (MIBK)	06/10/13	1390	D	0.1	84.0	38.6	840
591-78-6	2-hexanone	06/10/13	1290	D	0.1	84.0	56.3	840
110-75-8	2-chloroethyl vinyl ether	06/10/13	1450	D	0.1	84.0	74.8	840

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	06/10/13	24.35	4.14	25.0	97.40%
17060-07-0 1,2-Dichloroethane-d4	06/10/13	23.64	6.61	25.0	94.56%
2037-26-5 Toluene-d8	06/10/13	24.94	2.84	25.0	99.76%
460-00-4 4-Bromofluorobenzene	06/10/13	25.94	1.81	25.0	103.76%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\8976_2SD.D Vial: 7
Acq On : 10 Jun 2013 10:42 am Operator:
Sample : 8976_2msd * 84 Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jun 24 10:00 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Internal Standards Summary

1 The internal standards data are attached as shown.

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

0044

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____
 Lab File ID (Standard): JN10_02.D Date Analyzed: 6/10/2013
 Instrument ID: 5971 Time Analyzed: 7:48
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

	IS1(FBZ) AREA #	RT #	IS2 AREA #	RT #	IS3 AREA #	RT #
12 HOUR STD	1302677	9.58	921367	15.51	345062	19.95
UPPER LIMIT	2605354	10.08	1842734	16.01	690124	20.45
LOWER LIMIT	651339	9.08	460684	15.01	172531	19.45
Sample:						
01 QC CHK	1282952	9.58	918229	15.51	362561	19.95
02 MBLK	1279878	9.58	890400	15.51	385829	19.95
03 8976-2	1260866	9.58	866338	15.52	378778	19.95
04 8976-2MS	1419875	9.58	918089	15.52	317111	19.95
05 8976-2MSD	1355876	9.58	939026	15.51	380886	19.95
06 8976-3	1391555	9.59	955097	15.51	414221	19.95
07 8976-5	1276357	9.59	872040	15.51	373753	19.95
08 8976-6	1266208	9.59	819960	15.52	362200	19.95
09 8976-02	1259063	9.59	861177	15.51	382971	19.95
10 8976-03	1307899	9.59	877989	15.52	367877	19.96
11 8976-05	1275097	9.59	884449	15.52	375267	19.96
12 8976-06	1243907	9.59	841834	15.52	368042	19.96
13 8976-02	1246879	9.60	854564	15.52	358794	19.96
14 8976-03	1234529	9.60	835190	15.53	359011	19.97
15 8976-05	1287055	9.61	860687	15.53	372463	19.96
16 8976-06	1231090	9.61	819976	15.53	369808	19.97

IS1 (FBZ) = Fluorobenzene
 IS2 = Chlorobenzene-d5
 IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

4.0 Raw Data and Chromatograms

Raw data and Chromatograms are attached.

Data File : C:\HPCHEM\1\DATA\JUN10_13\976_02.D
 Acq On : 10 Jun 2013 4:31 pm
 Sample : 8976_02 10.0ml
 Misc :
 MS Integration Params: ODD.P
 Quant Time: Jun 24 10:04 2013

Vial: 17 0046
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

Quant Results File: MY06_13.RES

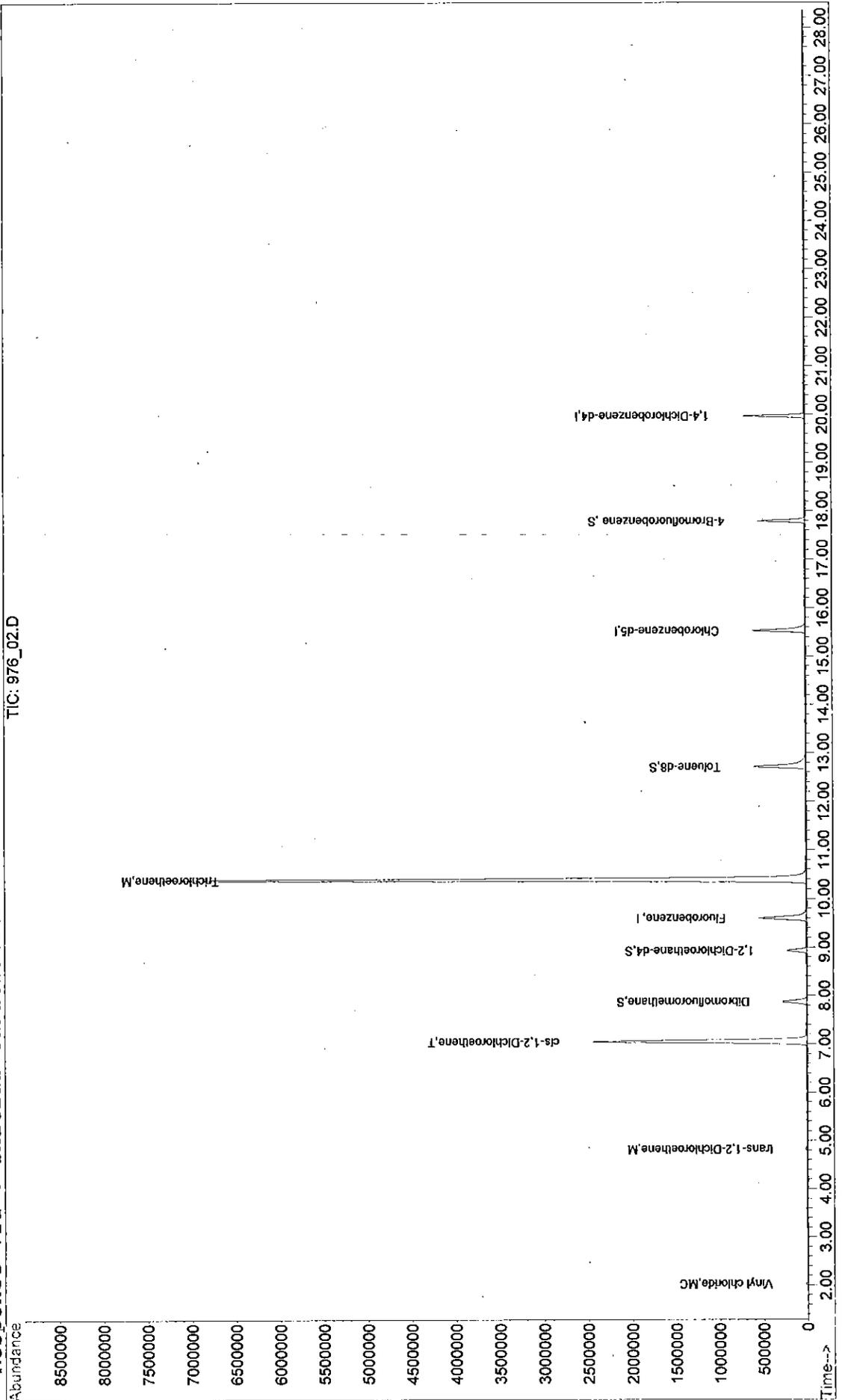
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.60	96	1246879	25.00	ug/L	0.04
36) Chlorobenzene-d5	15.52	117	854564	25.00	ug/L	0.03
58) 1,4-Dichlorobenzene-d4	19.96	152	358794	25.00	ug/L	0.02
System Monitoring Compounds						
16) Dibromofluoromethane	7.87	113	371760	23.68	ug/L	0.03
Spiked Amount						
			Recovery	=	94.72%	
19) 1,2-Dichloroethane-d4	8.93	65	253259	23.67	ug/L	0.03
Spiked Amount						
			Recovery	=	94.68%	
28) Toluene-d8	12.71	98	1100913	24.41	ug/L	0.02
Spiked Amount						
			Recovery	=	97.64%	
45) 4-Bromofluorobenzene	17.79	95	366102	25.67	ug/L	0.03
Spiked Amount						
			Recovery	=	102.68%	
Target Compounds						
4) Vinyl chloride	2.03	62	29570	1.86	ug/L	Qvalue 84
10) trans-1,2-Dichloroethene	4.82	96	17162	1.00	ug/L	88
13) cis-1,2-Dichloroethene	7.05	96	2670094	146.62	ug/L	98
23) Trichloroethene	10.39	95	5067970	311.86	ug/L	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\976_02.D Vial: 17
 Acq On : 10 Jun 2013 4:31 pm Operator: GC/MS 597
 Sample : 8976_02 10.0ml Inst : Multiplr: 1.00
 Misc :
 MS Integration Params: ODD.P
 Quant Time: Jun 24 10:04 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\JUN10_13\8976_02.D

Vial: 11

Acq On : 10 Jun 2013 1:01 pm

Operator:

Sample : 8976_02 * 8.4

Inst : GC/MS 597

Misc :

Multiplr: 1.00

MS Integration Params: ODD.P

Quant Time: Jun 24 10:03 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11

Last Update : Tue May 07 16:06:17 2013

Response via : Initial Calibration

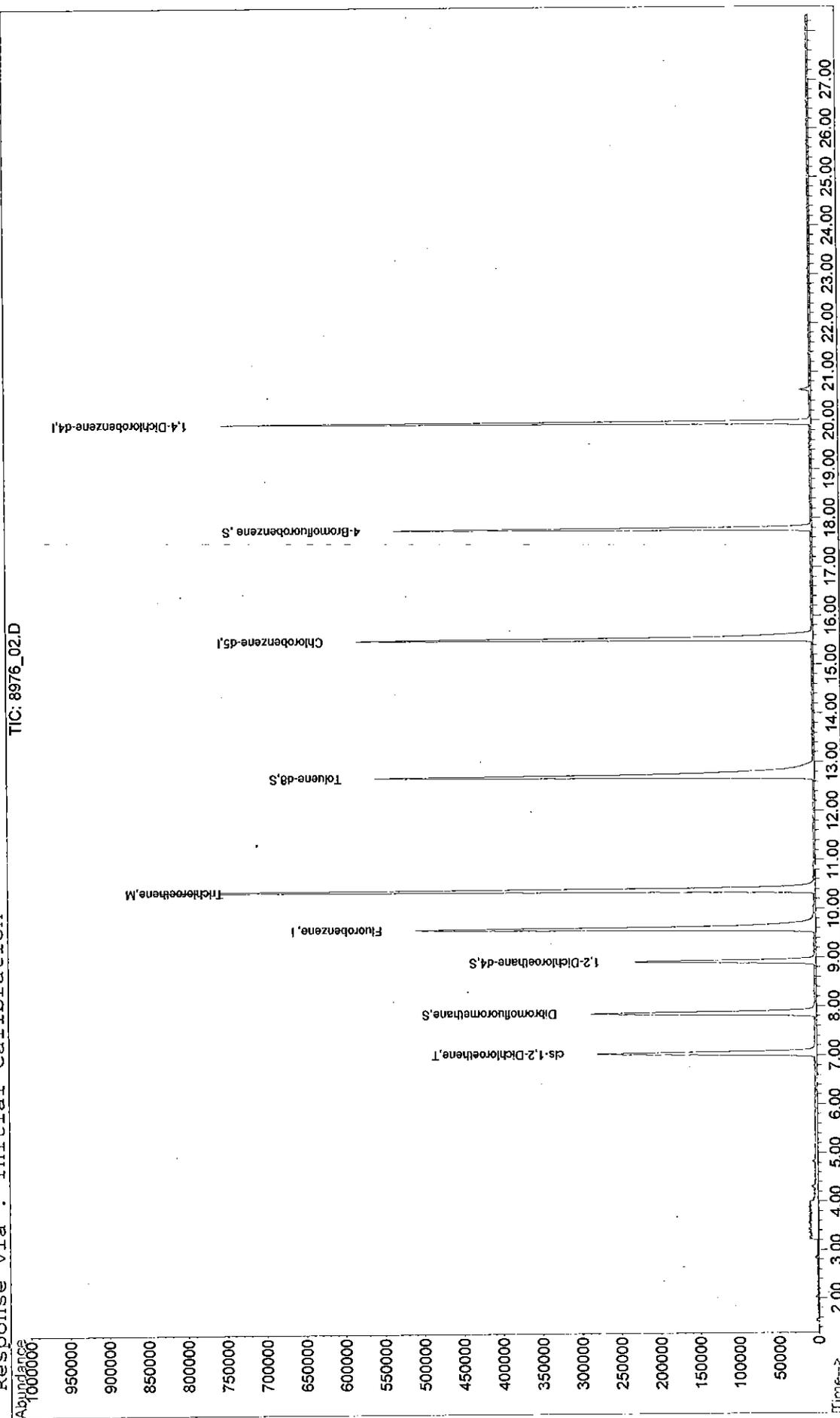
DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.59	96	1259063	25.00	ug/L	0.03
36) Chlorobenzene-d5	15.51	117	861177	25.00	ug/L	0.02
58) 1,4-Dichlorobenzene-d4	19.95	152	382971	25.00	ug/L	0.01
System Monitoring Compounds						
16) Dibromofluoromethane	7.87	113	394413	24.88	ug/L	0.03
Spiked Amount	25.000		Recovery	=	99.52%	
19) 1,2-Dichloroethane-d4	8.92	65	269527	24.95	ug/L	0.02
Spiked Amount	25.000		Recovery	=	99.80%	
28) Toluene-d8	12.71	98	1116097	24.51	ug/L	0.02
Spiked Amount	25.000		Recovery	=	98.04%	
45) 4-Bromofluorobenzene	17.78	95	364356	25.35	ug/L	0.02
Spiked Amount	25.000		Recovery	=	101.40%	
Target Compounds						
13) cis-1,2-Dichloroethene	7.04	96	309436	16.83	ug/L	96
23) Trichloroethene	10.38	95	595995	36.32	ug/L	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\8976_02.D
Acq On : 10 Jun 2013 1:01 pm Vial: 11
Sample : 8976_02 * 8.4 Operator: GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jun 24 10:03 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\JUN10_13\976_03.D Vial: 18 0050
 Acq On : 10 Jun 2013 5:05 pm Operator:
 Sample : 8976_03 10.0ml Inst : GC/MS 597
 Misc : Multiplr: 1.00
 MS Integration Params: ODD.P
 Quant Time: Jun 24 11:15 2013 Quant Results File: MY06_13.RES

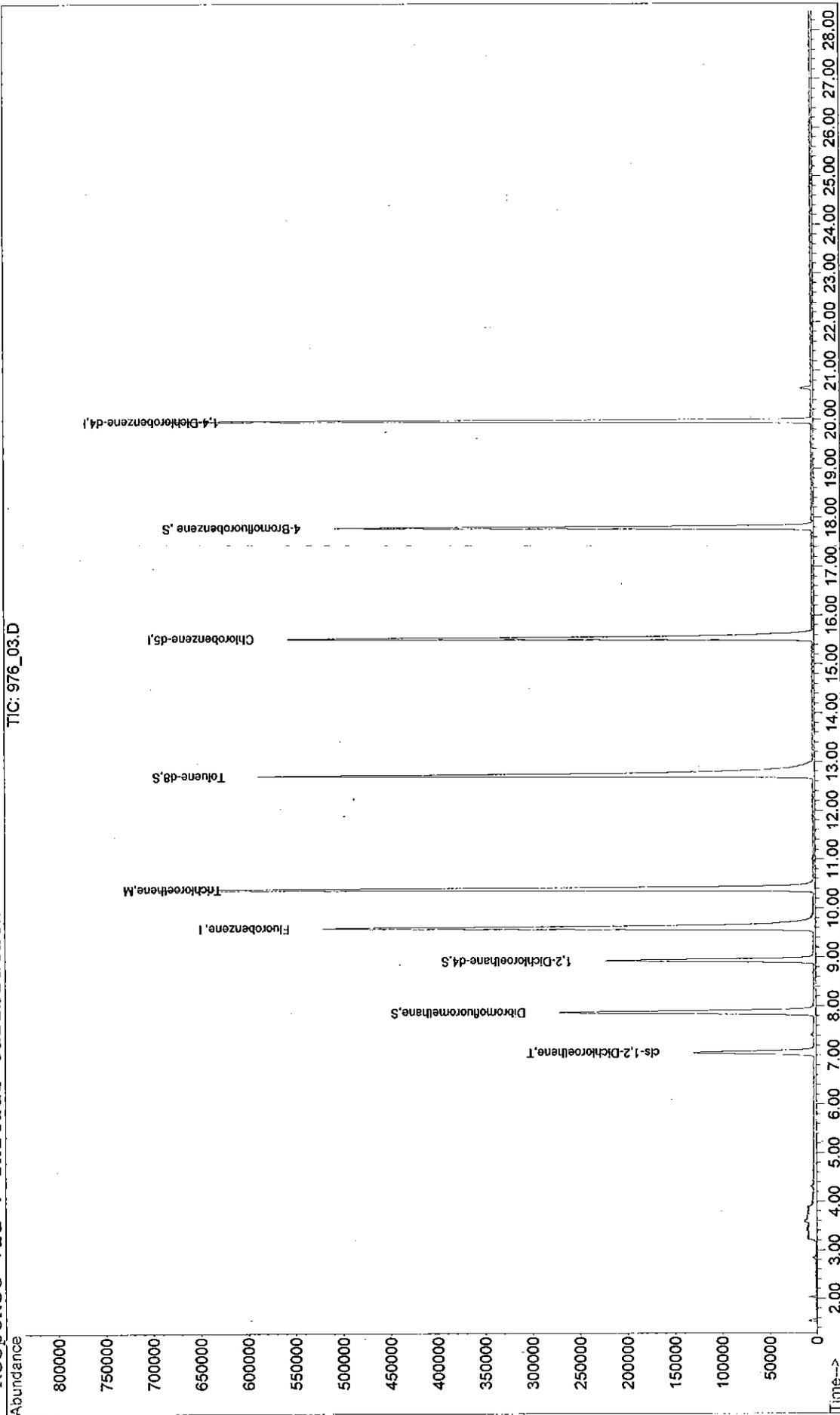
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)	
1) Fluorobenzene	9.60	96	1234529	25.00	ug/L	0.04	
36) Chlorobenzene-d5	15.53	117	835190	25.00	ug/L	0.04	
58) 1,4-Dichlorobenzene-d4	19.97	152	359011	25.00	ug/L	0.03	
System Monitoring Compounds							
16) Dibromofluoromethane	7.88	113	374395	24.08	ug/L	0.04	
Spiked Amount							
							Recovery = 96.32%
19) 1,2-Dichloroethane-d4	8.94	65	259783	24.53	ug/L	0.04	
Spiked Amount							Recovery = 98.12%
28) Toluene-d8	12.72	98	1089426	24.40	ug/L	0.03	
Spiked Amount							Recovery = 97.60%
45) 4-Bromofluorobenzene	17.79	95	344861	24.74	ug/L	0.03	
Spiked Amount							Recovery = 98.96%
Target Compounds							
13) cis-1,2-Dichloroethene	7.05	96	142771	7.92	ug/L		Qvalue 94
23) Trichloroethene	10.39	95	473737	29.44	ug/L		97

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\976_03.D
Acq On : 10 Jun 2013 5:05 pm Vial: 18
Sample : 8976_03 10.0ml Operator: GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jun 24 11:15 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\JUN10_13\976_05.D
 Acq On : 10 Jun 2013 5:40 pm
 Sample : 8976_05 10.0ml
 Misc :

Vial: 19
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

MS Integration Params: ODD.P
 Quant Time: Jun 24 11:17 2013

Quant Results File: MY06_13.RES

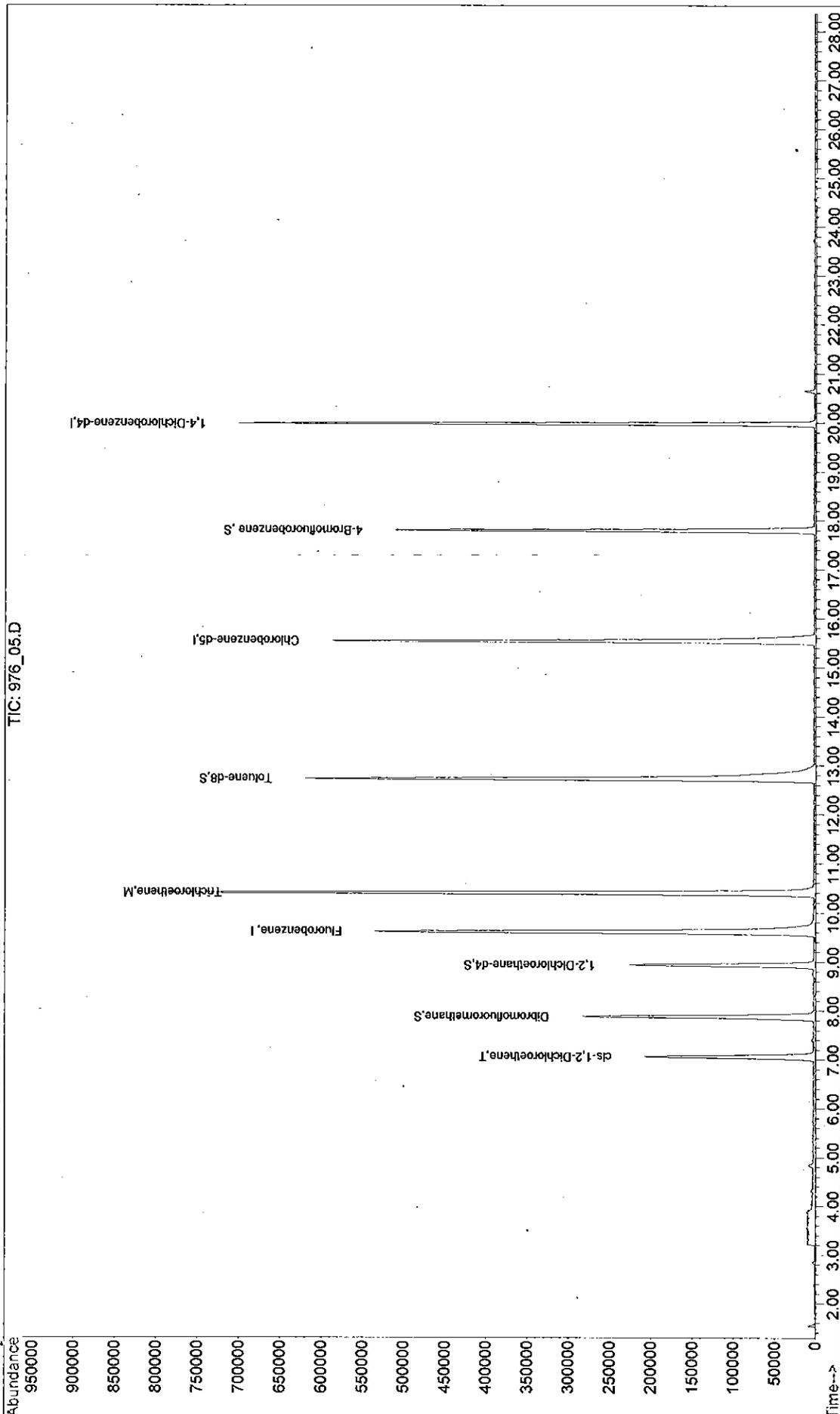
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev (Min)
1) Fluorobenzene	9.61	96	1287055	25.00	ug/L	0.05
36) Chlorobenzene-d5	15.53	117	860687	25.00	ug/L	0.04
58) 1,4-Dichlorobenzene-d4	19.96	152	372463	25.00	ug/L	0.02
System Monitoring Compounds						
16) Dibromofluoromethane	7.88	113	382992	23.63	ug/L	0.04
Spiked Amount			Recovery	=	94.52%	
19) 1,2-Dichloroethane-d4	8.93	65	259338	23.49	ug/L	0.03
Spiked Amount			Recovery	=	93.96%	
28) Toluene-d8	12.72	98	1151849	24.74	ug/L	0.03
Spiked Amount			Recovery	=	98.96%	
45) 4-Bromofluorobenzene	17.79	95	363938	25.33	ug/L	0.03
Spiked Amount			Recovery	=	101.32%	
Target Compounds						
13) cis-1,2-Dichloroethene	7.05	96	224218	11.93	ug/L	Qvalue 97
23) Trichloroethene	10.40	95	541381	32.27	ug/L	98

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\976_05.D Vial: 19
 Acq On : 10 Jun 2013 5:40 pm Operator:
 Sample : 8976_05 10.0ml Inst : GC/MS 597
 Misc : Multiplr: 1.00
 MS Integration Params: ODD.P
 Quant Time: Jun 24 11:17 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\JUN10_13\976_06.D Vial: 20
 Acq On : 10 Jun 2013 6:15 pm Operator:
 Sample : 8976_06 10.0ml Inst : GC/MS 597
 Misc : Multiplr: 1.00

MS Integration Params: ODD.P
 Quant Time: Jun 24 11:18 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

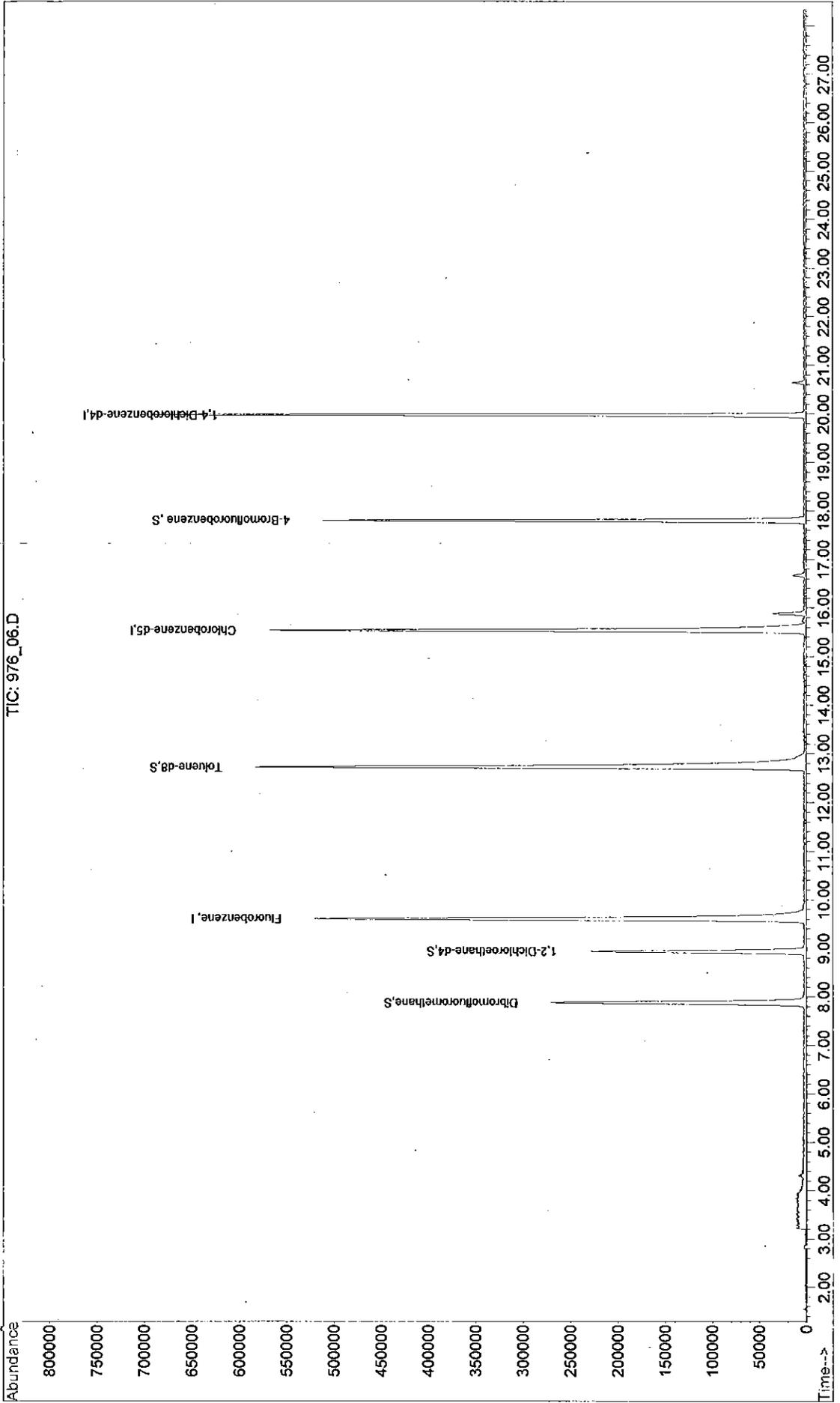
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.61	96	1231090	25.00	ug/L	0.05
36) Chlorobenzene-d5	15.53	117	819976	25.00	ug/L	0.04
58) 1,4-Dichlorobenzene-d4	19.97	152	369808	25.00	ug/L	0.03
System Monitoring Compounds						
16) Dibromofluoromethane	7.88	113	378970	24.45	ug/L	0.04
Spiked Amount			Recovery	=	97.80%	
19) 1,2-Dichloroethane-d4	8.94	65	265125	25.10	ug/L	0.04
Spiked Amount			Recovery	=	100.40%	
28) Toluene-d8	12.72	98	1094562	24.58	ug/L	0.03
Spiked Amount			Recovery	=	98.32%	
45) 4-Bromofluorobenzene	17.80	95	349357	25.52	ug/L	0.04
Spiked Amount			Recovery	=	102.08%	

Target Compounds Qvalue

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUN10_13\976_06.D
Acq On : 10 Jun 2013 6:15 pm Vial: 20
Sample : 8976_06 10.0ml Operator: GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jun 24 11:18 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration





17 Princess Rd

Lawrenceville, New Jersey 08648

Tel: 609/895-5370

Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indian Head Site 57**

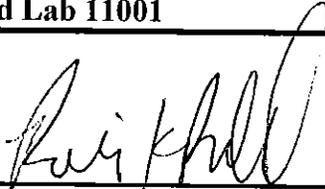
**Lab ID
8976**

Project Number: 146395 020000

**Samples Received
7-Jun-13**

**Report
1-Jul-13**

NJDEP Certified Lab 11001

 7-1-13
Randi K Rothmel, PhD Date
Laboratory Director

11/27/2013 10:29:13

1.0 General Information

Sample ID Table

Chain of custody

Internal chains of custody

Methodology Review

Data Reporting Qualifiers

2.0 Sample Summary Results

3.0 QA/QC Report

11/10/2024

Chemical Abstracts

8976

CHAIN-OF-CUSTODY RECORD

COC Number: 146395-060513
Purchase Order Number:



SHAW (A CE& I Company) - 500 E. Main Street, Suite 1630, Norfolk, VA 23510 - (757) 363-7190

Lab Description: CB&I Federal Services
 Lab Preparing Address: CB&I Federal Services, 17 Princess Road, Lawrenceville, NJ 08648
 Project Name: Indian Head Site 57
 Project Number: 146395
 Client Rep: NAVY
 Show Contact: Natasha Kelley Sullivan
 Project Contact Number: (410)529-7598
 Project Manager: Bill Hughes

Item No.	Sample Number	Date	Time	Ship	Rate	Sample Description	Number of Containers	Hydrogen	Antons	VFA	MEE	eVOC	Analysis Desired
1	S57W03	06/05/13	15:08	X	1	1st 5 minutes of purging	1 x 125 clear glass 1:1 HCL	X					
2	S57W03	06/05/13	15:44	X	2	S57W03	1 x 125 clear glass 1:1 HCL 1 x 125 ml halgene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
3	S57W03	06/05/13	17:02	X	3	S57W041	1 x 125 clear glass 1:1 HCL 1 x 125 ml halgene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
4	S57W02	06/05/13	17:23	X	4	S57W02	1 x 125 clear glass 1:1 HCL	X					
5	S57W02	06/05/13	17:50	X	5	S57W02	1 x 125 clear glass 1:1 HCL 1 x 125 ml halgene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
6	Trip Blank-0605213	06/05/13		X	6	Trip Blank	2 x 40 ml vial 1:1 HCL					X	
7													
8													

Lab Contact: Randy Rothmel
Project Contact: Dave Lippincott
Send Report To: Dave Lippincott

Turnaround Time Required: Sampled By: Natasha Kelley Sullivan, CB&I

Transfer Number	Transfers Relinquished By	Date	Time	Transfers Accepted By	Date	Time	Remarks
1	Samplers Signature	6/5/2013	18:30	Laboratory Sample Custody Signature	6/17/13	18:13	Report Format: Summary Report Deliverables: EDD Excel
2							
3		6/6/2013	14:50	UPS STORE			Fax results to Natasha Sullivan (410) 529-7599
4							

WASTEWATER TREATMENT

Volatile Organics

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260b. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST05 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 10 hits.

Other Organics

Other Organics such as alcohols, and dissolved gases (methane, ethane, ethene, propane) are analyzed using EPA methods 8015 or RSK-175 unless specified. Dissolved Hydrogen is analysed by RSK-175 using a GC equipped with a PDHID detector. Dissolved gases are prepared by a modification of Kampbell, and Vandegrift (Journal of Chromatographic Science, 1998, Vol 38, p253-256. Volatile fatty acids (acetate, formate, butyrate, propionate) are analyzed by ion chromatography. Nitroaromatics are analyzed using Method 8330.

All Microbiology and Inorganic analysis is done by standard methods as specified in Test Method for Evaluating Solid Wastes, SW846, on line methods; EPA methods and Guidance of Analysis of Water, 1999; or Standard Methods for the examination of Water and Wastewater, 20th ed.

Microbiology

<u>Parameter</u>	<u>Method Code (s)</u>
Total Heterotrophs	SM9215C
Specific Heterotrophs	SM9215C-BSM
Biological Oxygen Demand	EPA405.1 SM5210B
Biological Oxygen Demand, Carbon	SM5210B SM5210B

Wet Chemistry -Inorganics

Anions (F, Cl, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄)	EPA300.0
Perchlorate, sol	EPA314.0
Chlorate, sol	EPA300.0m
Ammonia as NH ₃ -N	EPA350.2 SM4500-NH ₃ B+C
TKN	EPA351.3 SM4500-OrgB/C
Alkalinity as CaCO ₃	EPA310.1 SM2320B
Hardness as CaCO ₃	EPA130.2 SM2340 B/C
Carbon Dioxide	SM4500-CO ₂
Total Organic Carbon	EPA415.1 SM5310 B,C,D; SW-846 9060
Chemical Oxygen Demand	EPA410.4 SM5220D
pH	EPA150.1 SM4500-H B; SW-846 9045C
Total Dissolved Solids (TDS)	EPA160.1 SM2540 C
Total Solids	EPA160.3 SM2540 B
Total Suspended Solids (TSS)	EPA160.2 SM2540 D
Volatile Suspended Solids (VSS)	EPA160.4 SM2540G
Turbidity	EPA180.1 SM2130 B
Conductivity	EPA120.1 SW-846 9050A
Phosphorus (all forms)	EPA365.2 SM4500-P
Total Residual Chlorine	EPA330.5 SM4500-Cl G

Organics

Methane ethane ethene	EPA3810, RSK-175
Volatile fatty acids	IC, EPA300m
Alcohols (methanol, ethanol etc)	SW846-8015

Reporting Qualifiers

- U- The compound was not detected at the indicated PQL concentration.
 - J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.
 - D- Diluted sample
 - B- The analyte was observed in laboratory blank as well as the sample - for EPA SW856 8260b and EPA 624 analysis
 - E- Compound detected above the linear range of the curve. Value given is an estimated value.
-

41 Sample Results

Sample Information			
Lab ID	8976-01	Date Sampled	06/05/2013
Sample ID	S57W03	15:08	Date Received 06/07/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	06/13/2013	49.6	D	ug/L	0.4000	0.0400	100	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8976-02		Date Sampled 06/05/2013
Sample ID	S57W03	15:44	Date Received 06/07/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	06/07/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	06/07/2013	23.4	D	mg/L	4.0	1.304	20	EPA 300.0
Nitrite as N	06/07/2013	0.26		mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO ₄	06/07/2013	4.23		mg/L	0.2	0.047	1	EPA 300.0
Bromide	06/07/2013	0.28		mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	06/07/2013	0.75		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	06/07/2013	0.26		mg/L	0.2	0.014	1	EPA 300.0
Methane	06/19/2013	1,440		ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	06/19/2013	2.31	J	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	06/19/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	06/19/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Hydrogen	06/13/2013	26.4	D	ug/L	0.4000	0.0400	100	EPA3810, RSK-175
Lactic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m

Shaw Environmental NJDEP certified Lab ID 11001.

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(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8976-03	Date Sampled	06/05/2013
Sample ID	S57MW41	17:02	Date Received 06/07/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	06/07/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	06/07/2013	25.0	D	mg/L	4.0	1.304	20	EPA 300.0
Nitrite as N	06/07/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	06/07/2013	4.44		mg/L	0.2	0.047	1	EPA 300.0
Bromide	06/07/2013	0.14	J	mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	06/07/2013	0.11		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	06/07/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Methane	06/19/2013	1,160	D	ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	06/19/2013	1.02	D	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	06/19/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	06/19/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Hydrogen	06/13/2013	0.026		ug/L	0.0080	0.0008	2	EPA3810, RSK-175
Lactic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8976-04	Date Sampled	06/05/2013
Sample ID	S57IW02	17:23	Date Received 06/07/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	06/13/2013	0.54		ug/L	0.0080	0.0008	2	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

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() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Sample Information			
Lab ID	8976-05	Date Sampled	06/05/2013
Sample ID	S57IW02	17:50	Date Received
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	06/07/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	06/07/2013	26.6	D	mg/L	4.0	1.304	20	EPA 300.0
Nitrite as N	06/07/2013	0.11	J	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	06/07/2013	4.43		mg/L	0.2	0.047	1	EPA 300.0
Bromide	06/07/2013	0.23		mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	06/07/2013	1.62		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	06/07/2013	0.14	J	mg/L	0.2	0.014	1	EPA 300.0
Methane	06/19/2013	1.18	J	ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	06/19/2013	4.0	U	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	06/19/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	06/19/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Hydrogen	06/12/2013	0.062		ug/L	0.0080	0.0008	2	EPA3810, RSK-175
Lactic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	06/07/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m

Shaw Environmental NJDEP certified Lab ID 11001.

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(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Dr. J. J. G. ...

Sample Batch: Anions

Lab ID	Analysis date
8976- 2	6/7/2013
8976- 3	6/7/2013
8976- 5	6/7/2013

Initial Calibration Summary: Anions

Calibration Standard recoveries:

Initial Calibration Date:		5/22/2013					
Sample:							
Std ppm	0.2	0.5	1.0	5.0	20.0	R ² =	
Fluoride*	0.2289	0.567	1.078	5.537	19.620	0.99919	
%rec	114.5	113.4	107.8	110.7	98.1		
Chloride	0.2587	0.5561	0.950	5.000	19.85	0.99986	
%rec	0.2	111.2	95.0	100.0	99.3		
Nitrite*	0.237	0.533	1.144	5.702	19.350	0.99789	
%rec	118.7	106.6	114.4	114.0	96.8		
Sulfate	0.2266	0.582	1.100	5.007	19.920	0.99983	
%rec	113.3	116.3	110.0	100.1	99.6		
Bromide	0.254	0.537	0.916	4.954	19.980	0.99990	
%rec	127.0	107.4	91.6	99.1	99.9		
Nitrate	0.190	0.450	0.984	4.982	19.880	0.99989	
%rec	94.8	90.0	98.4	99.6	99.4		
Chlorate	0.203	0.434	0.960	4.814	19.810	0.99952	
%rec	101.6	86.8	96.0	96.3	99.1		
Phosphate	0.222	0.512	1.026	5.184	19.995	0.99990	
%rec	111.2	102.3	102.6	103.7	100.0		

*linear only to 10.0ppm

QC Check Date:		5/22/2013			
Sample:	Std ppm	Obs ppm	% recovery	Control Limits	
QC Check-Fluoride	10.0	10.440	104.4%	80.0-120.0%	
QC Check-Chloride	10.0	10.260	102.6%	80.0-120.0%	
QC Check-Nitrite	10.0	10.860	108.6%	80.0-120.0%	
QC Check-Sulfate	10.0	10.110	101.1%	80.0-120.0%	
QC Check-Bromide	10.0	10.060	100.6%	80.0-120.0%	
QC Check-Nitrate	10.0	10.230	102.3%	80.0-120.0%	
QC Check-Chlorate	10.0	10.490	104.9%	80.0-120.0%	
QC Check-Phosphate	10.0	9.888	98.9%	80.0-120.0%	

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	5/22/2013	u	ppm	0.2
Blank-Chloride	5/22/2013	u	ppm	0.2
Blank-Nitrite	5/22/2013	u	ppm	0.2
Blank-Sulfate	5/22/2013	u	ppm	0.2
Blank-Bromide	5/22/2013	u	ppm	0.2
Blank-Nitrate	5/22/2013	u	ppm	0.2
Blank-Chlorate	5/22/2013	u	ppm	0.2
Blank-Phosphate	5/22/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Anions

Check Standard recoveries:

Sample:	Date	Std ppm	Obs ppm	% recovery
Fluoride check	6/7/2013	5.00	5.69	113.8
			Control Limits: 847.5-137.5	
Chloride check	6/7/2013	5.00	5.09	101.7
			Control Limits: 80.5-125.2	
Nitrite check	6/7/2013	5.00	5.74	114.8
			Control Limits: 82.8-129.1	
Sulfate check	6/7/2013	5.00	4.75	95.0
			Control Limits: 82.5-125.6	
Bromide check	6/7/2013	5.00	5.00	100.0
			Control Limits: 77-128.2	
Nitrate check	6/7/2013	5.00	5.08	101.5
			Control Limits: 83.3-121.2	
Chlorate check	6/7/2013	5.00	4.54	90.7
			Control Limits: 79.6-121.7	
Phosphate check	6/7/2013	5.00	5.22	104.4
			Control Limits: 82.5-122.6	

QC Check:

Sample:	Date	Std ppm	Obs ppm	% recovery
QC Check-Fluoride	6/7/2013	100.00	118.70	118.7
QC Check-Chloride	6/7/2013	200.00	207.40	103.7
QC Check-Nitrite	6/7/2013	200.00	227.70	113.9
QC Check-Sulfate	6/7/2013	300.00	323.20	107.7
QC Check-Bromide	6/7/2013	200.00	210.90	105.5
QC Check-Nitrate	6/7/2013	200.00	211.20	105.6
QC Check-Phosphate	6/7/2013	300.00	321.50	107.2
		Control Limits:	80.0-120.0%	

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	6/7/2013	u	ppm	0.2
Blank-Chloride	6/7/2013	u	ppm	0.2
Blank-Nitrite	6/7/2013	u	ppm	0.2
Blank-Sulfate	6/7/2013	u	ppm	0.2
Blank-Bromide	6/7/2013	u	ppm	0.2
Blank-Nitrate	6/7/2013	u	ppm	0.2
Blank-Chlorate	6/7/2013	u	ppm	0.2
Blank-Phosphate	6/7/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Method Duplicates Summary: Anions

Sample:	Batch MS/MSD	8976-3			
	Date	MS	MSD		Units
Fluoride MS/MSD	6/7/2013	113.3	113.5		mg/L
		142.9	0.2%		% Max RPD= 17.0%
Chloride MS/MSD	6/7/2013	121.8	121.9		mg/L
		111.9	0.1%		% Max RPD= 9.8%
Nitrite MS/MSD	6/7/2013	114.8	117.2		mg/L
		340.7	2.1%		% Max RPD= 13.7%
Sulfate MS/MSD	6/7/2013	108.8	108.6		mg/L
		106.7	0.2%		% Max RPD= 7.2%
Bromide MS/MSD	6/7/2013	102.3	102.3		mg/L
		108.9	0.0%		% Max RPD= 14.3%
Nitrate MS/MSD	6/7/2013	103.7	103.8		mg/L
		106.6	0.1%		% Max RPD= 14.7%
Chlorate MS/MSD	6/7/2013	101.1	99.9		mg/L
		93.4	1.2%		% Max RPD= 21.8%
Phosphate MS/MSD	6/7/2013	108.7	109.2		mg/L
			% RPD= 0.5%		% Max RPD= 17.3%

Method Spike Summary: Anions

Sample:	Batch MS/MSD	8976-3		
	Date	MS Recovery	MSD Recovery	Control Limits
Fluoride MS/MSD	6/7/2013	113.3%	113.5%	74.2-136.9%
Chloride MS/MSD	6/7/2013	96.8%	96.9%	67.5-131.8%
Nitrite MS/MSD	6/7/2013	114.8%	117.2%	92.8-129.1
Sulfate MS/MSD	6/7/2013	103.2%	103.0%	72-132.1
Bromide MS/MSD	6/7/2013	102.3%	102.3%	73.4-132.2%
Nitrate MS/MSD	6/7/2013	103.7%	103.8%	79.2-126.2
Chlorate MS/MSD	6/7/2013	101.1%	99.9%	63.8-130.7
Phosphate MS/MSD	6/7/2013	108.7%	109.2%	77.1-123.9

Sample Batch: MEEP

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8976- 2	6/19/2013		
8976- 3	6/19/2013		
8976- 5	6/19/2013		

Method Blank Summary: MEEP

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Methane	6/19/2013	u	ppmv	10.0
Blank-Ethane	6/19/2013	u	ppmv	10.0
Blank-Ethene	6/19/2013	u	ppmv	10.0
Blank-Propane	6/19/2013	u	ppmv	10.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: MEEP

Calibration Standard recoveries:

Initial Calibration Date:		2/21/2013					
Sample:							
Std ppm	5.0	10	100.0	1000.0	10000.0	R ² =	
Methane	4.36	10.15	92.5	1014.0	10262	0.99990	
%rec	87.2	101.5	92.5	101.4	102.6		
Ethane	3.95	9.32	89.2	992.8	9940	0.99980	
%rec	79.0	93.2	89.2	99.3	99.4		
Ethene	3.93	9.38	89.3	993.2	9938	0.99987	
%rec	78.6	93.8	89.3	99.3	99.4		
Propane	4.0	9.3	89.6	1004.0	10029	0.99970	
%rec	79.6	93.3	89.6	502.0	1002.9		
Acetylene*	4.56	10.57	103.60	1171.0	11809	0.99990	
%rec	77.0	89.2	87.4	98.8	99.7		

*acetylene std 11,850ppmv, other gases 10,000 ppmv

QC Check Date:		2/21/2013			
Sample:	Std ppm-v	obs ppm-v	% recovery	Control Limits	
QC Check-Methane	500	516.5	103.3%	80-120%	
QC Check-Ethane	500	508.5	101.7%	80-120%	
QC Check-Ethene	500	507.6	101.5%	80-120%	
QC Check-Propane	500	514.1	102.8%	80-120%	
QC Check-acetylene	593	590.7	99.6%	80-120%	

Method Blank Summary: MEEP

Sample	Date	Concentration	Units	PQL
Blank-Methane	2/21/2013	u	ppm-v	10.0
Blank-Ethane	2/21/2013	u	ppm-v	10.0
Blank-Ethene	2/21/2013	u	ppm-v	10.0
Blank-Propane	2/21/2013	u	ppm-v	10.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: MEEP

Check Standard recoveries:

Sample:	Date	Std ppmv	Obs ppmv	% recovery
Methane check	6/19/2013	1000.0	967.8	96.8
			Control Limits:	73.4-127.7
Ethane check	6/19/2013	1000.0	950.4	95.0
			Control Limits:	71.77-130.9
Ethene check	6/19/2013	1000.0	944.1	94.4
			Control Limits:	75.1-125.8
Propne check	6/19/2013	1000.0	962.1	96.2
			Control Limits:	72.4-129.6

LCS CHECK

Methane check	6/19/2013	10000.0	9133.0	91.3
			Control Limits:	73.4-127.7
Ethane check	6/19/2013	10000.0	8998.0	90.0
			Control Limits:	71.77-130.9
Ethene check	6/19/2013	10000.0	8844.0	88.4
			Control Limits:	75.1-125.8
Propne check	6/19/2013	10000.0	9029.0	90.3
			Control Limits:	72.4-129.6

Method Duplicates Summary: MEEP

Sample:	Batch MS-	8984-4			
	Date	Result (ppmv)	dup Result	Units	
Methane	6/19/2013	1,603.00	1,692.00	mg/L	
		% RPD=	5.4%		% Max RPD= 15.1
Ethane	6/19/2013	77.25	72.64	mg/L	
		% RPD=	6.2%		% Max RPD= 18
Ethene	6/19/2013	82.20	78.54	mg/L*	
		% RPD=	4.6%		% Max RPD= 20.4
Propane	6/19/2013	77.98	71.17	mg/L	
		% RPD=	9.1%		% Max RPD= 18.4

Method Spike Summary: MEEP

Sample 8984-4					
	Date	MS Sample	MSD Recovery	Control Limits	Spike conc
Methane MS/MSD	6/19/2013	91.91%	103.77%	75.9-119.3%	750.0
Ethane MS/MSD	6/19/2013	103.00%	96.85%	70.52-129.8%	75.0
Ethene MS/MSD	6/19/2013	109.60%	104.72%	73.2-123.4%	75.0
Propane MS/MSD	6/19/2013	103.97%	94.89%	74.3-129.5%	75.0

Sample Batch:volatile Fatty acids

<u>Lab ID</u>	<u>Analysis dates</u>
8976- 2	6/7/2013
8976- 3	6/7/2013
8976- 5	6/7/2013

Initial Calibration Summary: volatile fatty acids

Calibration Standard recoveries:

Initial Calibration Date:		2/26/2013					R ² =
Std ppm	1.0	5.0	10.0	20.0	100.0		
Sample:							
Lactate	0.88	4.97	9.76	19.57	100.17	0.99990	
%rec	88.06	99.4	97.62	97.85	100.17		
Acetate*	1.15	6.04	11.42	21.73	84.14	0.99890	
%rec	115.00	120.78	114.20	108.65	168.28		
propionic	1.08	5.93	11.20	21.72	86.75	0.99890	
%rec	108.00	118.58	112.00	22.27	173.50		
Formic	1.00	5.55	10.47	20.82	99.58	0.99990	
%rec	100.00	110.98	104.66	18.61	102.10		
Pyruvic	0.72	4.43	8.94	18.85	101.30	0.99970	
%rec	72.2	88.58	89.39	94.25	101.3		
Valeric	1.15	6.34	12.17	23.53	97.53	0.99880	
%rec	115.00	126.84	121.70	117.65	97.07		

*linear curve only to 50 ppm

Initial Calibration Date:		2/26/2013					R ² =
Std ppm	1.0	5.0	10.0	20.0	100.0		
Sample:							
n-butyric	0.96	5.42	10.76	20.82	100.30	1.0	
%rec	95.90	108.40	107.60	104.10	100.04	0.99880	

QC Check Date:		2/26/2013			Control Limits
Sample:	Std ppm	Obs ppm	% recovery		
QC Check-Lactic	50.0	49.86	99.7	75.0-130.0%	
QC Check-Acetic	50.0	48.92	97.8	75.0-130.0%	
QC Check-propionic	50.0	48.98	98.0	75.0-130.0%	
QC Check-formic	50.0	50.35	100.7	75.0-130.0%	
QC Check-pyruvic	50.0	48.18	96.4	75.0-130.0%	
QC Check-n-Valeric	50.0	52.95	105.9	75.0-130.0%	
QC Check-n-butyric	50.0	48.99	98.0	75.0-130.0%	

Calibration Verification Summary: VFAs

Check Standard recoveries:

Sample:	Date	Act Conc	Obs ppm	% recovery
Lactic Acid	6/7/2013	20.0	18.12	90.6
			Control Limits: 69-107.6	
Acetic Acid	6/7/2013	20.0	18.93	94.7
			Control Limits: 83.3-121.7	
Propionic Acid	6/7/2013	20.0	20.70	103.5
			Control Limits: 82.7-116.8	
Formic Acid	6/7/2013	20.0	22.86	114.3
			Control Limits: 75-120.2	
pyruvic	6/7/2013	20.0	17.88	89.4
			Control Limits: 68.3-112.1	
n-Valeric	6/7/2013	20.0	21.49	107.5
			Control Limits: 66.3-134.9	

Method Blank Summary: VFAs

Sample	Date	Concentration	Units	PQL
Lactic	6/7/2013	u	ppm	1.0
Acetic	6/7/2013	u	ppm	1.0
propionic	6/7/2013	u	ppm	1.0
Formic	6/7/2013	u	ppm	1.0
pyruvic	6/7/2013	u	ppm	1.0
n-Valeric	6/7/2013	u	ppm	1.0
n-butyric	6/7/2013	u	ppm	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: VFAs

LCS recoveries:

Sample:	Date	Act Conc	Obs ppm	% recovery
Acetic Acid	6/7/2013	5.0	4.19	83.8
			Control Limits: 83.3-121.7	
Propionic Acid	6/7/2013	5.0	4.91	98.2
			Control Limits: 82.7-116.8	
Valeric	6/7/2013	5.0	4.69	93.8
			Control Limits: 66.3-134.9	
n-butyric	6/7/2013	5.0	4.95	99.0
			Control Limits: 73.4-119.9	

Method Duplicates Summary: VFAs

Sample:	Batch MS/MSD 8976-3		MSD Result	Units
	Date	MS Result		
lactic Acid MS/MSD	6/7/2013	89.6	86.6	mg/L
		% RPD= 3.4%		% Max RPD= 5.1%
Acetic Acid MS/MSD	6/7/2013	112.6	109.8	mg/L
		% RPD= 2.5%		% Max RPD= 5.0%
Propionic Acid MS/MSD	6/7/2013	110.9	108.6	mg/L
		% RPD= 2.1%		% Max RPD= 7.6%
Formic Acid MS/MSD	6/7/2013	104.5	101.7	mg/L
		% RPD= 2.7%		% Max RPD= 3.9%
Pyruvic Acid MS/MSD	6/7/2013	85.2	82.2	mg/L
		% RPD= 3.6%		% Max RPD= 9.1%
Valeric Acid MS/MSD	6/7/2013	116.6	111.6	mg/L
		% RPD= 4.4%		% Max RPD= 11.3%

Method Spike Summary: VFAs

Sample:	Batch MS/MSD 8976-3		MSD Recovery	Control Limits
	Date	MS Recovery		
lactic Acid MS/MSD	6/7/2013	89.6%	86.6%	71.7-114.6%
Acetic Acid MS/MSD	6/7/2013	112.6%	109.8%	75.4-125.5%
Propionic Acid MS/MSD	6/7/2013	110.9%	108.6%	65.9-136%
Formic Acid MS/MSD	6/7/2013	104.5%	101.7%	81.1-124.9%
Pyruvic Acid MS/MSD	6/7/2013	85.2%	82.2%	71.4-117.4%
Valeric Acid MS/MSD	6/7/2013	116.6%	111.6%	77.2-132.4%

Sample Batch: Hydrogen

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8976- 1	6/12/2013		
8976- 2	6/12/2013		
8976- 3	6/12/2013		
8976- 4	6/12/2013		
8976- 5	6/12/2013		

Method Blank Summary: Hydrogen

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Hydrogen	6/12/2013	u	ppmv	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: Hydrogen

Calibration Standard recoveries:

Initial Calibration Date:		3/29/2013					
Sample:							
Std ppm	1.0	5.0	20.0	50.0	100.0	R ² =	
Hydrogen	0.99	4.96	207.00	46.70	91.10		
%rec	99.0	99.2	1035.0	93.4	91.1	0.99995	

QC Check Date:		3/29/2013			
Sample:	Std ppm-v	obs ppm-v	% recovery	Control Limits	
QC Check-Hydrogen	2	2.08	104.0%	80-120%	

Method Blank Summary: Hydrogen

Sample	Date	Concentration	Units	PQL
Blank-Hydrogen	3/29/2013	u	ppm-v	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Hydrogen

Check Standard recoveries:

Sample:	Date	Std ppmv	Obs ppmv	% recovery
Hydrogen check	6/13/2013	20.0	20.2	100.8
			Control Limits:	73.8-133.9
Hydrogen check	6/13/2013	5.0	5.33	106.6
			Control Limits:	73.8-133.9

Method Duplicates Summary: H2

Sample:	8977-1			
	Date	dup Result	dup Result	Units
Batch dup	6/12/2013	33.63	32.79	ppmv
		RPD=	2.5%	
		% Max RPD=	27.2%	

Method Spike Summary:H2

Sample:	8965-2			
	Date	MS Recovery	MSD Recovery	Control Limits
Batch MS/MSD	6/12/2013	101.8%	93.4%	75-125%



17 Princess Road
Lawrenceville, NJ 08648
Tel: 609/895-5370
Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indian Head Site 57**

**Lab ID
8990**

Project Number: 146395 020000

**Samples Received
27-Jun-13**

**Report
3-Jul-13**

NJDEP Certified Lab 11001

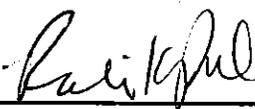
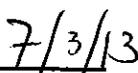
 
Randi K Rothmel, PhD Date
Laboratory Director

Table of Contents**1.0 General Information**

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Chain of custody

Internal chains of custody

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Data Reporting Qualifiers

2.0 Sample Summary Results**3.0 QA/QC Report**



Chapman University (45)

(Day 21)

17 Princess Rd
Lawrenceville, NJ 08648
609-895-5370 / 609-895-1858



CB&I - Federal Services, LLC

CHAIN OF CUSTODY

Ref. Document # _____

Page 1 of 1

Project Number/Cost code: 146395 /
Project Name / Location: Indian Head / SIK 57
Purchase Order #: _____

Shipment Date: 6/26/13
Waybill/Airbill Number: _____
Lab Destination: Lawrenceville
Lab Contact Name / ph. #: Randi Rothman

Lab ID # lab use: 8990 R&D

Project Contact: Dave Lippincott
(Name of phone #)

Send Report To: D. Lippincott
Phone/Fax Number: _____
Address: (as above)
City/State: _____

Lab No.	Sampler's Name(s)	Sample ID Number	Sample Description	Collection Information		Matrix	# of containers	Container size	Preservative				Turn Around Time Requested	
				Date	Time				HCL	NaOH	HNO ₃	H ₂ SO ₄		Ice
1		S57IW03	5 mins into paxgc	6/26/13	09:30	W	1	20 ml	X					
2		S57IW03	end of paxgc	6/26/13	10:30	W	1	20 ml	X					
3		S57IW02	end of paxgc	6/26/13	11:15	W	1	20 ml	X					
4		S57MW41	end of paxgc	6/26/13	12:55	W	1	20 ml	X					

Analyses Requested	Any Additional Information	Turn Around Time Requested
VOC		
MEP		
Amions		
VFA		
Hydrogen		

G/C Codes

C = Composite

G = Grab

Known Waste Stream Circle: _____
 RCRA _____ PCB/dioxin _____ PAHs _____
 Q/C/Data Package Level Required: _____
 I _____ II _____ III _____ IV _____
 Received By: [Signature] Date: 6/27/13
 Time: 1630
 Received By: _____ Date: _____
 Time: _____
 Received By: _____ Date: _____
 Time: _____

Special Instructions: _____
 Relinquished By: [Signature] Date: 6/26/13
 Time: 16:00
 Relinquished By: _____ Date: _____
 Time: _____
 Relinquished By: _____ Date: _____
 Time: _____

Instructions: Do not Fill Shaded Areas; Check R&D Box if R&D samples Only

Methodology Review

Volatile Organics

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260b. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST05 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 10 hits.

Other Organics

Other Organics such as alcohols, and dissolved gases (methane, ethane, ethene, propane) are analyzed using EPA methods 8015 or RSK-175 unless specified. Dissolved Hydrogen is analysed by RSK-175 using a GC equipped with a PDHID detector. Dissolved gases are prepared by a modification of Kampbell, and Vandegrift (Journal of Chromatographic Science, 1998, Vol 38, p253-256. Volatile fatty acids (acetate, formate, butyrate, propionate) are analyzed by ion chromatography. Nitroaromatics are analyzed using Method 8330.

All Microbiology and Inorganic analysis is done by standard methods as specified in Test Method for Evaluating Solid Wastes, SW846, on line methods; EPA methods and Guidance of Analysis of Water, 1999; or Standard Methods for the examination of Water and Wastewater, 20th ed.

Microbiology

<u>Parameter</u>	<u>Method Code (s)</u>
Total Heterotrophs	SM9215C
Specific Heterotrophs	SM9215C-BSM
Biological Oxygen Demand	EPA405.1 SM5210B
Biological Oxygen Demand, Carbon	SM5210B SM5210B

Wet Chemistry -Inorganics

Anions (F, Cl, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄)	EPA300.0
Perchlorate, sol	EPA314.0
Chlorate, sol	EPA300.0m
Ammonia as NH ₃ -N	EPA350.2 SM4500-NH ₃ B+C
TKN	EPA351.3 SM4500-OrgB/C
Alkalinity as CaCO ₃	EPA310.1 SM2320B
Hardness as CaCO ₃	EPA130.2 SM2340 B/C
Carbon Dioxide	SM4500-CO ₂
Total Organic Carbon	EPA415.1 SM5310 B,C,D; SW-846 9060
Chemical Oxygen Demand	EPA410.4 SM5220D
pH	EPA150.1 SM4500-H B; SW-846 9045C
Total Dissolved Solids (TDS)	EPA160.1 SM2540 C
Total Solids	EPA160.3 SM2540 B
Total Suspended Solids (TSS)	EPA160.2 SM2540 D
Volatile Suspended Solids (VSS)	EPA160.4 SM2540G
Turbidity	EPA180.1 SM2130 B
Conductivity	EPA120.1 SW-846 9050A
Phosphorus (all forms)	EPA365.2 SM4500-P
Total Residual Chlorine	EPA330.5 SM4500-Cl G

Organics

Methane ethane ethene	EPA3810, RSK-175
Volatile fatty acids	IC, EPA300m
Alcohols (methanol, ethanol etc)	SW846-8015

Reporting Quantities

- U- The compound was not detected at the indicated PQL concentration.

 - J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

 - D- Diluted sample

 - B- The analyte was observed in laboratory blank as well as the sample - for EPA SW856 8260b and EPA 624 analysis

 - E- Compound detected above the linear range of the curve. Value given is an estimated value.
-

4.1 Sample Results

Sample Information			
Lab ID	8990-01	Date Sampled	06/26/2013
Sample ID	S57IW03 5min into purge	Date Received	06/27/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/01/2013	663	D	ug/L	8.60	0.990	1,000	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Sample Information			
Lab ID	8990-02	Date Sampled	06/26/2013
Sample ID	S57IW03 end of purge	Date Received	06/27/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/01/2013	181	D	ug/L	8.60	0.990	1,000	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Sample Information			
Lab ID	8990-03	Date Sampled	06/26/2013
Sample ID	S57IW02 end of purge	Date Received	06/27/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/01/2013	0.280	D	ug/L	0.0172	0.0020	2	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Sample Information			
Lab ID	8990-04	Date Sampled	06/26/2013
Sample ID	S57MW41 end of purge	Date Received	06/27/2013
Matrix	Aqueous		

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/01/2013	0.040	D	ug/L	0.0172	0.0020	2	EPA3810, RSK-175

Shaw Environmental NJDEP certified Lab ID 11001.

(1) Not listed as a Shaw Certified parameters under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range



Sample Batch: Hydrogen

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8990- 1	7/1/2013		
8990- 2	7/1/2013		
8990- 3	7/1/2013		
8990- 4	7/1/2013		

Method Blank Summary: Hydrogen

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Hydrogen	7/1/2013	u	ppmv	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: Hydrogen

Calibration Standard recoveries:

Initial Calibration Date:		3/29/2013					
Sample:							
Std ppm	1.0	5.0	20.0	50.0	100.0	R ² =	
Hydrogen	0.99	4.96	207.00	46.70	91.10		
%rec	99.0	99.2	1035.0	93.4	91.1	0.99995	

QC Check Date:		3/29/2013			
Sample:	Std ppm-v	obs ppm-v	% recovery	Control Limits	
QC Check-Hydrogen	2	2.08	104.0%	80-120%	

Method Blank Summary: Hydrogen

Sample	Date	Concentration	Units	PQL
Blank-Hydrogen	3/29/2013	u	ppm-v	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Hydrogen

Check Standard recoveries:

Sample:	Date	Std ppmv	Obs ppmv	% recovery
Hydrogen check	7/1/2013	10.0	9.5	94.8
			Control Limits:	73.8-133.9
Hydrogen check	7/1/2013	20.0	20.7	103.5
			Control Limits:	73.8-133.9

Method Duplicates Summary:Hydrogen

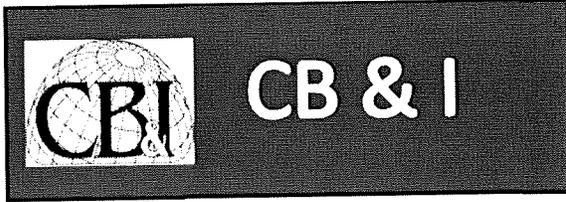
Sample:

	Date	dup Result	dup Result	Units
Batch dup	7/1/2013	16.40	17.02	ppmv
		RPD=	3.7%	
		% Max RPD=	2.80%	

Method Spike Summary:Hydrogen

Sample:

	Date	MS Recovery	MSD Recovery	Control Limits
Batch MS/MSD	7/1/2013	96.7%	102.9%	79.4-122.6%



17 Princess Rd
Lawrenceville, New Jersey 08648
Tel: 609/895-5370
Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indian Head Site 57**

**Lab ID
8994**

Project Number: 146395 02000000

**Samples Received
9-Jul-13**

**Report
22-Jul-13**

NJDEP Certified Lab 11001

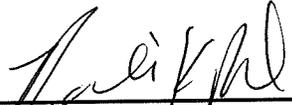

Randi K Rothmel, PhD 7/22/13
Laboratory Director Date

Table of Contents

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- Internal chains of custody
- Methodology Review
- Data Reporting Qualifiers

2.0 Sample Summary Results

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1.0 General Information

Chain of Custody (S)

8994

CHAIN-OF-CUSTODY RECORD

COC Number: 146395-060313
Purchase Order Number:



SHAW (A CB&I Company) - 500 E. Main Street, Suite 1630, Norfolk, VA 23510 - (757) 363-7190

Lab Receiving Address:		Lab Analysis Details											
CB&I Federal Services 17 Princess Road Lawrenceville, NJ 08848													
Project Name: Indian Head Site 57													
Project Number: 146395													
Client Ref: NAVY													
Ship Contact: Nataasha Kelley Sullivan													
Project Manager: Bill Hughes													
Ship Contact Number: (410)529-7598													
Item No	Sample Number	Date	Time	Water	Temp	Sample Description	Number of Containers	Hydrogen	Antions	VFA	MEE	EVOC	Analysis Details
1	S57IW03	7/8/13	10:32	X		S57IW03	1 x 125 clear glass 1:1 HCL 1 x 125 ml naigene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	HOLD
2	S57IW02	7/8/13	11:10	X		S57IW02	1 x 125 clear glass 1:1 HCL 1 x 125 ml naigene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
3	S57IW41	7/8/13	12:05	X		S57IW41	1 x 125 clear glass 1:1 HCL 1 x 125 ml naigene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
4	Trip Blank	7/8/13	-	X		Trip Blank	2 x 40 ml vial 1:1 HCL					X	
5	S57IW41	7/8/13	11:40	X		1st 5 min purge	1 X 125 ml HCL	X					X
6	S57IW02	7/8/13	10:50	X		1st 5 min purge	1 X 125 ml HCL	X					X
7	S57IW03	7/8/13	10:07	X		1st 5 min purge	1 X 125 ml HCL	X					X
8													

Lab Contact: Randy Rothmel
Project Contact: Dave Lippincott
Send Report To: Dave Lippincott

Turnaround Time Required:	Sampled By:	Date:	Time:
	Nataasha Kelley Sullivan, CB&I	7/9/13	10:30
Transfer Relinquished By:	Transfer Accepted By:	Date:	Time:
[Signature]	[Signature]	7/9/13	10:30
Sampler's Signature:	Laboratory Sample Custody Signature:	Date:	Time:
[Signature]	[Signature]	7/9/13	10:30
Turnaround Time Required:	Comments:	Laboratory Report No.:	

Report Format: Summary Report
Deliverables: EDD Excel
*** Fax results to Nataasha Sullivan (410) 529-7599

Methodology Review

Volatile Organics

Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260b. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST05 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 10 hits.

Other Organics

Other Organics such as alcohols, and dissolved gases (methane, ethane, ethene, propane) are analyzed using EPA methods 8015 or RSK-175 unless specified. Dissolved Hydrogen is analysed by RSK-175 using a GC equipped with a PDHID detector. Dissolved gases are prepared by a modification of Kampbell, and Vandegrift (Journal of Chromatographic Science, 1998, Vol 38, p253-256. Volatile fatty acids (acetate, formate, butyrate, proprionate) are analyzed by ion chromatography. Nitroaromatics are analyzed using Method 8330.

All Microbiology and Inorganic analysis is done by standard methods as specified in Test Method for Evaluating Solid Wastes, SW846, on line methods; EPA methods and Guidance of Analysis of Water, 1999; or Standard Methods for the examination of Water and Wastewater, 20th cd.

Microbiology

<u>Parameter</u>	<u>Method Code (s)</u>
Total Heterotrophs	SM9215C
Specific Heterotrophs	SM9215C-BSM
Biological Oxygen Demand	EPA405.1 SM5210B
Biological Oxygen Demand, Carbon	SM5210B SM5210B

Wet Chemistry -Inorganics

Anions (F, Cl, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄)	EPA300.0
Perchlorate, sol	EPA314.0
Chlorate, sol	EPA300.0m
Ammonia as NH ₃ -N	EPA350.2 SM4500-NH ₃ B+C
TKN	EPA351.3 SM4500-OrgB/C
Alkalinity as CaCO ₃	EPA310.1 SM2320B
Hardness as CaCO ₃	EPA130.2 SM2340 B/C
Carbon Dioxide	SM4500-CO ₂
Total Organic Carbon	EPA415.1 SM5310 B,C,D; SW-846 9060
Chemical Oxygen Demand	EPA410.4 SM5220D
pH	EPA150.1 SM4500-H B; SW-846 9045C
Total Dissolved Solids (TDS)	EPA160.1 SM2540 C
Total Solids	EPA160.3 SM2540 B
Total Suspended Solids (TSS)	EPA160.2 SM2540 D
Volatile Suspended Solids (VSS)	EPA160.4 SM2540G
Turbidity	EPA180.1 SM2130 B
Conductivity	EPA120.1 SW-846 9050A
Phosphorus (all forms)	EPA365.2 SM4500-P
Total Residual Chlorine	EPA330.5 SM4500-Cl G

Organics

Methane ethane ethene	EPA3810, RSK-175
Volatile fatty acids	IC, EPA300m
Alcohols (methanol, ethanol etc)	SW846-8015

Reporting Qualifiers

- U- The compound was not detected at the indicated PQL concentration.

 - J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

 - D- Diluted sample

 - B- The analyte was observed in laboratory blank as well as the sample - for EPA SW856 8260b and EPA 624 analysis

 - E- Compound detected above the linear range of the curve. Value given is an estimated value.
-

2.0 Sample Results

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel; 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8994-01	Date Sampled	07/08/2013
Sample ID	S57IW03	Time sampled	10:32
Matrix	Aqueous	Date Received	07/09/2013

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	07/10/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	07/10/2013	11.4		mg/L	0.2	0.065	1	EPA 300.0
Nitrite as N	07/10/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	07/10/2013	2.43		mg/L	0.2	0.047	1	EPA 300.0
Bromide	07/10/2013	0.27		mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	07/10/2013	0.69		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	07/10/2013	0.25		mg/L	0.2	0.014	1	EPA 300.0
Methane	07/17/2013	123		ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	07/17/2013	4.0	U	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	07/17/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	07/17/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Lactic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m
Hydrogen	07/11/2013	122	D	ug/L	4.0000	0.40001,000		EPA3810, RSK-175

NJDEP certified Lab ID 11001.

- (1) Not listed as a Certified parameters under the NJDEP lab certification program.
 (2) Not available as a certified parameter under the NJDEP lab certification program.
 () no qualification - sample run undiluted
 (U) Compound not detected above method practical quantitation limit.
 (D) Sample analyzed at indicated dilution
 (J) Estimated value above MDL and less than PQL
 (E) Estimated value beyond linear range

Sample Information			
Lab ID	8994-02	Date Sampled	07/08/2013
Sample ID	S57IW02	Time sampled	11:10
Matrix	Aqueous	Date Received	07/09/2013

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	07/10/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	07/10/2013	20.9		mg/L	0.2	0.065	1	EPA 300.0
Nitrite as N	07/10/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	07/10/2013	4.38		mg/L	0.2	0.047	1	EPA 300.0
Bromide	07/10/2013	0.170	J	mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	07/10/2013	1.73		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	07/10/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Methane	07/17/2013	1.98	J	ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	07/17/2013	4.0	U	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	07/17/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	07/17/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Lactic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m
Hydrogen	07/11/2013	0.358	D	ug/L	0.0080	0.0008	2	EPA3810, RSK-175

NJDEP certified Lab ID 11001.

- (1) Not listed as a Certified parameter under the NJDEP lab certification program.
- (2) Not available as a certified parameter under the NJDEP lab certification program.
- () no qualification - sample run undiluted
- (U) Compound not detected above method practical quantitation limit.
- (D) Sample analyzed at indicated dilution
- (J) Estimated value above MDL and less than PQL
- (E) Estimated value beyond linear range

Sample Information			
Lab ID	8994-03	Date Sampled	07/08/2013
Sample ID	S57MW41	Time sampled	12:05
Matrix	Aqueous	Date Received	07/09/2013

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Fluoride	07/10/2013	0.2	U	mg/L	0.2	0.045	1	EPA 300.0
Chloride	07/10/2013	15.8		mg/L	0.2	0.065	1	EPA 300.0
Nitrite as N	07/10/2013	0.2	U	mg/L	0.2	0.009	1	EPA 300.0
Sulfate as SO4	07/10/2013	3.81		mg/L	0.2	0.047	1	EPA 300.0
Bromide	07/10/2013	0.22		mg/L	0.2	0.018	1	EPA 300.0
Nitrate as N	07/10/2013	0.26		mg/L	0.2	0.018	1	EPA 300.0
Phosphate as P, ortho	07/10/2013	0.2	U	mg/L	0.2	0.014	1	EPA 300.0
Methane	07/17/2013	993		ug/L	2.0	0.389	1	EPA3810, RSK-175
Ethane	07/17/2013	4.0	U	ug/L	4.0	0.934	1	EPA3810, RSK-175
Ethene	07/17/2013	5.0	U	ug/L	5.0	1.037	1	EPA3810, RSK-175
Propane	07/17/2013	6.0	U	ug/L	6.0	1.422	1	EPA3810, RSK-175
Lactic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.149	1	IC, EPA 300m
Acetic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.248	1	IC, EPA 300m
Propionic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.285	1	IC, EPA 300m
Formic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.301	1	IC, EPA 300m
Butyric Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.300	1	IC, EPA 300m
Pyruvic Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.346	1	IC, EPA 300m
Valeric Acid (2)	07/10/2013	1.0	U	mg/L	1.0	0.305	1	IC, EPA 300m
Hydrogen	07/11/2013	0.0068	JD	ug/L	0.0080	0.0008	2	EPA3810, RSK-175

NJDEP certified Lab ID 11001.

- (1) Not listed as a Certified parameter under the NJDEP lab certification program.
- (2) Not available as a certified parameter under the NJDEP lab certification program.
- () no qualification - sample run undiluted
- (U) Compound not detected above method practical quantitation limit.
- (D) Sample analyzed at indicated dilution
- (J) Estimated value above MDL and less than PQL
- (E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8994-05	Date Sampled	07/08/2013
Sample ID	S57MW41	Time sampled	11:40
Matrix	Aqueous	Date Received	07/09/2013

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/11/2013	0.139	D	ug/L	0.0080	0.0008	2	EPA3810, RSK-175

NJDEP certified Lab ID 11001.

(1) Not listed as a Certified parameter under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8994-06	Date Sampled	07/08/2013
Sample ID	S57IW02	Time sampled	10:50
Matrix	Aqueous	Date Received	07/09/2013

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/11/2013	0.831	D	ug/L	0.0080	0.0008	2	EPA3810, RSK-175

NJDEP certified Lab ID 11001.

(1) Not listed as a certified parameter under the NJDEP lab certification program.

(2) Not available as a certified parameter under the NJDEP lab certification program.

() no qualification - sample run undiluted

(U) Compound not detected above method practical quantitation limit.

(D) Sample analyzed at indicated dilution

(J) Estimated value above MDL and less than PQL

(E) Estimated value beyond linear range

Chicago Bridge and Iron
Analytical and Treatability Laboratories

17 Princess Road
 Lawrenceville, New Jersey 08648
 Tel: 609/895-5370
 Fax: 609/895-1858

Sample Information			
Lab ID	8994-07	Date Sampled	07/08/2013
Sample ID	S57IW03	Time sampled	10:07
Matrix	Aqueous	Date Received	07/09/2013

Limited Chemistry								
Parameter	Date Analyzed	Concentration	Qual (see below)	Units	PQL	MDL	Dilution Factor	Method Code
Hydrogen	07/11/2013	354	D	ug/l.	4.0000	0.40001,000		EPA3810, RSK-175

NJDEP certified Lab ID 11001.

- (1) Not listed as a Certified parameter under the NJDEP lab certification program.
- (2) Not available as a certified parameter under the NJDEP lab certification program.
- () no qualification - sample run undiluted
- (U) Compound not detected above method practical quantitation limit.
- (D) Sample analyzed at indicated dilution
- (J) Estimated value above MDL and less than PQL
- (E) Estimated value beyond linear range

3.0 QC Summary

Sample Batch: Anions

<u>Lab ID</u>	<u>Analysis date</u>
8994- 1	7/10/2013
8994- 2	7/10/2013
8994- 3	7/10/2013

Initial Calibration Summary: Anions

Calibration Standard recoveries:

Initial Calibration Date:		5/22/2013					
Sample:	Std ppm	0.2	0.5	1.0	5.0	20.0	R ² =
Fluoride*		0.2289	0.567	1.078	5.537	19.620	0.99919
	%rec	114.5	113.4	107.8	110.7	98.1	
Chloride		0.2587	0.5561	0.950	5.000	19.85	0.99986
	%rec	0.2	111.2	95.0	100.0	99.3	
Nitrite*		0.237	0.533	1.144	5.702	19.350	0.99789
	%rec	118.7	106.6	114.4	114.0	96.8	
Sulfate		0.2266	0.582	1.100	5.007	19.920	0.99983
	%rec	113.3	116.3	110.0	100.1	99.6	
Bromide		0.254	0.537	0.916	4.954	19.980	0.99990
	%rec	127.0	107.4	91.6	99.1	99.9	
Nitrate		0.190	0.450	0.984	4.982	19.880	0.99989
	%rec	94.8	90.0	98.4	99.6	99.4	
Chlorate		0.203	0.434	0.960	4.814	19.810	0.99952
	%rec	101.6	86.8	96.0	96.3	99.1	
Phosphate		0.222	0.512	1.026	5.184	19.995	0.99990
	%rec	111.2	102.3	102.6	103.7	100.0	

*linear only to 10.0ppm

QC Check Date:		5/22/2013			Control Limits
Sample:	Std ppm	Obs ppm	% recovery		
QC Check-Fluoride	10.0	10.440	104.4%	80.0-120.0%	
QC Check-Chloride	10.0	10.260	102.6%	80.0-120.0%	
QC Check-Nitrite	10.0	10.860	108.6%	80.0-120.0%	
QC Check-Sulfate	10.0	10.110	101.1%	80.0-120.0%	
QC Check-Bromide	10.0	10.060	100.6%	80.0-120.0%	
QC Check-Nitrate	10.0	10.230	102.3%	80.0-120.0%	
QC Check-Chlorate	10.0	10.490	104.9%	80.0-120.0%	
QC Check-Phosphate	10.0	9.888	98.9%	80.0-120.0%	

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	5/22/2013	u	ppm	0.2
Blank-Chloride	5/22/2013	u	ppm	0.2
Blank-Nitrite	5/22/2013	u	ppm	0.2
Blank-Sulfate	5/22/2013	u	ppm	0.2
Blank-Bromide	5/22/2013	u	ppm	0.2
Blank-Nitrate	5/22/2013	u	ppm	0.2
Blank-Chlorate	5/22/2013	u	ppm	0.2
Blank-Phosphate	5/22/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Anions

Check Standard recoveries:

Sample:	Date	Std ppm	Obs ppm	% recovery
Fluoride check	7/10/2013	5.00	4.83	96.6
			Control Limits: 847.5-137.5	
Chloride check	7/10/2013	5.00	4.58	91.7
			Control Limits: 80.5-125.2	
Nitrite check	7/10/2013	5.00	4702.00	94040.0
			Control Limits: 82.8-129.1	
Sulfate check	7/10/2013	5.00	4.77	95.4
			Control Limits: 82.5-125.6	
Bromide check	7/10/2013	5.00	4.65	92.9
			Control Limits: 77-128.2	
Nitrate check	7/10/2013	5.00	4.75	95.0
			Control Limits: 83.3-121.2	
Chlorate check	7/10/2013	5.00	4.82	96.5
			Control Limits: 79.6-121.7	
Phosphate check	7/10/2013	5.00	4.61	92.2
			Control Limits: 82.5-122.6	

QC Check:

Sample:	Date	Std ppm	Obs ppm	% recovery
QC Check-Fluoride	7/10/2013	100.0	100.2	100.2
QC Check-Chloride	7/10/2013	200.0	184.0	92.0
QC Check-Nitrite	7/10/2013	200.0	186.5	93.3
QC Check-Sulfate	7/10/2013	300.0	290.5	96.8
QC Check-Bromide	7/10/2013	200.0	189.7	94.9
QC Check-Nitrate	7/10/2013	200.0	191.5	95.8
QC Check-Phosphate	7/10/2013	300.0	291.9	97.3
			Control Limits:	80.0-120.0%

Method Blank Summary: Anions

Sample	Date	Concentration	Units	PQL
Blank-Fluoride	7/10/2013	u	ppm	0.2
Blank-Chloride	7/10/2013	u	ppm	0.2
Blank-Nitrite	7/10/2013	u	ppm	0.2
Blank-Sulfate	7/10/2013	u	ppm	0.2
Blank-Bromide	7/10/2013	u	ppm	0.2
Blank-Nitrate	7/10/2013	u	ppm	0.2
Blank-Chlorate	7/10/2013	u	ppm	0.2
Blank-Phosphate	7/10/2013	u	ppm	0.2

u: Compound not detected above Practical Quantitation Limit (PQL).

Method Duplicates Summary: Anions

Sample:	Batch MS/MSD 8994-2		MSD Result	Units	
	Date	MS Result			
Fluoride MS/MSD	7/10/2013	103.5	104.7	mg/L	
		% RPD= 5.3%			% Max RPD= 17.0%
Chloride MS/MSD	7/10/2013	119.0	99.5	mg/L	
		% RPD= 3.6%			% Max RPD= 9.8%
Nitrite MS/MSD	7/10/2013	98.6	105.1	mg/L	
		% RPD= 3.7%			% Max RPD= 13.7%
Sulfate MS/MSD	7/10/2013	106.3	97.1	mg/L	
		% RPD= 3.8%			% Max RPD= 7.2%
Bromide MS/MSD	7/10/2013	96.3	100.3	mg/L	
		% RPD= 8.9%			% Max RPD= 14.3%
Nitrate MS/MSD	7/10/2013	99.7	94.0	mg/L	
		% RPD= 3.7%			% Max RPD= 14.7%
Chlorate MS/MSD	7/10/2013	93.6	99.9	mg/L	
		% RPD= 7.9%			% Max RPD= 21.8%
Phosphate MS/MSD	7/10/2013	105.7	85.1	mg/L	
		% RPD= 17.0%			% Max RPD= 17.3%

Method Spike Summary: Anions

Sample:	Batch MS/MSD 8994-2		MSD Recovery	Control Limits
	Date	MS Recovery		
Fluoride MS/MSD	7/10/2013	103.5%	104.7%	81-111.7%
Chloride MS/MSD	7/10/2013	90.7%	71.2%	87.1-110.7%
Nitrite MS/MSD	7/10/2013	98.6%	105.1%	78.6-128.1
Sulfate MS/MSD	7/10/2013	102.9%	93.7%	60.9-119.1
Bromide MS/MSD	7/10/2013	96.3%	100.3%	78.9-121.7%
Nitrate MS/MSD	7/10/2013	98.0%	92.3%	89.4-115.4
Chlorate MS/MSD	7/10/2013	93.6%	99.9%	88.3-113.2
Phosphate MS/MSD	7/10/2013	105.7%	85.1%	65.9-117.7

Sample Batch: MEEP

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date(s)</u>
8994- 1	7/17/2013		
8994- 2	7/17/2013		
8994- 3	7/17/2013		

Method Blank Summary: MEEP

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Methane	7/17/2013	u	ppmv	10.0
Blank-Ethane	7/17/2013	u	ppmv	10.0
Blank-Ethene	7/17/2013	u	ppmv	10.0
Blank-Propane	7/17/2013	u	ppmv	10.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: MEEP

Calibration Standard recoveries:

Initial Calibration Date:		2/21/2013					
Sample:	Std ppm	5.0	10	100.0	1000.0	10000.0	R ² =
Methane		4.36	10.15	92.5	1014.0	10262	
%rec		87.2	101.5	92.5	101.4	102.6	0.99990
Ethane		3.95	9.32	89.2	992.8	9940	
%rec		79.0	93.2	89.2	99.3	99.4	0.99980
Ethene		3.93	9.38	89.3	993.2	9938	
%rec		78.6	93.8	89.3	99.3	99.4	0.99987
Propane		4.0	9.3	89.6	1004.0	10029	
%rec		79.6	93.3	89.6	502.0	1002.9	0.99970
Acetylene*		4.56	10.57	103.60	1171.0	11809	
%rec		77.0	89.2	87.4	98.8	99.7	0.99990

*acetylene std 11,850ppmv, other gases 10,000 ppmv

QC Check Da	2/21/2013			Control Limits
Sample:	Std ppm-v	obs ppm-v	% recovery	
QC Check-Me	500	516.5	103.3%	80-120%
QC Check-Eth	500	508.5	101.7%	80-120%
QC Check-Eth	500	507.6	101.5%	80-120%
QC Check-Prc	500	514.1	102.8%	80-120%
QC Check-ace	593	590.7	99.6%	80-120%

Method Blank Summary: MEEP

Sample	Date	Concentration	Units	PQL
Blank-Methan	2/21/2013	u	ppm-v	10.0
Blank-Ethane	2/21/2013	u	ppm-v	10.0
Blank-Ethene	2/21/2013	u	ppm-v	10.0
Blank-Propan	2/21/2013	u	ppm-v	10.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: MEEP

Check Standard recoveries:

<u>Sample:</u>	<u>Date</u>	<u>Std ppmv</u>	<u>Obs ppmv</u>	<u>% recovery</u>
Methane check	7/17/2013	100.0	107.8	107.8
			Control Limits:	73.4-127.7
Ethane check	7/17/2013	100.0	103.3	103.3
			Control Limits:	71.77-130.9
Ethene check	7/17/2013	100.0	103.3	103.3
			Control Limits:	75.1-125.8
Propne check	7/17/2013	100.0	104.4	104.4
			Control Limits:	72.4-129.6

LCS CHECK

Methane check	7/17/2013	10000.0	9535.0	95.4
			Control Limits:	73.4-127.7
Ethane check	7/17/2013	10000.0	9326.0	93.3
			Control Limits:	71.77-130.9
Ethene check	7/17/2013	10000.0	9313.0	93.1
			Control Limits:	75.1-125.8
Propne check	7/17/2013	10000.0	9483.0	94.8
			Control Limits:	72.4-129.6

Method Duplicates Summary: MEEP

Sample:	Batch MS-	8994-3		Units
	Date	Result (ppmv)	dup Result	
Methane	7/17/2013	890.00	880.30	mg/L
		% RPD=	1.1%	% Max RPD= 15.1
Ethane	7/17/2013	474.30	457.00	mg/L
		% RPD=	3.7%	% Max RPD= 18
Ethene	7/17/2013	469.20	452.90	mg/L*
		% RPD=	3.5%	% Max RPD= 20.4
Propane	7/17/2013	483.70	468.00	mg/L
		% RPD=	3.3%	% Max RPD= 18.4

Method Spike Summary: MEEP

	Sample 8994-3				
	Date	MS Sample	MSD Recovery	Control Limits	Spike conc
Methane MS/MSD	7/17/2013	92.60%	90.66%	75.9-119.3%	500.0
Ethane MS/MSD	7/17/2013	94.86%	91.40%	70.52-129.8%	500.0
Ethene MS/MSD	7/17/2013	93.84%	90.58%	73.2-123.4%	500.0
Propane MS/MSD	7/17/2013	96.74%	93.60%	74.3-129.5%	500.0

Sample Batch:volatile Fatty acids

<u>Lab ID</u>	<u>Analysis dates</u>
8994- 1	7/10/2013
8994- 2	7/10/2013
8994- 3	7/10/2013

Initial Calibration Summary: volatile fatty acids

Calibration Standard recoveries:

		Initial Calibration Date: 2/26/2013					R ² =
Std ppm		1.0	5.0	10.0	20.0	100.0	
Sample:							
Lactate		0.88	4.97	9.76	19.57	100.17	
	%rec	88.06	99.4	97.62	97.85	100.17	0.99990
Acetate*		1.15	6.04	11.42	21.73	84.14	
	%rec	115.00	120.78	114.20	108.65	168.28	0.99890
propionic		1.08	5.93	11.20	21.72	86.75	
	%rec	108.00	118.58	112.00	22.27	173.50	0.99890
Formic		1.00	5.55	10.47	20.82	99.58	
	%rec	100.00	110.98	104.66	18.61	102.10	0.99990
Pyruvic		0.72	4.43	8.94	18.85	101.30	
	%rec	72.2	88.58	89.39	94.25	101.3	0.99970
Valeric		1.15	6.34	12.17	23.53	97.53	
	%rec	115.00	126.84	121.70	117.65	97.07	0.99880

*linear curve only to 50 ppm

		Initial Calibration Date: 2/26/2013					R ² =
Std ppm		1.0	5.0	10.0	20.0	100.0	
Sample:							
n-butyric		0.96	5.42	10.76	20.82	100.30	
	%rec	95.90	108.40	107.60	104.10	100.04	0.99880

QC Check Date:		2/26/2013			Control Limits
Sample:	Std ppm	Obs ppm	% recovery		
QC Check-Lactic	50.0	49.86	99.7	75.0-130.0%	
QC Check-Acetic	50.0	48.92	97.8	75.0-130.0%	
QC Check-propionic	50.0	48.98	98.0	75.0-130.0%	
QC Check-formic	50.0	50.35	100.7	75.0-130.0%	
QC Check-pyruvic	50.0	48.18	96.4	75.0-130.0%	
QC Check-n-Valeric	50.0	52.95	105.9	75.0-130.0%	
QC Check-n-butyric	50.0	48.99	98.0	75.0-130.0%	

Calibration Verification Summary: VFAs

Check Standard recoveries:

Sample:	Date	Act Conc	Obs ppm	% recovery
Lactic Acid	7/10/2013	10.0	8.13	81.3 Control Limits: 65.5-110.4
Acetic Acid	7/10/2013	10.0	9.42	94.2 Control Limits: 87.52-132.7
Propionic Acid	7/10/2013	10.0	10.28	102.8 Control Limits: 80-134.8
FormicAcid	7/10/2013	5.0	4.28	85.6 Control Limits: 73.8-122.1
pyruvic	7/10/2013	5.0	6.39	127.8 Control Limits: 69.1-121.5
n-Valeric	7/10/2013	10.0	9.00	90.0 Control Limits: 79.2-136.8

Method Blank Summary: VFAs

Sample	Date	Concentration	Units	PQL
Lactic	7/10/2013	u	ppm	1.0
Acetic	7/10/2013	u	ppm	1.0
propionic	7/10/2013	u	ppm	1.0
Formic	7/10/2013	u	ppm	1.0
pyruvic	7/10/2013	u	ppm	1.0
n-Valeric	7/10/2013	u	ppm	1.0
n-butyric	7/10/2013	u	ppm	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: VFAs

LCS recoveries:

Sample:	Date	Act Conc	Obs ppm	% recovery
Acetic Acid	7/9/2013	5.0	4.07	81.4
			Control Limits: 87.52-132.7	
Propionic Acid	7/9/2013	5.0	4.57	91.4
			Control Limits: 80-134.8	
FormicAcid	7/9/2013	5.0	4.09	81.8
			Control Limits: 73.8-122.1	
n-butyric	7/9/2013	5.0	4.37	87.4
			Control Limits: 70.2-132	

Method Duplicates Summary: VFAs

Sample:	Batch MS/MSD 8992-5		MSD Result	Units
	Date	MS Result		
Lactic Acid MS/MSD	7/9/2013	85.4	82.2	mg/L
		% RPD= 3.8%		% Max RPD= 16.1%
Acetic Acid MS/MSD	7/9/2013	1,137.0	1,132.0	mg/L
		% RPD= 0.4%		% Max RPD= 16.9%
Propionic Acid MS/MSD	7/9/2013	941.0	944.6	mg/L
		% RPD= 0.4%		% Max RPD= 23.8%
Formic Acid MS/MSD	7/9/2013	109.1	106.8	mg/L
		% RPD= 2.1%		% Max RPD= 16.1%
Pyruvic Acid MS/MSD	7/9/2013	129.6	127.9	mg/L
		% RPD= 1.3%		% Max RPD= 15.2%
Valeric Acid MS/MSD	7/9/2013	243.1	225.7	mg/L
		% RPD= 7.4%		% Max RPD= 21.8%

Method Spike Summary: VFAs

Sample:	Batch MS/MSD 8992-5		MSD Recovery	Control Limits
	Date	MS Recovery		
Lactic Acid MS/MSD	7/9/2013	85.4%	82.2%	61.5-118.2%
Acetic Acid MS/MSD	7/9/2013	96.0%	91.0%	72.7-138.9%
Propionic Acid MS/MSD	7/9/2013	108.0%	111.6%	63.8-148.2%
Formic Acid MS/MSD	7/9/2013	109.1%	106.8%	70.3-135.2%
Pyruvic Acid MS/MSD	7/9/2013	109.6%	107.9%	65-116.6%
Valeric Acid MS/MSD	7/9/2013	115.2%	97.8%	79.3-134.3%

Sample Batch: Hydrogen

<u>Lab ID</u>	<u>Analysis date(s)</u>	<u>Lab ID</u>	<u>Analysis date</u>
8994- 1	7/11/2013		
8994- 2	7/11/2013		
8994- 3	7/11/2013		
8994- 4	7/11/2013		
8994- 5	7/11/2013		
8994- 6	7/11/2013		
8994- 7	7/11/2013		

Method Blank Summary: Hydrogen

<u>Sample</u>	<u>Date</u>	<u>Concentration</u>	<u>Units</u>	<u>PQL</u>
Blank-Hydrogen	7/11/2013	u	ppmv	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Initial Calibration Summary: Hydrogen

Calibration Standard recoveries:

Initial Calibration Date:		3/29/2013					
Sample:	Std ppm	1.0	5.0	20.0	50.0	100.0	R ² =
Hydrogen	0.99	4.96	207.00	46.70	91.10		
%rec	99.0	99.2	1035.0	93.4	91.1		0.99995

QC Check Date:	3/29/2013			Control Limits
Sample:	Std ppm-v	obs ppm-v	% recovery	
QC Check-Hydrog	2	2.08	104.0%	80-120%

Method Blank Summary: Hydrogen

Sample	Date	Concentration	Units	PQL
Blank-Hydrogen	3/29/2013	u	ppm-v	1.0

u: Compound not detected above Practical Quantitation Limit (PQL).

Calibration Verification Summary: Hydrogen

Check Standard recoveries:

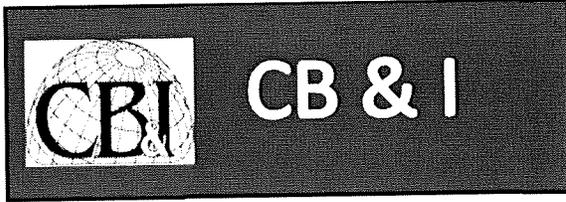
Sample:	Date	Std ppmv	Obs ppmv	% recovery
Hydrogen check	7/11/2013	10.0	9.96	99.6
			Control Limits:	73.8-133.9
Hydrogen check	7/8/2013	20.0	21.66	108.3
			Control Limits:	73.8-133.9

Method Duplicates Summary: H2

Sample:	8994-2			
	Date	dup Result	dup Result	Units
Batch dup	7/11/2013	23.18	23.11	ppmv
		RPD=	0.3%	
		% Max RPD=	27.2%	

Method Spike Summary:H2

Sample:	8994-2			
	Date	MS Recovery	MSD Recovery	Control Limits
Batch MS/MSD	7/11/2013	117.6%	116.9%	75-125%



17 Princess Rd
Lawrenceville, New Jersey 08648
Tel: 609/895-5370
Fax: 609/895-1858

Reduced Deliverable Package

**Prepared for
Indian Head Site 57**

**Lab ID
8994**

Project Number: 146395 02000000

**Samples Received
9-Jul-13**

**Report
22-Jul-13**

NJDEP Certified Lab 11001

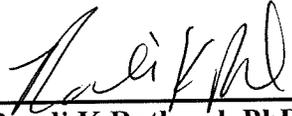

Randi K Rothmel, PhD 7/22/13
Laboratory Director Date

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1.0 General Information

Chain of Custody

Samples were received at Shaw E& I within required temperature and transportation requirements. Samples were received in good condition with custody seals intact. Internal and external chains of custody are enclosed for review. No peculiarities were observed during the chain of custody process.

8994

CHAIN-OF-CUSTODY RECORD

COC Number: 146395-060513
Purchase Order Number:



SHAW (A CB&I Company) - 500 E. Main Street, Suite 1630, Norfolk, VA 23510 - (757) 363-7190

Lab Designation: **CB&I Federal Services**
 Lab Receiving Address: **17 Princess Road, Lawrenceville, NJ 08648**
 Project Name: **Indian Head Site 57**
 Project Number: **146395**
 Client Rep: **NAVY**
 Shaw Contact: **Natasha Kelley Sullivan**
 Project Manager: **Bill Hughes**
 Shaw Contract Number: **(410)529-7598**
 Sample Location: **Ground Water Samples Day**

Item No.	Sample Number	Date	Time	Sample Description	Number of Containers	Hydrogen	Antlons	VFA	MEE	OVOC	Analysis Desired
1	S57IW03	7/8/13	10:32	X	S57IW03 1 x 125 clear glass 1:1 HCL 1 x 125 ml naigene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	HOLD
2	S57IW02	7/8/13	11:10	X	S57IW02 1 x 125 clear glass 1:1 HCL 1 x 125 ml naigene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
3	S57IW41	7/8/13	12:05	X	S57IW41 1 x 125 clear glass 1:1 HCL 1 x 125 ml naigene None 5 x 40 ml amber vial 1:1 HCL	X	X	X	X	X	
4	Trip Blank	7/8/13	-	X	Trip Blank 2 x 40 ml vial 1:1 HCL					X	
5	S57IW41	7/8/13	11:40	X	1st 5 min purge 1 x 125 ml HCL	X					X
6	S57IW02	7/8/13	10:50	X	1st 5 min purge 1 x 125 ml HCL	X					X
7	S57IW03	7/8/13	10:07	X	1st 5 min purge 1 x 125 ml HCL	X					X
8											

Lab Contact: Randy Rothmel
 Project Contact: Dave Lippincott
 Send Report To: Dave Lippincott

Turnaround Time Required: Sampled By: **Natasha Kelley Sullivan, CB&I** COMMENTS:
 Laboratory Report No.:

Transfer Number	Transfers Relinquished By	Date	Time	Transfers Accepted By	Date	Time	Remarks
1		7/8/13	15:35		7/9/13	10:30	Report Format: Summary Report Deliverables: EDD Excel
2							
3							
4							

*** Fax results to Natasha Sullivan (410) 529-7599

Methodology Review

in the analytical results section. Unless otherwise specified, water samples are analyzed for volatile organics by purge and trap GC/MS as specified in EPA Method 8260 or 624. Soil samples are prepared by 5035- methanol extraction prior to analysis by 5030. GC/MS nontargeted compounds are analyzed for only upon request using a library search of the EPA/NIST98 mass spectral library of compounds at the greatest apparent concentrations (>10%of the nearest internal standard) for a total of 15 hits.

Initial calibration standards are enclosed in calibration summary report

Data qualifiers are given below for clarification.

U- The compound was not detected at the indicated PQL concentration.

J- Approximate concentration of the compound. Detection of compound above calculated MDL but below the PQL of the analytical method. 99% confidence that the compound is present.

D- Diluted sample

B- The analyte was observed in laboratory blank as well as the sample -

E- Compound detected above the linear range of the curve. Value given is an estimated value.

Laboratory Chronicle

2 The sample injection log was verified for correct sample injection.

3 Samples were analyzed within the established holding times.

Date sampled	7/8/2013
Date received	7/9/2013
Initial Date analyzed	7/16/2013
Duration	8

Subsequent Date(s) analyzed

Duration

Date sampled

Date received

Initial Date analyzed

Duration

Duration

Subsequent Date(s) analyzed

Duration

Subsequent Date(s) analyzed

Duration

Subsequent Date(s) analyzed

Duration

Holding time	14 Days
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VOLATILE ORGANIC INSTRUMENT PERFORMANCE CHECK
BROMOFLUOROBENZENE (BFB)

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration: may06_2 Gc/Ms: 5971 Client:
 Lab File ID: JL16_01.D BFB Injection Date: 7/16/2013
 Instrument ID: 5971 BFB Injection Time: 8:39
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

m/e	ION ABUNDANCE CRITERIA	% RELATIVE ABUNDANCE
50	8.0 - 40.0% of mass 95	14.5
75	30.0 - 66.0% of mass 95	35.5
95	Base peak, 100% relative abundance	100.0
96	5.0 - 9.0% of mass 95	5.7
173	Less than 2.0% of mass 174	0.6 (0.6)1
174	50.0 - 120.0% of mass 95	89.5
175	4.0 - 9.0% of mass 174	6.3 (7.0)1
176	93.0 - 101.0% of mass 174	89.2 (99.7)1
177	5.0 - 9.0% of mass 176	6.2 (6.9)2

1-Value is % mass 174

2-Value is % mass 176

THIS CHECK APPLIES TO THE FOLLOWING SAMPLES, MS, MSD, BLANKS, AND STANDARDS:

	Sample:	LAB SAMPLE ID	LAB FILE ID	DATE ANALYZED	TIME ANALYZED
01	VSTDJL16	SPCC/CCCC	JL16_02.D	7/16/2013	9:14
02	QC CHK	QC CHK	JL16_03.D	7/16/2013	9:49
03	MBLK	BLK	JL16_04.D	7/16/2013	10:24
04	8994-01	8994-01 10.0 ML	8994_01.D	7/16/2013	10:58
05	8994-02	8994-02 10.0 ML	8994_02.D	7/16/2013	11:33
06	8994-03	8994-03 10.0 ML	8994_03.D	7/16/2013	12:08
07	8994-1	8994-1 * 84	8994_1.D	7/16/2013	12:43
08	8994-1MS	8994-1MS * 84	8994_1MS.D	7/16/2013	13:18
09	8994-1MSD	8994-1MSD * 84	8994_1SD.D	7/16/2013	13:53
10	8994-04	8994_04 10.0 ML	8994_4.D	7/16/2013	16:48

Laboratory Chronology cont.

LAB ID

8994- 1 S57IW03
8994- 2 S57IW02
8994- 3 S57MW41
8994- 4 Trip Blank

2.0. Sample Summaries

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-01 Sample ID: S57IW03
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_01.D 7/16/2013
8994_1.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13
Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
75-71-8	Dichlorodifluoromethane	07/16/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	07/16/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	07/16/13	3.0	J	10.0	1.0	0.91	5.0
74-83-9	bromomethane	07/16/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	07/16/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	07/16/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	07/16/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	07/16/13	1.5	J	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	175		10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	07/16/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	07/16/13	0.5	J	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	07/16/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	07/16/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	07/16/13	430	D	0.12	84.0	60.5	420
78-87-5	1,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	07/16/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	07/16/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	07/16/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	07/16/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	07/16/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	07/16/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	07/16/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-01 Sample ID: S571W03

Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_01.D 7/16/2013
8994_1.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	07/16/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	07/16/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	07/16/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	07/16/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	07/16/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	07/16/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	07/16/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	07/16/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	07/16/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	07/16/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	07/16/13	10.0	U	10.0	1.0	0.89	10.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-02 Sample ID: S57IW02
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_02.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	07/16/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	07/16/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	07/16/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	07/16/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	07/16/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	07/16/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	07/16/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	2.1	J	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	07/16/13	5.0	U	10.0	1.0	0.64	5.0
67-86-3	chloroform	07/16/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	07/16/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	07/16/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	07/16/13	22.7		10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	07/16/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	07/16/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	07/16/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	07/16/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	07/16/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	07/16/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	07/16/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-02 Sample ID: S57IW02

Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_02.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
98-82-8	isopropyl benzene (cumene)	07/16/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	07/16/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	07/16/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	07/16/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	07/16/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	07/16/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	07/16/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	07/16/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	07/16/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	07/16/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	07/16/13	10.0	U	10.0	1.0	0.89	10.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-03 Sample ID: S57MW41
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_03.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13
Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	07/16/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	07/16/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	07/16/13	1.2	J	10.0	1.0	0.91	5.0
74-83-9	bromomethane	07/16/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	07/16/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	07/16/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	07/16/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	11.4		10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	07/16/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	07/16/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	07/16/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	07/16/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	07/16/13	58.5		10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	07/16/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	07/16/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	07/16/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	07/16/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	07/16/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	07/16/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	07/16/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-03 Sample ID: S57MW41
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_03.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
98-82-8	isopropyl benzene (cumene)	07/16/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	07/16/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	07/16/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4--isopropyltoluene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	07/16/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	07/16/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	07/16/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	07/16/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	07/16/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	07/16/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	07/16/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	07/16/13	10.0	U	10.0	1.0	0.89	10.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-04 Sample ID: Tip Blank
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_4.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
75-71-8	Dichlorodifluoromethane	07/16/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	07/16/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	07/16/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	07/16/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	07/16/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	07/16/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	07/16/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	07/16/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	07/16/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	07/16/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	07/16/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	07/16/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	07/16/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	07/16/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	07/16/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylene (m/p)	07/16/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	07/16/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	07/16/13	5.0	U	10.0	1.0	0.86	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-04 Sample ID: Tip Blank
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Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) 8994_4.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/08/13Soil extract date: Date Received: 07/09/13

CAS NO.	Compound	Date	Concentration		Smp Amt mL	Dilution	MDL	PQL
		Analyzed	ug/L	Q				
98-82-8	isopropyl benzene (cumene)	07/16/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	07/16/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
103-65-1	n-propyl benzene	07/16/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	07/16/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	07/16/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	07/16/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	07/16/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	07/16/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	07/16/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	07/16/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	07/16/13	10.0	U	10.0	1.0	0.89	10.0

3.0 QA/QC Results

Tune Results

- 1 Instrument Tunes were performed every 12 hours.
 - 2 Tuning compound is 4 Bromofluorobenzene.
 - 3 BFB tune must meet criteria prior to the analysis of samples.
 - 4 See attached tune report(s).
BFB for Initial Calibration as well as for all SPCC/CCC runs included
-

Data File : C:\HPCHEM\1\DATA\JL16_13\JL16_01.D

Vial: 1

Acq On : 16 Jul 2013 8:39 am

Operator:

Sample : BFB

Inst : GC/MS 597

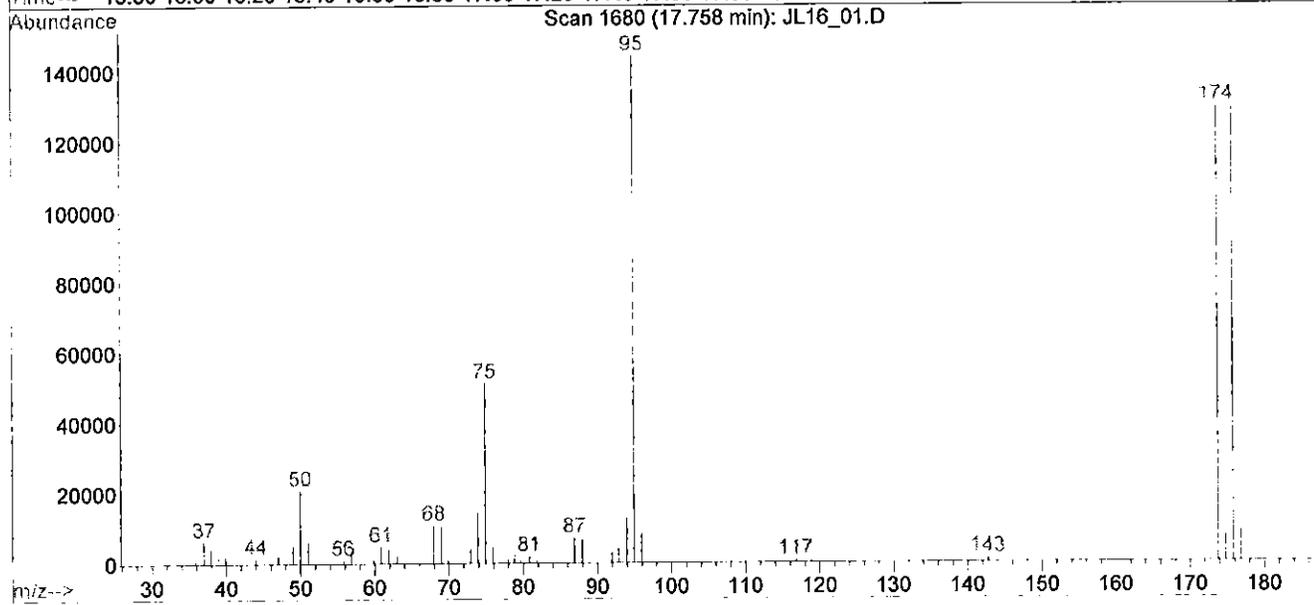
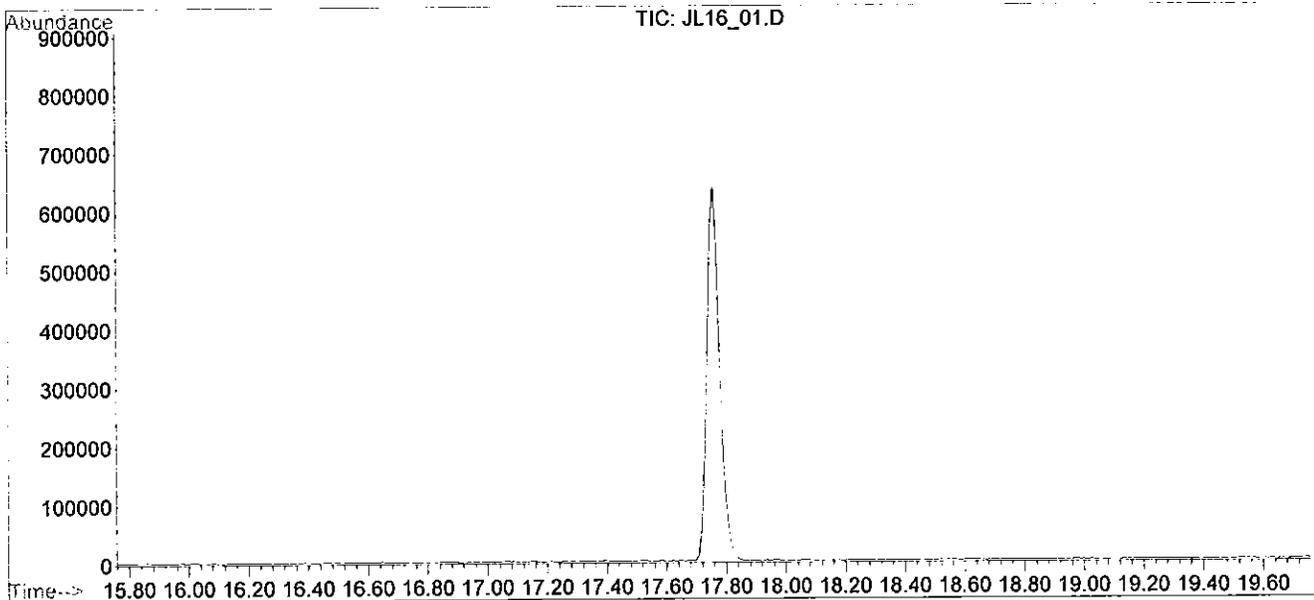
Misc :

Multiplr: 1.00

MS Integration Params: ODD.P

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11



Spectrum Information: Scan 1680

Target Mass	Rel. to Mass	Lower Limit%	Upper Limit%	Rel. Abn%	Raw Abn	Result Pass/Fail
50	95	10	40	14.5	20856	PASS
75	95	30	68	35.5	51200	PASS
95	95	100	100	100.0	144320	PASS
96	95	4	10	5.7	8231	PASS
173	174	0.00	2	0.6	810	PASS
174	95	50	99	89.5	129224	PASS
175	174	4	9	7.0	9025	PASS
176	174	92	105	99.7	128800	PASS
177	176	4	9	6.9	8942	PASS

Method Blank Summary

- 1 Method blanks were analyzed at the beginning and end of all sample sets.
 - 2 Method blanks indicated no TCL targeted organic compounds detected above the MDL.
 - 3 Blanks were analyzed within the requirements as established in the scope of work.
-

VOLATILE METHOD BLANK SUMMARY

mBlk

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client:
 Lab File ID: JL16_04.D Lab Sample ID: Blk
 Date Analyzed: 7/16/2013 Time Analyzed: 10:24
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N
 Instrument ID: 5971

THIS METHOD BLANK APPLIES TO THE FOLLOWING SAMPLES, MS AND MSD:

	Sample:	LAB SAMPLE ID	LAB FILE ID	TIME ANALYZED
01	QC CHK	QC CHK	JL16_03.D	9:49
02	8994-01	8994-01 10.0 ML	8994_01.D	10:58
03	8994-02	8994-02 10.0 ML	8994_02.D	11:33
04	8994-03	8994-03 10.0 ML	8994_03.D	12:08
05	8994-1	8994-1 * 84	8994_1.D	12:43
06	8994-1MS	8994-1MS * 84	8994_1MS.D	13:18
07	8994-1MSD	8994-1MSD * 84	8994_1SD.D	13:53
08	8994-04	8994_04 10.0 ML	8994_4.D	16:48

COMMENTS:

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: BLK 7-16-13 Sample ID: Method Blank

Matrix WATER Analyst AS%Moisture 100.00 Calib date: 5/6/2013 GC/MS 5971GC Column RTX-502.2 ID: 0.25 (mm) Lab File ID(s) JL16_04.D 7/16/2013Soil extract vol: Soil aliquot amt: Date Sampled: 07/16/13
Soil extract date: Date Received: 07/16/13

CAS NO.	Compound	Date	Concentration		Smp Amt mL	Dilution	MDL	PQL
		Analyzed	ug/L	Q				
75-71-8	Dichlorodifluoromethane	07/16/13	5.0	U	10.0	1.0	0.50	5.0
74-87-3	chloromethane	07/16/13	5.0	U	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	07/16/13	5.0	U	10.0	1.0	0.91	5.0
74-83-9	bromomethane	07/16/13	5.0	U	10.0	1.0	1.31	5.0
75-00-3	chloroethane	07/16/13	5.0	U	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	07/16/13	5.0	U	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	07/16/13	5.0	U	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2-Dichloroethylene	07/16/13	5.0	U	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	07/16/13	5.0	U	10.0	1.0	0.64	5.0
67-66-3	chloroform	07/16/13	5.0	U	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	07/16/13	5.0	U	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.67	5.0
71-43-2	benzene	07/16/13	5.0	U	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	07/16/13	5.0	U	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	07/16/13	5.0	U	10.0	1.0	0.58	5.0
10061-01-5	cis-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.82	5.0
108-88-3	toluene	07/16/13	5.0	U	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	07/16/13	5.0	U	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	07/16/13	5.0	U	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	07/16/13	5.0	U	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	07/16/13	5.0	U	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	07/16/13	5.0	U	10.0	1.0	0.76	5.0
95-47-6	o-xylene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
100-42-5	styrene	07/16/13	5.0	U	10.0	1.0	0.31	5.0
75-25-2	bromoform	07/16/13	5.0	U	10.0	1.0	0.86	5.0
98-82-8	isopropyl benzene (cumene)	07/16/13	5.0	U	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	07/16/13	5.0	U	10.0	1.0	0.24	5.0
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	5.0	U	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	07/16/13	5.0	U	10.0	1.0	0.65	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) JL16_04.D 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/16/13

Soil extract date:

Date Received: 07/16/13

Sample Information Laboratory ID: BLK 7-16-13 Sample ID: Method Blank

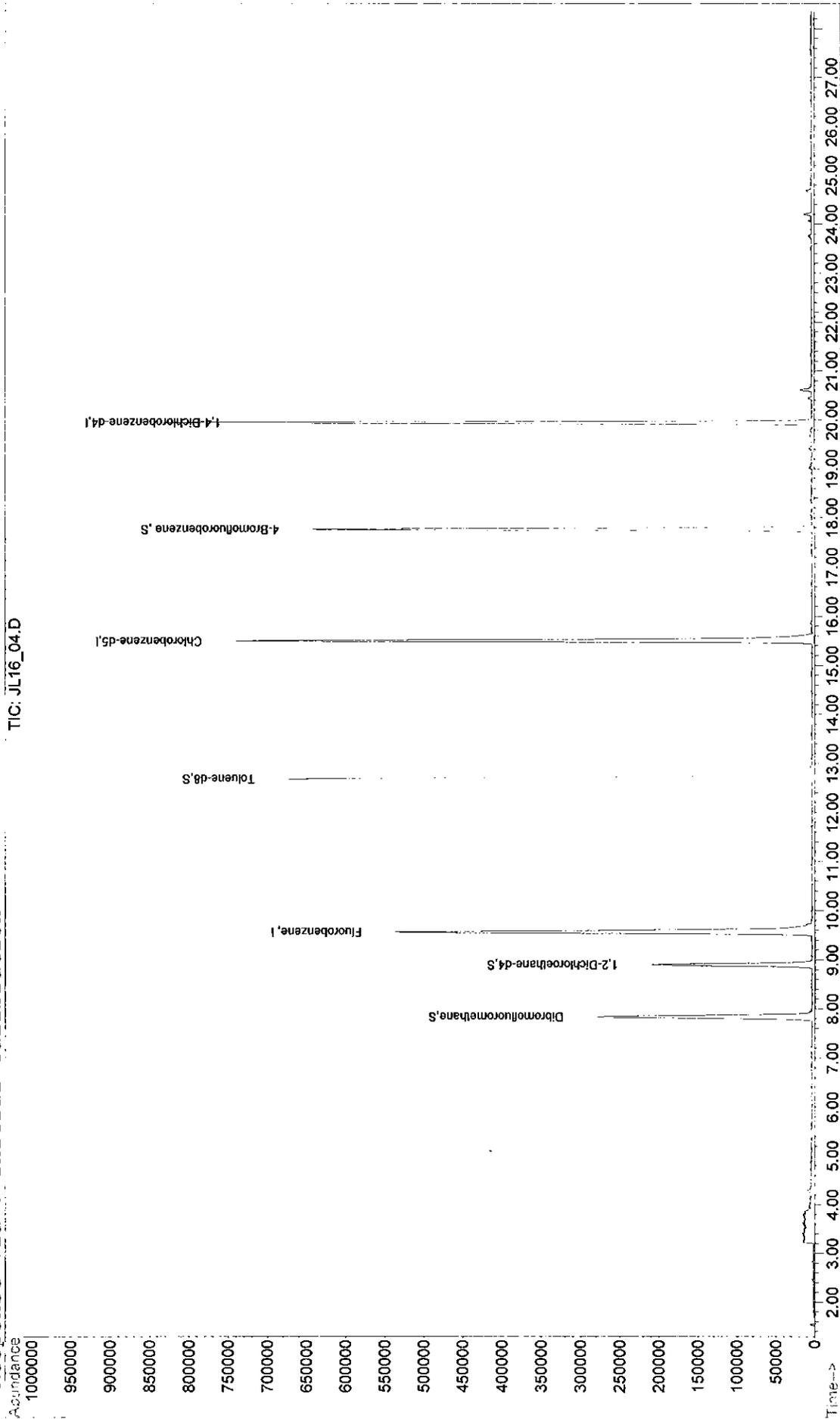
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	07/16/13	5.0	U	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	07/16/13	5.0	U	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	07/16/13	5.0	U	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	07/16/13	5.0	U	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	07/16/13	5.0	U	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	5.0	U	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	07/16/13	5.0	U	10.0	1.0	0.48	5.0
91-20-3	naphthalene	07/16/13	5.0	U	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	07/16/13	5.0	U	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	07/16/13	5.0	U	10.0	1.0	0.65	5.0
67-64-1	Acetone	07/16/13	10.0	U	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	07/16/13	5.0	U	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	07/16/13	10.0	U	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	07/16/13	10.0	U	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	10.0	U	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	07/16/13	10.0	U	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	07/16/13	10.0	U	10.0	1.0	0.89	10.0

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	07/16/13	25.94	4.14	25.0	103.76%
17060-07-(1,2-Dichloroethane-d4	07/16/13	23.17	6.61	25.0	92.68%
2037-26-5 Toluene-d8	07/16/13	26.73	2.84	25.0	106.92%
460-00-4 4-Bromofluorobenzene	07/16/13	26.54	1.81	25.0	106.16%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\JL16_04.D
Acq On : 16 Jul 2013 10:24 am
Sample : Blk
Misc :
MS Integration Params: ODD.P
Quant Time: Jul 22 11:31 2013
Vial: 4
Operator: GC/MS 597
Inst :
Multiplr: 1.00
Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



TIC: JL16_04.D

Calibration Summary

- 1 Targeted TCL volatile compounds met all required calibration criteria.
 - 2 A QC check standard was analyzed after the initial calibration to validate the accuracy of the curve. The recoveries are shown as attached in this section. The QC check is prepared from a differing manufacturer of the targeted organic compounds at a 20 ppb concentration. LCS is run at 25 ppb
 - 3 Continuing calibrations were performed every 12 hours.
-

7A
VOLATILE CONTINUING CALIBRATION CHECK

0028

Lab Name: A.T.L Analyst: AS
 N.J.DEP. 11001 Calib. Dat 05/06/201 GC/MS: # 2 Client: NA
 Instrument ID: 5971 Calibration Date: 7/16/2013 Time: 9:14
 Lab File ID: JL16_02.D Init. Calib. Date(s): 5/6/2013 5/6/2013
 Heated Purge: (Y/N) N Init. Calib. Times: 8:37 11:31
 GC Column: RTX 502.2 ID: 0.25 (mm)

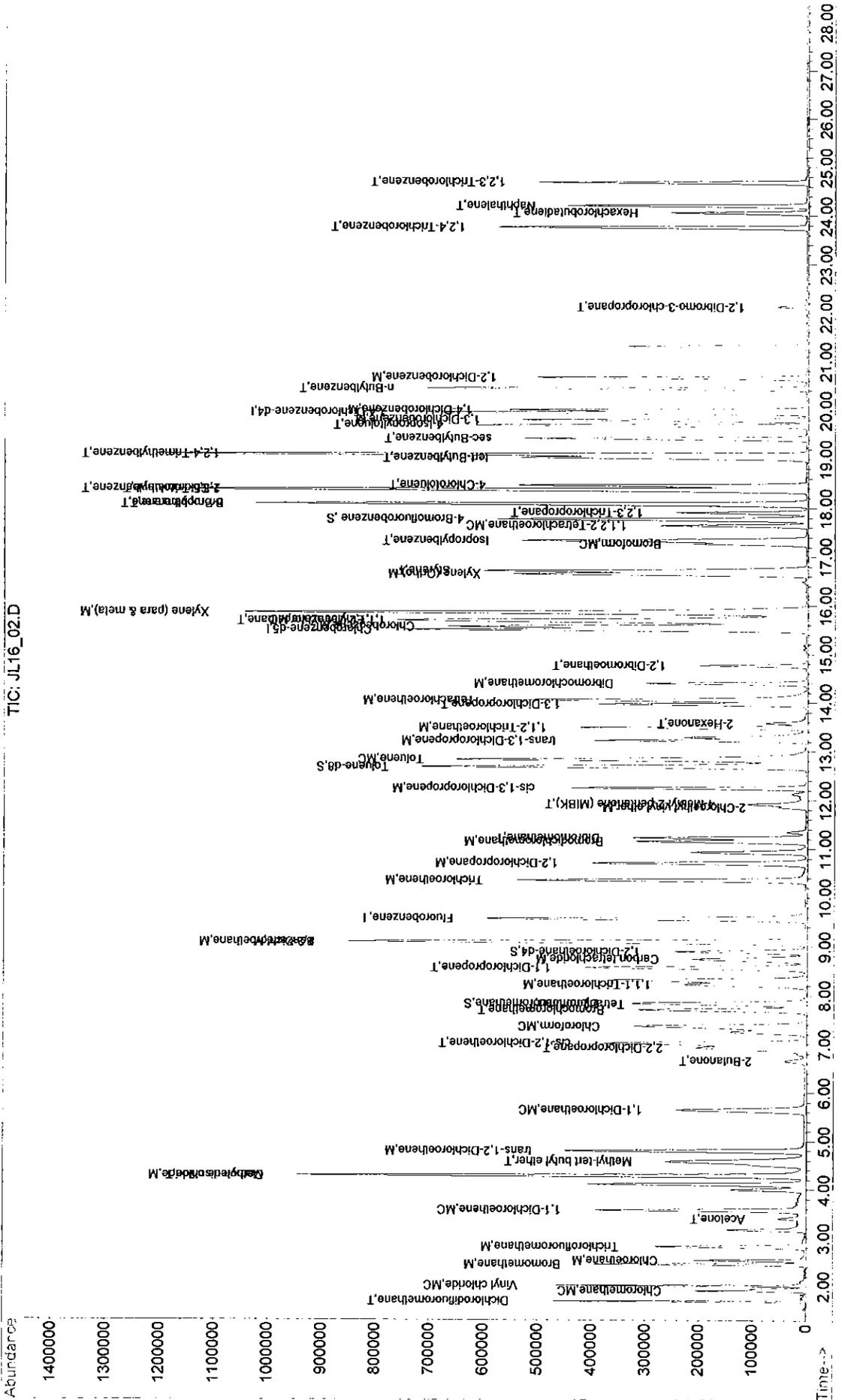
COMPOUND	RRF	RRF5	MIN RRF	% D	MAX % D
Chloromethane	0.357	0.368	0.100	-3.1	20.0
Vinyl chloride	0.319	0.361	0.100	-13.2	20.0
1,1-Dichloroethene	0.260	0.275	0.100	-5.9	20.0
1,1-Dichloroethane	0.539	0.564	0.100	-4.5	20.0
Chloroform	0.511	0.527	0.100	-3.1	20.0
Benzene	1.106	1.201		-8.6	
Trichloroethene	0.326	0.338		-3.8	
1,2-Dichloropropane	0.284	0.314		-10.4	
Toluene	0.675	0.697	0.100	-3.1	20.0
Chlorobenzene	1.034	0.972	0.100	6.1	20.0
Ethylbenzene	1.428	1.301		8.9	
Bromoform	0.205	0.188	0.100	8.0	20.0
1,1,2,2-Tetrachloroethane	0.322	0.328	0.100	-1.6	20.0
Dibromofluoromethane	0.315	0.327		-3.9	
1,2-Dichloroethane-d4	0.215	0.211		1.5	
Toluene-d8	0.904	0.959		-6.1	
4-Bromofluorobenzene	0.417	0.420		-0.6	

All other compounds must meet a minimum RRF of 0.010.

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\JL16_02.D Vial: 2
Acq On : 16 Jul 2013 9:14 am Operator:
Sample : spcc/cccc Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jul 22 11:35 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column: RTX-502.2ID: 0.25 (mm)Lab File ID(s) JL16_03.D 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/16/13

Soil extract date:

Date Received: 07/16/13

Sample Information Laboratory ID: QC 7-16-13 Sample ID: LCS

CAS NO.	Compound	Date Analyzed	Concentration ug/L Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	07/16/13	21.3	10.0	1.0	0.50	5.0
74-87-3	chloromethane	07/16/13	24.0	10.0	1.0	0.53	5.0
75-01-4	vinyl chloride	07/16/13	24.4	10.0	1.0	0.91	5.0
74-83-9	bromomethane	07/16/13	20.2	10.0	1.0	1.31	5.0
75-00-3	chloroethane	07/16/13	23.5	10.0	1.0	0.82	5.0
75-69-4	trichlorofluoromethane	07/16/13	21.4	10.0	1.0	1.82	5.0
75-35-4	1,1-dichloroethylene	07/16/13	23.1	10.0	1.0	0.54	5.0
75-09-2	methylene chloride	07/16/13	23.3	10.0	1.0	0.63	5.0
156-60-5	trans-1,2-dichloroethylene	07/16/13	23.1	10.0	1.0	0.63	5.0
75-34-3	1,1-dichloroethane	07/16/13	22.8	10.0	1.0	0.30	5.0
594-20-7	2,2-dichloropropane	07/16/13	22.6	10.0	1.0	1.21	5.0
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	22.8	10.0	1.0	0.83	5.0
74-97-5	bromochloromethane	07/16/13	21.8	10.0	1.0	0.64	5.0
67-66-3	chloroform	07/16/13	21.7	10.0	1.0	0.80	5.0
71-55-6	1,1,1-trichloroethane	07/16/13	21.5	10.0	1.0	0.54	5.0
56-23-5	carbon tetrachloride	07/16/13	21.8	10.0	1.0	0.86	5.0
563-58-6	1,1-dichloropropene	07/16/13	22.2	10.0	1.0	0.67	5.0
71-43-2	benzene	07/16/13	22.8	10.0	1.0	1.23	5.0
107-06-2	1,2-dichloroethane	07/16/13	19.7	10.0	1.0	0.41	5.0
79-01-6	trichloroethylene	07/16/13	22.4	10.0	1.0	0.72	5.0
78-87-5	1,2-dichloropropane	07/16/13	22.8	10.0	1.0	0.52	5.0
74-95-3	dibromomethane	07/16/13	21.3	10.0	1.0	0.28	5.0
75-27-4	bromodichloromethane	07/16/13	21.1	10.0	1.0	0.58	5.0
10061-01-6	cis-1,3-dichloropropene	07/16/13	22.4	10.0	1.0	0.82	5.0
108-88-3	toluene	07/16/13	22.5	10.0	1.0	0.50	5.0
10061-02-6	trans-1,3-dichloropropene	07/16/13	21.4	10.0	1.0	0.25	5.0
79-00-5	1,1,2-trichloroethane	07/16/13	20.9	10.0	1.0	0.65	5.0
127-18-4	tetrachloroethylene	07/16/13	19.5	10.0	1.0	1.16	5.0
142-28-9	1,3-dichloropropane	07/16/13	21.5	10.0	1.0	0.37	5.0
124-48-1	Dibromochloromethane	07/16/13	20.3	10.0	1.0	0.25	5.0
106-93-4	1,2-Dibromoethane	07/16/13	21.8	10.0	1.0	0.41	5.0
108-90-7	chlorobenzene	07/16/13	19.7	10.0	1.0	0.40	5.0
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	19.6	10.0	1.0	0.23	5.0
100-41-4	ethylbenzene	07/16/13	20.3	10.0	1.0	0.36	5.0
1330-20-7	xylenes (m/p)	07/16/13	20.7	10.0	1.0	0.76	5.0
95-47-6	o-xylene	07/16/13	20.7	10.0	1.0	0.25	5.0
100-42-5	styrene	07/16/13	20.3	10.0	1.0	0.31	5.0
75-25-2	bromoform	07/16/13	15.5	10.0	1.0	0.86	5.0
98-82-8	isopropyl benzene (cumene)	07/16/13	20.6	10.0	1.0	0.25	5.0
108-86-1	bromobenzene	07/16/13	19.9	10.0	1.0	0.24	5.0
79-34-5	1,1,1,2-tetrachloroethane	07/16/13	18.6	10.0	1.0	0.48	5.0
96-18-4	1,2,3-trichloropropane	07/16/13	17.7	10.0	1.0	0.65	5.0

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) JL16_03.D 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/16/13

Soil extract date:

Date Received: 07/16/13

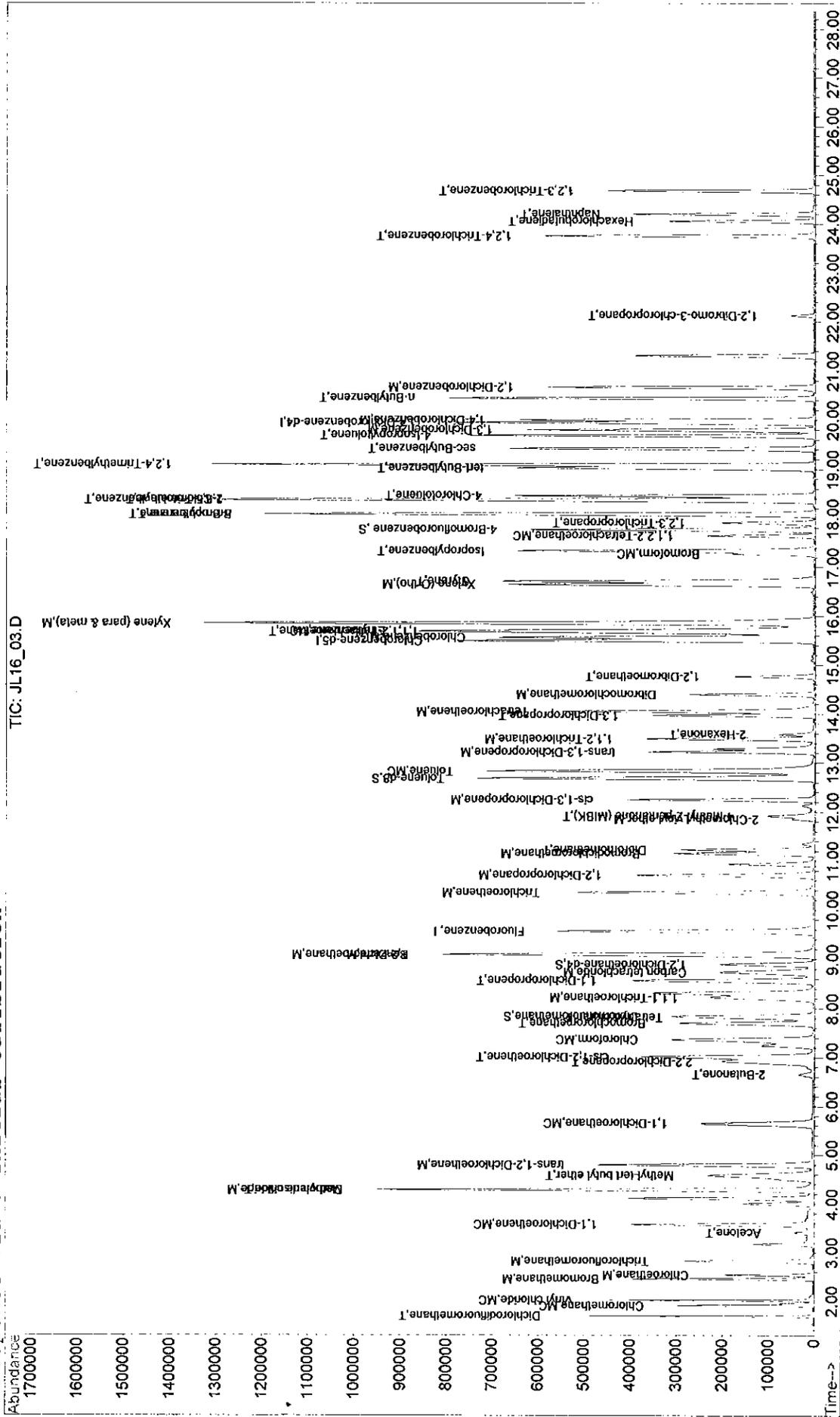
CAS NO.	Compound	Date Analyzed	Concentration ug/L Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	07/16/13	21.2	10.0	1.0	0.34	5.0
95-49-8	2-chlorotoluene	07/16/13	21.2	10.0	1.0	0.25	5.0
106-43-4	4-chlorotoluene	07/16/13	20.7	10.0	1.0	0.30	5.0
108-67-8	1,3,5-trimethylbenzene	07/16/13	21.3	10.0	1.0	0.22	5.0
98-06-6	tert-butylbenzene	07/16/13	22.0	10.0	1.0	0.28	5.0
95-63-6	1,2,4-trimethylbenzene	07/16/13	20.8	10.0	1.0	0.20	5.0
135-98-8	sec-butylbenzene	07/16/13	21.4	10.0	1.0	0.43	5.0
541-73-1	1,3-dichlorobenzene	07/16/13	20.4	10.0	1.0	0.49	5.0
99-87-6	4-isopropyltoluene	07/16/13	20.9	10.0	1.0	0.49	5.0
106-46-7	1,4-dichlorobenzene	07/16/13	18.9	10.0	1.0	0.40	5.0
95-50-1	1,2-dichlorobenzene	07/16/13	19.0	10.0	1.0	0.37	5.0
104-51-8	n-butylbenzene	07/16/13	19.9	10.0	1.0	0.36	5.0
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	14.6	10.0	1.0	2.41	5.0
120-82-1	1,2,4-trichlorobenzene	07/16/13	17.9	10.0	1.0	0.37	5.0
87-68-3	hexachlorobutadiene	07/16/13	19.9	10.0	1.0	0.48	5.0
91-20-3	naphthalene	07/16/13	15.8	10.0	1.0	0.53	5.0
87-61-6	1,2,3-trichlorobenzene	07/16/13	16.5	10.0	1.0	0.65	5.0
1634-04-4	Methyl tertiary butyl ether	07/16/13	16.7	10.0	1.0	0.65	5.0
67-64-1	Acetone	07/16/13	17.5	10.0	1.0	1.30	10.0
75-15-0	carbon disulfide	07/16/13	19.3	10.0	1.0	0.72	5.0
78-93-3	2-Butanone (MEK)	07/16/13	15.3	10.0	1.0	1.13	10.0
109-99-9	Tetrahydrofuran (THF)	07/16/13	16.0	10.0	1.0	1.67	10.0
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	16.9	10.0	1.0	0.46	10.0
591-78-6	2-hexanone	07/16/13	16.1	10.0	1.0	0.67	10.0
110-75-8	2-chloroethyl vinyl ether	07/16/13	14.9	10.0	1.0	0.89	10.0

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	07/16/13	26.13	4.14	25.0	104.52%
17060-07-(1,2-Dichloroethane-d4	07/16/13	22.72	6.61	25.0	90.88%
2037-26-5 Toluene-d8	07/16/13	26.67	2.84	25.0	106.68%
460-00-4 4-Bromofluorobenzene	07/16/13	26.42	1.81	25.0	105.68%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\JL16_03.D
Acq On : 16 Jul 2013 9:49 am
Sample : Qc Chk
Misc :
MS Integration Params: ODD.P
Quant Time: Jul 22 11:36 2013
Vial: 3
Operator: GC/MS 597
Inst :
Multiplr: 1.00
Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Surrogate Summary

- 1 Surrogate recoveries are enclosed.

WATER VOLATILE SYSTEM MONITORING COMPOUND RECOVERY

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibratio may06_2 Gc/Ms: 5971 Client: _____

	Sample:	SMC1 DBFM #	SMC2 DCE #	SMC3 TD8 #	SMC4 (BFB) #	TOT OUT
01	QC CHK	105	91	107	106	0
02	MBLK	104	93	107	106	0
03	8994-01	102	93	109	111	0
04	8994-02	103	92	107	101	0
05	8994-03	103	94	106	104	0
06	8994-1	104	94	107	106	0
07	8994-1MS	105	91	106	106	0
08	8994-1MSD	104	90	107	106	0
09	8994-04	105	93	103	102	0

QC LIMITS

SMC1 DBFM = Dibromofluoromethane (80-120)
 SMC2 DCE = 1,2-Dichloroethane-d4 (80-120)
 SMC3 TD8 = Toluene-d8 (80-120)
 SMC4 (BFB) = 4-Bromofluorobenzene (80-120)

Column to be used to flag recovery values

* Values outside of contract required QC limits

D System Monitoring Compound diluted out

MS/MSD Summary

1 MS/MSD recoveries are enclosed.

WATER VOLATILE MATRIX SPIKE/MATRIX SPIKE DUPLICATE RECOVERY

0036

Lab Name: ATL Analyzed: TSNJ DEP #: 11001 Calibration may06_2 Gc/Ms: 5971 Client: _____Matrix Spike - Sample: 8994-1

COMPOUND	SPIKE ADDED (ug/L)	SAMPLE CONCENTRATION (ug/L)	MS CONCENTRATION (ug/L)	MS % REC #	QC LIMITS REC.
1,1-Dichloroethene	20	0.0	22	110	70 - 130
Benzene	20	0.0	23	115	70 - 130
Trichloroethene	20	430	27	0 *	70 - 130
Toluene	20	0.0	22	110	70 - 130
Chlorobenzene	20	0.0	20	100	75 - 130

COMPOUND	SPIKE ADDED (ug/L)	MSD CONCENTRATION (ug/L)	MSD % REC #	% RPD #	QC LIMITS	
					RPD	REC.
1,1-Dichloroethene	20	22	110	0	25	70 - 130
Benzene	20	22	110	4	25	70 - 130
Trichloroethene	20	27	0 *	0	25	70 - 130
Toluene	20	22	110	0	25	70 - 130
Chlorobenzene	20	19	95	5	25	75 - 130

Column to be used to flag recovery and RPD values with an asterisk

* Values outside of QC limits

RPD: 0 out of 5 outside limits

Spike Recovery: 2 out of 10 outside limits

COMMENTS: _____

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8994-01ms Sample ID: MS

NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8994_1MS 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/02/13

Soil extract date:

Date Received: 07/02/13

CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
75-71-8	Dichlorodifluoromethane	07/16/13	1810	D	0.12	84.0	42.0	420
74-87-3	chloromethane	07/16/13	1970	D	0.12	84.0	44.5	420
75-01-4	vinyl chloride	07/16/13	2000	D	0.12	84.0	76.4	420
74-83-9	bromomethane	07/16/13	1630	D	0.12	84.0	110.0	420
75-00-3	chloroethane	07/16/13	1970	D	0.12	84.0	68.9	420
75-69-4	trichlorofluoromethane	07/16/13	1730	D	0.12	84.0	152.9	420
75-35-4	1,1-dichloroethylene	07/16/13	1860	D	0.12	84.0	45.4	420
75-09-2	methylene chloride	07/16/13	1900	D	0.12	84.0	52.9	420
156-60-5	trans-1,2-dichloroethylene	07/16/13	1900	D	0.12	84.0	52.9	420
75-34-3	1,1-dichloroethane	07/16/13	1870	D	0.12	84.0	25.2	420
594-20-7	2,2-dichloropropane	07/16/13	1720	D	0.12	84.0	101.6	420
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	2050	D	0.12	84.0	69.7	420
74-97-5	bromochloromethane	07/16/13	1830	D	0.12	84.0	53.8	420
67-66-3	chloroform	07/16/13	1790	D	0.12	84.0	67.2	420
71-55-6	1,1,1-trichloroethane	07/16/13	1700	D	0.12	84.0	45.4	420
56-23-5	carbon tetrachloride	07/16/13	1750	D	0.12	84.0	72.2	420
563-58-6	1,1-dichloropropene	07/16/13	1860	D	0.12	84.0	56.3	420
71-43-2	benzene	07/16/13	1900	D	0.12	84.0	103.3	420
107-06-2	1,2-dichloroethane	07/16/13	1730	D	0.12	84.0	34.4	420
79-01-6	trichloroethylene	07/16/13	2260	D	0.12	84.0	60.5	420
78-87-5	1,2-dichloropropane	07/16/13	1860	D	0.12	84.0	43.7	420
74-95-3	dibromomethane	07/16/13	1820	D	0.12	84.0	23.5	420
75-27-4	bromodichloromethane	07/16/13	1730	D	0.12	84.0	48.7	420
10061-01-5	cis-1,3-dichloropropene	07/16/13	1820	D	0.12	84.0	68.9	420
108-88-3	toluene	07/16/13	1850	D	0.12	84.0	42.0	420
10061-02-6	trans-1,3-dichloropropene	07/16/13	1740	D	0.12	84.0	21.0	420
79-00-5	1,1,2-trichloroethane	07/16/13	1750	D	0.12	84.0	54.6	420
127-18-4	tetrachloroethylene	07/16/13	1660	D	0.12	84.0	97.4	420
142-28-9	1,3-dichloropropane	07/16/13	1800	D	0.12	84.0	31.1	420
124-48-1	Dibromochloromethane	07/16/13	1650	D	0.12	84.0	21.0	420
106-93-4	1,2-Dibromoethane	07/16/13	1810	D	0.12	84.0	34.4	420
108-90-7	chlorobenzene	07/16/13	1650	D	0.12	84.0	33.6	420
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	1540	D	0.12	84.0	19.3	420
100-41-4	ethylbenzene	07/16/13	1680	D	0.12	84.0	30.2	420
1330-20-7	xylenes (m/p)	07/16/13	1660	D	0.12	84.0	63.8	420
95-47-6	o-xylene	07/16/13	1670	D	0.12	84.0	21.0	420
100-42-5	styrene	07/16/13	1590	D	0.12	84.0	26.0	420
75-25-2	bromoform	07/16/13	1380	D	0.12	84.0	72.2	420
98-82-8	isopropyl benzene (cumene)	07/16/13	1670	D	0.12	84.0	21.0	420
108-86-1	bromobenzene	07/16/13	1610	D	0.12	84.0	20.2	420
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	1560	D	0.12	84.0	40.3	420
96-18-4	1,2,3-trichloropropane	07/16/13	1480	D	0.12	84.0	54.6	420

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAWNJ DEP # 11001

Sample Information Laboratory ID: 8994-01ms Sample ID: MS

Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8994_1MS 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/02/13

Soil extract date:

Date Received: 07/02/13

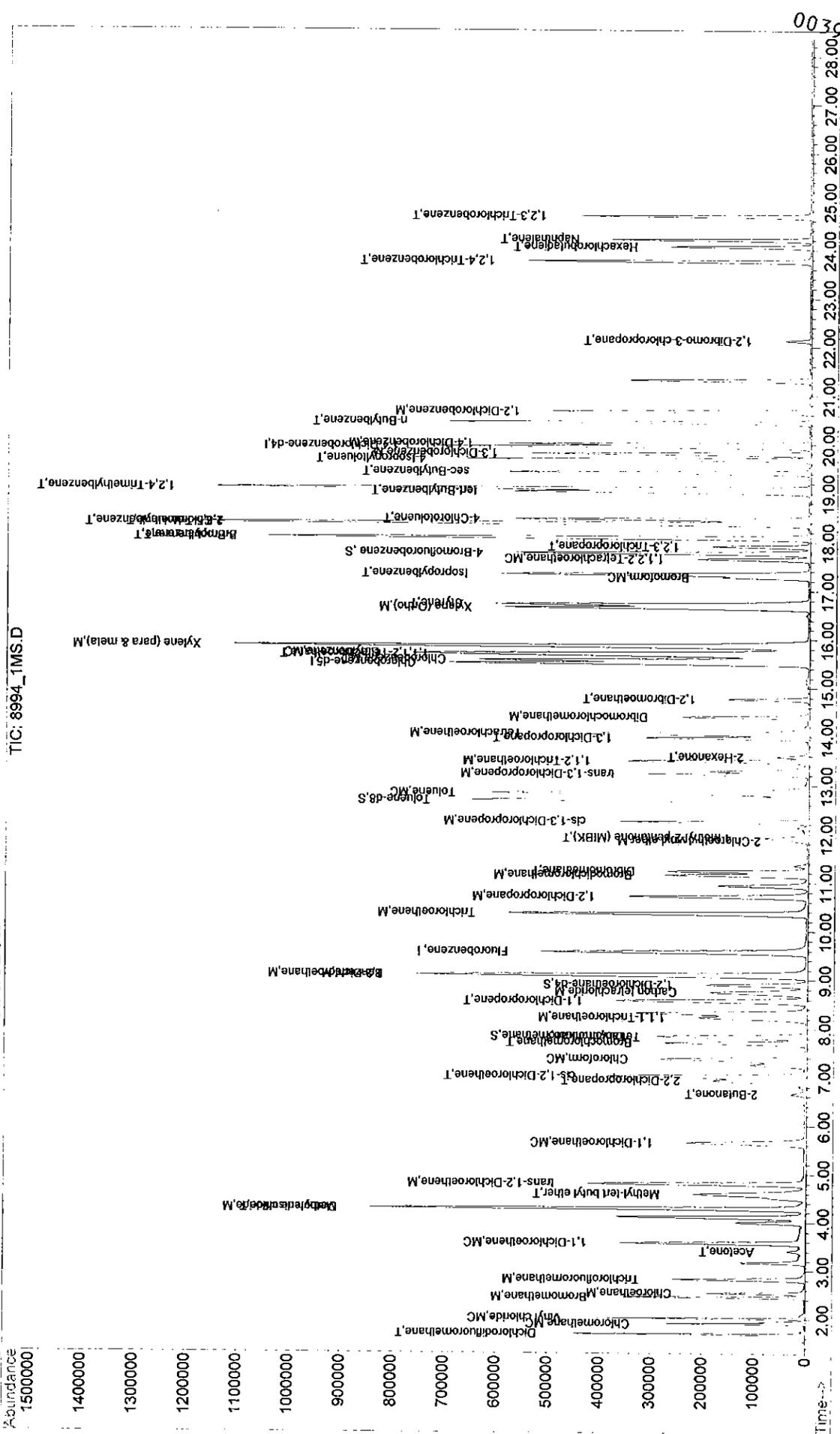
CAS NO.	Compound	Date Analyzed	Concentration ug/L	Q	Smp Amt mL	Dilution	MDL	PQL
103-65-1	n-propyl benzene	07/16/13	1690	D	0.12	84.0	28.6	420
95-49-8	2-chlorotoluene	07/16/13	1720	D	0.12	84.0	21.0	420
106-43-4	4-chlorotoluene	07/16/13	1600	D	0.12	84.0	25.2	420
108-67-8	1,3,5-trimethylbenzene	07/16/13	1690	D	0.12	84.0	18.5	420
98-06-6	tert-butylbenzene	07/16/13	1690	D	0.12	84.0	23.5	420
95-63-6	1,2,4-trimethylbenzene	07/16/13	1650	D	0.12	84.0	16.8	420
135-98-8	sec-butylbenzene	07/16/13	1690	D	0.12	84.0	36.1	420
541-73-1	1,3-dichlorobenzene	07/16/13	1640	D	0.12	84.0	41.2	420
99-87-6	4-isopropyltoluene	07/16/13	1660	D	0.12	84.0	41.2	420
106-46-7	1,4-dichlorobenzene	07/16/13	1540	D	0.12	84.0	33.6	420
95-50-1	1,2-dichlorobenzene	07/16/13	1530	D	0.12	84.0	31.1	420
104-51-8	n-butylbenzene	07/16/13	1610	D	0.12	84.0	30.2	420
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	1410	D	0.12	84.0	202.4	420
120-82-1	1,2,4-trichlorobenzene	07/16/13	1500	D	0.12	84.0	31.1	420
87-68-3	hexachlorobutadiene	07/16/13	1500	D	0.12	84.0	40.3	420
91-20-3	naphthalene	07/16/13	1340	D	0.12	84.0	44.5	420
87-61-6	1,2,3-trichlorobenzene	07/16/13	1440	D	0.12	84.0	54.6	420
1634-04-4	Methyl tertiary butyl ether	07/16/13	1350	D	0.12	84.0	54.6	420
67-64-1	Acetone	07/16/13	1110	D	0.12	84.0	109.2	840
75-15-0	carbon disulfide	07/16/13	1570	D	0.12	84.0	60.5	420
78-93-3	2-Butanone (MEK)	07/16/13	1230	D	0.12	84.0	94.9	840
109-99-9	Tetrahydrofuran (THF)	07/16/13	1380	D	0.12	84.0	140.3	840
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	1420	D	0.12	84.0	38.6	840
591-78-6	2-hexanone	07/16/13	1200	D	0.12	84.0	56.3	840
110-75-8	2-chloroethyl vinyl ether	07/16/13	920	D	0.12	84.0	74.8	840

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	07/16/13	26.14	4.14	25.0	104.56%
17060-07-0 1,2-Dichloroethane-d4	07/16/13	22.85	6.61	25.0	91.40%
2037-26-5 Toluene-d8	07/16/13	26.57	2.84	25.0	106.28%
460-00-4 4-Bromofluorobenzene	07/16/13	26.60	1.81	25.0	106.40%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_1MS.D Vial: 9
Acq On : 16 Jul 2013 1:18 pm Operator: GC/MS 597
Sample : 8994-1ms * 84 Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jul 22 11:30 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8994-01msd Sample ID: MSD

NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8994_1SD. 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/02/13

Soil extract date:

Date Received: 07/02/13

CAS NO.	Compound	Date Analyzed	Concentration		Smp Amt mL	Dilution	MDL	PQL
			ug/L	Q				
75-71-8	Dichlorodifluoromethane	07/16/13	1680	D	0.12	84.0	42.0	420
74-87-3	chloromethane	07/16/13	1920	D	0.12	84.0	44.5	420
75-01-4	vinyl chloride	07/16/13	1980	D	0.12	84.0	76.4	420
74-83-9	bromomethane	07/16/13	1710	D	0.12	84.0	110.0	420
75-00-3	chloroethane	07/16/13	1930	D	0.12	84.0	68.9	420
75-69-4	trichlorofluoromethane	07/16/13	1670	D	0.12	84.0	152.9	420
75-35-4	1,1-dichloroethylene	07/16/13	1840	D	0.12	84.0	45.4	420
75-09-2	methylene chloride	07/16/13	1900	D	0.12	84.0	52.9	420
156-60-5	trans-1,2-dichloroethylene	07/16/13	1860	D	0.12	84.0	52.9	420
75-34-3	1,1-dichloroethane	07/16/13	1840	D	0.12	84.0	25.2	420
594-20-7	2,2-dichloropropane	07/16/13	1620	D	0.12	84.0	101.6	420
156-59-2	Cis 1,2- Dichloroethylene	07/16/13	2050	D	0.12	84.0	69.7	420
74-97-5	bromochloromethane	07/16/13	1830	D	0.12	84.0	53.8	420
67-66-3	chloroform	07/16/13	1750	D	0.12	84.0	67.2	420
71-55-6	1,1,1-trichloroethane	07/16/13	1690	D	0.12	84.0	45.4	420
56-23-5	carbon tetrachloride	07/16/13	1690	D	0.12	84.0	72.2	420
563-58-6	1,1-dichloropropene	07/16/13	1810	D	0.12	84.0	56.3	420
71-43-2	benzene	07/16/13	1880	D	0.12	84.0	103.3	420
107-06-2	1,2-dichloroethane	07/16/13	1700	D	0.12	84.0	34.4	420
79-01-6	trichloroethylene	07/16/13	2250	D	0.12	84.0	60.5	420
78-87-5	1,2-dichloropropane	07/16/13	1860	D	0.12	84.0	43.7	420
74-95-3	dibromomethane	07/16/13	1810	D	0.12	84.0	23.5	420
75-27-4	bromodichloromethane	07/16/13	1690	D	0.12	84.0	48.7	420
10061-01-5	cis-1,3-dichloropropene	07/16/13	1860	D	0.12	84.0	68.9	420
108-88-3	toluene	07/16/13	1870	D	0.12	84.0	42.0	420
10061-02-6	trans-1,3-dichloropropene	07/16/13	1830	D	0.12	84.0	21.0	420
79-00-5	1,1,2-trichloroethane	07/16/13	1840	D	0.12	84.0	54.6	420
127-18-4	tetrachloroethylene	07/16/13	1570	D	0.12	84.0	97.4	420
142-28-9	1,3-dichloropropane	07/16/13	1890	D	0.12	84.0	31.1	420
124-48-1	Dibromochloromethane	07/16/13	1750	D	0.12	84.0	21.0	420
106-93-4	1,2-Dibromoethane	07/16/13	1890	D	0.12	84.0	34.4	420
108-90-7	chlorobenzene	07/16/13	1640	D	0.12	84.0	33.6	420
630-20-6	1,1,1,2-tetrachloroethane	07/16/13	1560	D	0.12	84.0	19.3	420
100-41-4	ethylbenzene	07/16/13	1660	D	0.12	84.0	30.2	420
1330-20-7	xylenes (m/p)	07/16/13	1700	D	0.12	84.0	63.8	420
95-47-6	o-xylene	07/16/13	1750	D	0.12	84.0	21.0	420
100-42-5	styrene	07/16/13	1700	D	0.12	84.0	26.0	420
75-25-2	bromoform	07/16/13	1450	D	0.12	84.0	72.2	420
98-82-8	isopropyl benzene (cumene)	07/16/13	1730	D	0.12	84.0	21.0	420
108-86-1	bromobenzene	07/16/13	1620	D	0.12	84.0	20.2	420
79-34-5	1,1,2,2-tetrachloroethane	07/16/13	1610	D	0.12	84.0	40.3	420
96-18-4	1,2,3-trichloropropane	07/16/13	1500	D	0.12	84.0	54.6	420

CB&I VOC 8260B SUMMARY DATA SHEET

Lab Name SHAW

Sample Information Laboratory ID: 8994-01msd Sample ID: MSD

NJ DEP # 11001Matrix WATERAnalyst AS%Moisture 100.00Calib date: 5/6/2013GC/MS 5971GC Column RTX-502.2ID: 0.25 (mm)Lab File ID(s) 8994_1SD. 7/16/2013

Soil extract vol:

Soil aliquot amt:

Date Sampled: 07/02/13

Soil extract date:

Date Received: 07/02/13

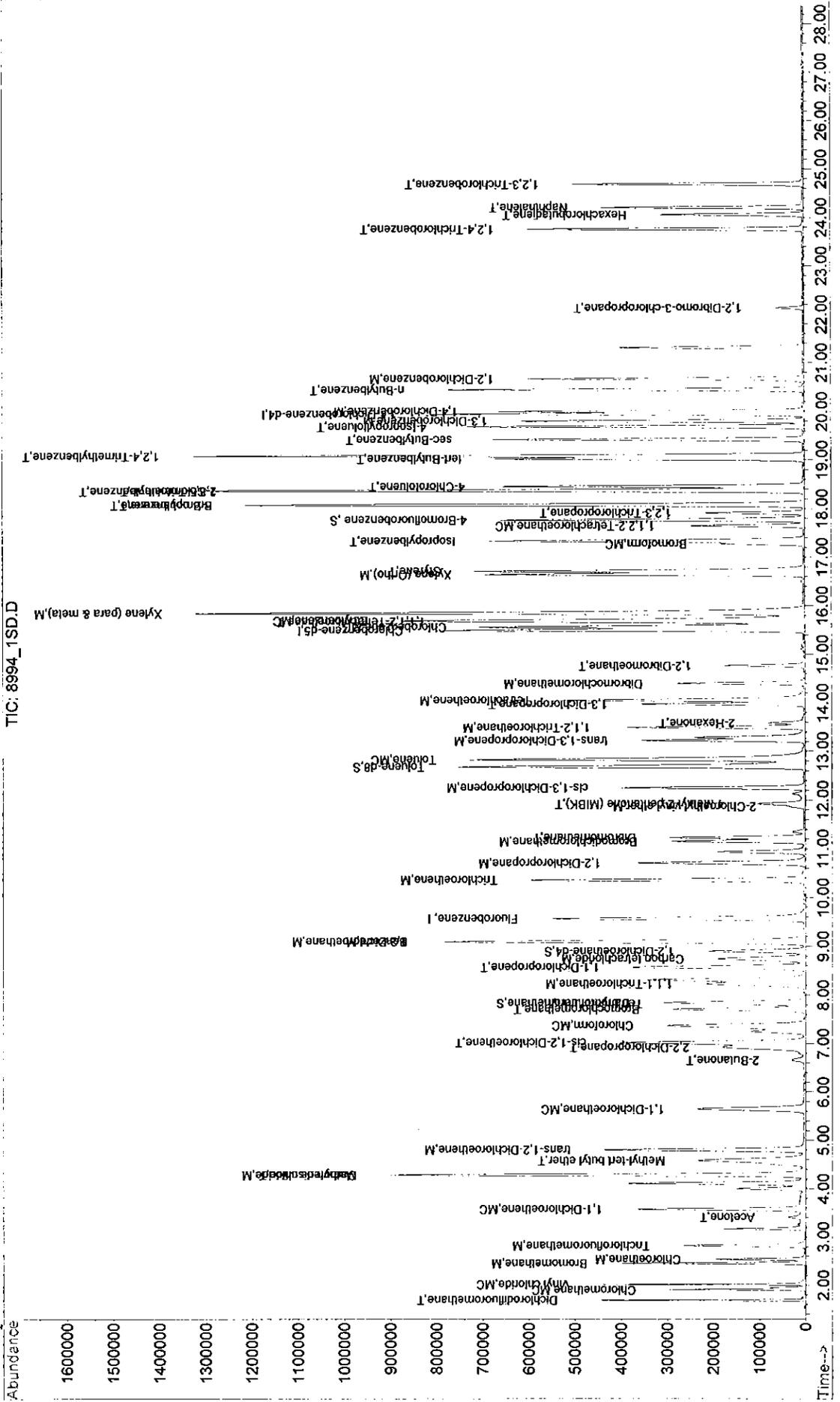
CAS NO.	Compound	Date	Concentration		Smp Amt mL	Dilution	MDL	PQL
		Analyzed	ug/L	Q				
103-65-1	n-propyl benzene	07/16/13	1760	D	0.12	84.0	28.6	420
95-49-8	2-chlorotoluene	07/16/13	1740	D	0.12	84.0	21.0	420
106-43-4	4-chlorotoluene	07/16/13	1670	D	0.12	84.0	25.2	420
108-67-8	1,3,5-trimethylbenzene	07/16/13	1690	D	0.12	84.0	18.5	420
98-06-6	tert-butylbenzene	07/16/13	1800	D	0.12	84.0	23.5	420
95-63-6	1,2,4-trimethylbenzene	07/16/13	1680	D	0.12	84.0	16.8	420
135-98-8	sec-butylbenzene	07/16/13	1780	D	0.12	84.0	36.1	420
541-73-1	1,3-dichlorobenzene	07/16/13	1700	D	0.12	84.0	41.2	420
99-87-6	4-isopropyltoluene	07/16/13	1710	D	0.12	84.0	41.2	420
106-46-7	1,4-dichlorobenzene	07/16/13	1590	D	0.12	84.0	33.6	420
95-50-1	1,2-dichlorobenzene	07/16/13	1600	D	0.12	84.0	31.1	420
104-51-8	n-butylbenzene	07/16/13	1590	D	0.12	84.0	30.2	420
96-12-8	1,2-dibromo-3-chloropropane	07/16/13	1460	D	0.12	84.0	202.4	420
120-82-1	1,2,4-trichlorobenzene	07/16/13	1500	D	0.12	84.0	31.1	420
87-68-3	hexachlorobutadiene	07/16/13	1630	D	0.12	84.0	40.3	420
91-20-3	naphthalene	07/16/13	1410	D	0.12	84.0	44.5	420
87-61-6	1,2,3-trichlorobenzene	07/16/13	1440	D	0.12	84.0	54.6	420
1634-04-4	Methyl tertiary butyl ether	07/16/13	1350	D	0.12	84.0	54.6	420
67-64-1	Acetone	07/16/13	1140	D	0.12	84.0	109.2	840
75-15-0	carbon disulfide	07/16/13	1470	D	0.12	84.0	60.5	420
78-93-3	2-Butanone (MEK)	07/16/13	1190	D	0.12	84.0	94.9	840
109-99-9	Tetrahydrofuran (THF)	07/16/13	1410	D	0.12	84.0	140.3	840
108-10-1	4-methyl-2-Pentanone (MIBK)	07/16/13	1470	D	0.12	84.0	38.6	840
591-78-6	2-hexanone	07/16/13	1360	D	0.12	84.0	56.3	840
110-75-8	2-chloroethyl vinyl ether	07/16/13	940	D	0.12	84.0	74.8	840

Surrogate Recovery	Date	Concentration (ug/L)	MDL	PQL	Recovery=
1868-53-7 Dibromofluoromethane	07/16/13	25.92	4.14	25.0	103.68%
17060-07-0 1,2-Dichloroethane-d4	07/16/13	22.62	6.61	25.0	90.48%
2037-26-5 Toluene-d8	07/16/13	26.76	2.84	25.0	107.04%
460-00-4 4-Bromofluorobenzene	07/16/13	26.55	1.81	25.0	106.20%

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_1SD.D Vial: 10
Acq On : 16 Jul 2013 1:53 pm Operator: GC/MS 597
Sample : 8994-1msd * 84 Inst : Multiplr: 1.00
Misc :
MS Integration Params: ODD.P
Quant Time: Jul 22 11:30 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Internal Standards Summary

1 The internal standards data are attached as shown.

8A

VOLATILE INTERNAL STANDARD AREA AND RT SUMMARY

Lab Name: ATL Analyzed: TS
 NJ DEP #: 11001 Calibration: may06_2 Gc/Ms: 5971 Client:
 Lab File ID (Standard): JL16_02.D Date Analyzed: 7/16/2013
 Instrument ID: 5971 Time Analyzed: 9:14
 GC Column: RTX502 ID: 0.25 (mm) Heated Purge: (Y/N) N

	IS1(FBZ)		IS2		IS3	
	AREA #	RT #	AREA #	RT #	AREA #	RT #
12 HOUR STD	1283623	9.57	1042098	15.51	374699	19.94
UPPER LIMIT	2567246	10.07	2084196	16.01	749398	20.44
LOWER LIMIT	641812	9.07	521049	15.01	187350	19.44
Sample:						
01 QC CHK	1199434	9.57	998822	15.49	415918	19.94
02 MBLK	1179668	9.57	991325	15.50	441356	19.94
03 8994-01	1151925	9.57	981365	15.49	456810	19.94
04 8994-02	1128569	9.57	907519	15.50	422701	19.94
05 8994-03	1167734	9.57	943285	15.50	424408	19.94
06 8994-1	1197690	9.57	992674	15.51	450377	19.94
07 8994-1MS	1122144	9.57	936211	15.50	383131	19.94
08 8994-1MSD	1191420	9.57	1019018	15.50	422822	19.94
09 8994-04	1175972	9.58	927954	15.50	436571	19.94

IS1 (FBZ) = Fluorobenzene
 IS2 = Chlorobenzene-d5
 IS3 = 1,4-Dichlorobenzene-d4

AREA UPPER LIMIT = +100% of internal standard area

AREA LOWER LIMIT = - 50% of internal standard area

RT UPPER LIMIT = +0.50 minutes of internal standard RT

RT LOWER LIMIT = -0.50 minutes of internal standard RT

Column to be used to flag values outside QC limit with an asterisk.

* Values outside of contract required QC limits

4.0 Raw Data and Chromatograms

Raw data and Chromatograms are attached.

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_01.D
 Acq On : 16 Jul 2013 10:58 am
 Sample : 8994-01 10.0 ml
 Misc :

Vial: 5
 Operator:
 Inst : GC/MS 0046
 Multiplr: 1.00

MS Integration Params: ODD.P

Quant Time: Jul 22 12:50 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11

Last Update : Tue May 07 16:06:17 2013

Response via : Initial Calibration

DataAcq Meth : RN71

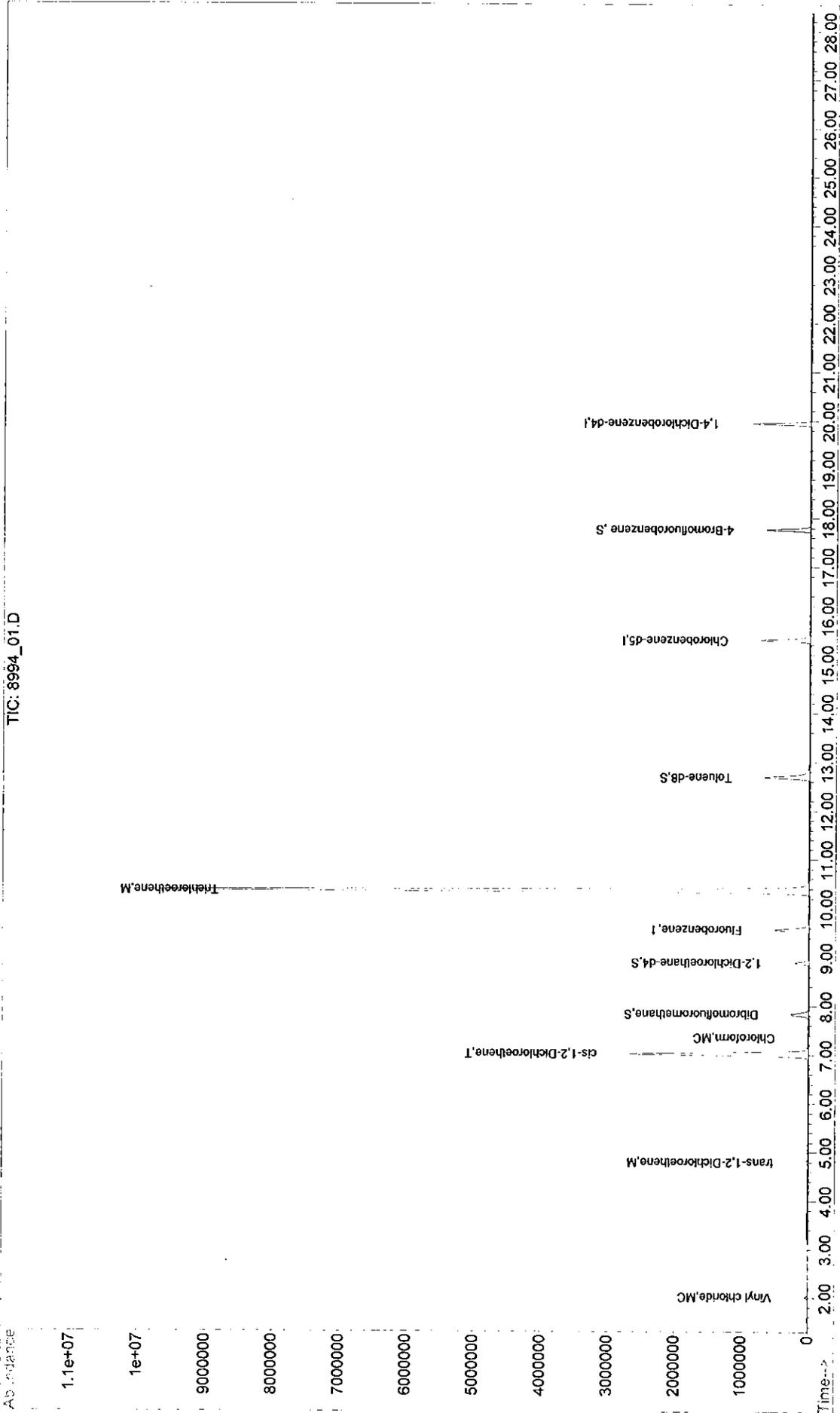
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.57	96	1151925	25.00	ug/L	0.01
36) Chlorobenzene-d5	15.49	117	981365	25.00	ug/L	0.00
58) 1,4-Dichlorobenzene-d4	19.94	152	456810	25.00	ug/L	0.00
System Monitoring Compounds						
16) Dibromofluoromethane	7.85	113	368809	25.43	ug/L	0.01
Spiked Amount				25.000		
			Recovery	=	101.72%	
19) 1,2-Dichloroethane-d4	8.89	65	230945	23.37	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	93.48%	
28) Toluene-d8	12.69	98	1131318	27.15	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	108.60%	
45) 4-Bromofluorobenzene	17.76	95	454547	27.75	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	111.00%	
Target Compounds						Qvalue
4) Vinyl chloride	2.01	62	44547	3.04	ug/L	96
10) trans-1,2-Dichloroethene	4.80	96	24243	1.53	ug/L	78
13) cis-1,2-Dichloroethene	7.02	96	2951642	175.44	ug/L	96
15) Chloroform	7.36	83	12704	0.54	ug/L	96
23) Trichloroethene	10.36	95	6686001	445.34	ug/L	97

(#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_01.D
Acq On : 16 Jul 2013 10:58 am Vial: 5
Sample : 8994-01 10.0 ml Operator: GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jul 22 12:50 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



TIC: 8994_01.D

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_1.D
 Acq On : 16 Jul 2013 12:43 pm
 Sample : 8994-1 * 84
 Misc :

Vial: 8 0048
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

MS Integration Params: ODD.P

Quant Time: Jul 22 11:30 2013

Quant Results File: MY06_13.RES

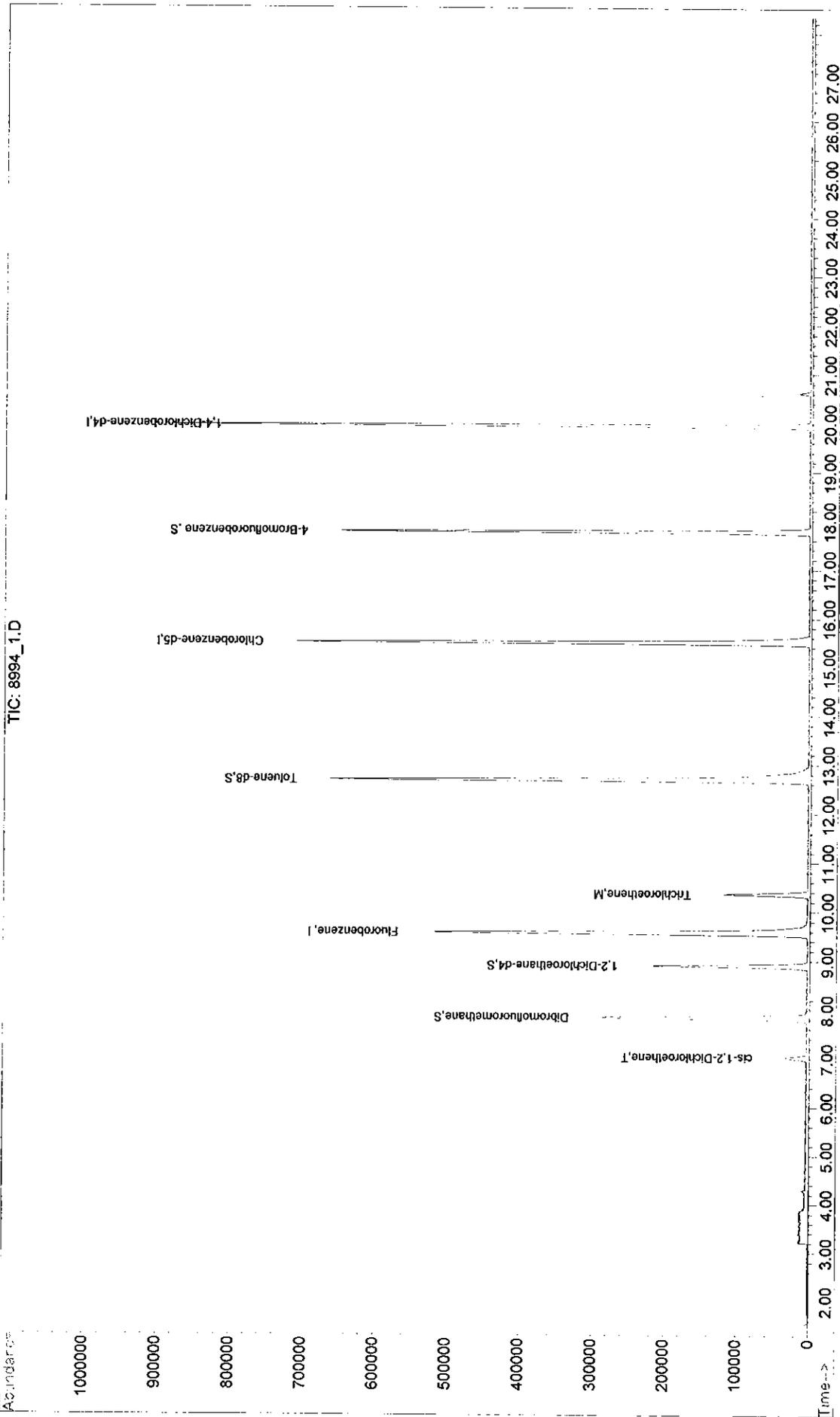
Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.57	96	1197690	25.00	ug/L	0.01
36) Chlorobenzene-d5	15.51	117	992674	25.00	ug/L	0.01
58) 1,4-Dichlorobenzene-d4	19.94	152	450377	25.00	ug/L	0.00
System Monitoring Compounds						
16) Dibromofluoromethane	7.84	113	393168	26.07	ug/L	0.00
Spiked Amount						
			Recovery	=	104.28%	
19) 1,2-Dichloroethane-d4	8.90	65	240750	23.43	ug/L	0.00
Spiked Amount						
			Recovery	=	93.72%	
28) Toluene-d8	12.69	98	1153749	26.64	ug/L	0.00
Spiked Amount						
			Recovery	=	106.56%	
45) 4-Bromofluorobenzene	17.77	95	441024	26.62	ug/L	0.01
Spiked Amount						
			Recovery	=	106.48%	
Target Compounds						
13) cis-1,2-Dichloroethene	7.03	96	31728	1.81	ug/L	96
23) Trichloroethene	10.36	95	79854	5.12	ug/L	95

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_1.D
Acq On : 16 Jul 2013 12:43 pm
Sample : 8994-1 * 84
Misc :
MS Integration Params: ODD.P
Quant Time: Jul 22 11:30 2013
Vial: 8
Operator:
Inst : GC/MS 597
Multiplr: 1.00
Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



TIC: 8994_1.D

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_02.D
 Acq On : 16 Jul 2013 11:33 am
 Sample : 8994-02 10.0 ml
 Misc :

Vial: 6
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

0050

MS Integration Params: ODD.P

Quant Time: Jul 22 11:29 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11

Last Update : Tue May 07 16:06:17 2013

Response via : Initial Calibration

DataAcq Meth : RN71

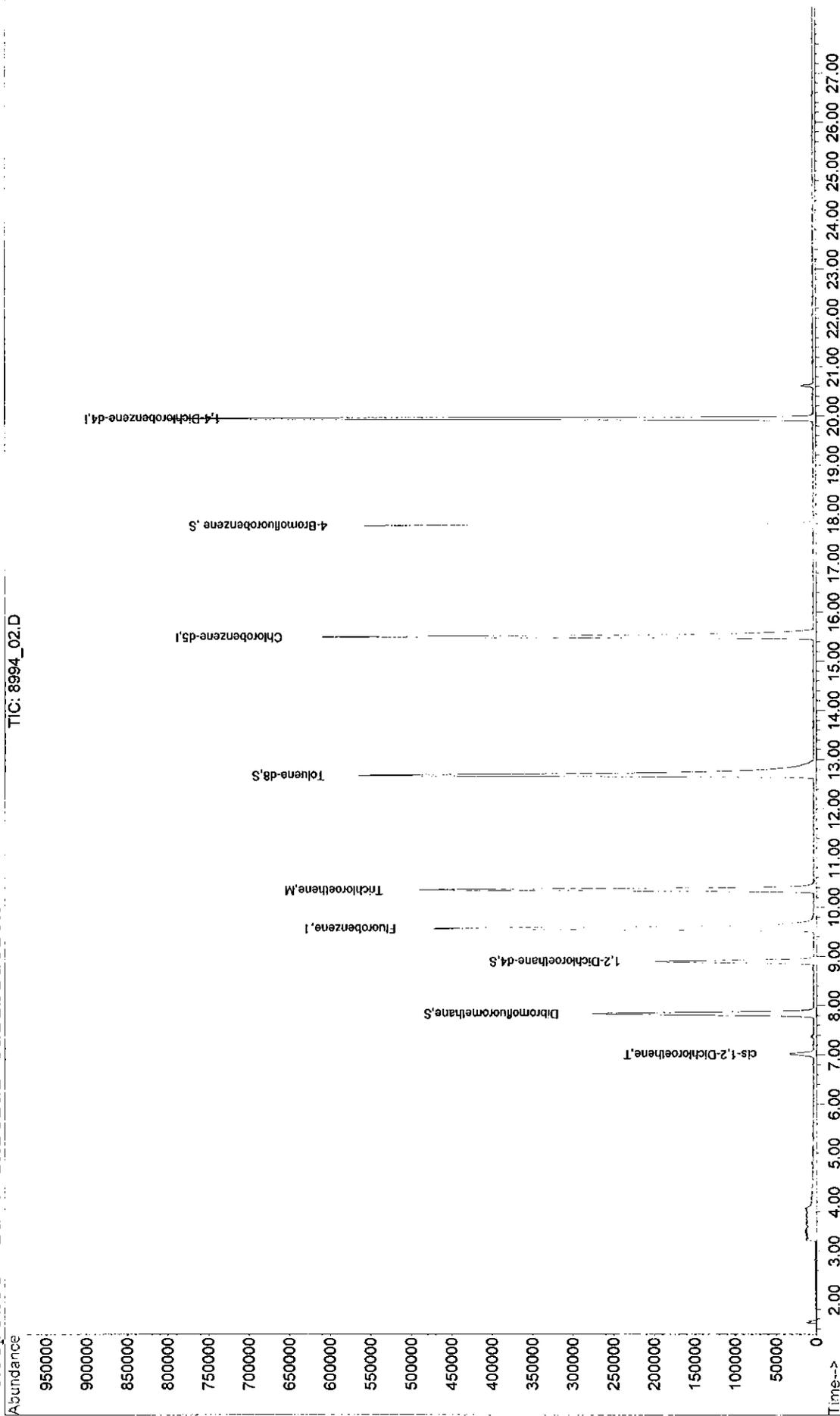
Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.57	96	1128569	25.00	ug/L	0.01
36) Chlorobenzene-d5	15.50	117	907519	25.00	ug/L	0.01
58) 1,4-Dichlorobenzene-d4	19.94	152	422701	25.00	ug/L	0.00
System Monitoring Compounds						
16) Dibromofluoromethane	7.84	113	367587	25.87	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	103.48%	
19) 1,2-Dichloroethane-d4	8.90	65	223740	23.11	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	92.44%	
28) Toluene-d8	12.69	98	1088128	26.66	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	106.64%	
45) 4-Bromofluorobenzene	17.76	95	381388	25.18	ug/L	0.00
Spiked Amount				25.000		
			Recovery	=	100.72%	
Target Compounds						Qvalue
13) cis-1,2-Dichloroethene	7.01	96	34852	2.11	ug/L	84
23) Trichloroethene	10.36	95	334433	22.74	ug/L	92

 (#) = qualifier out of range (m) = manual integration

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUL16_13\8994_02.D Vial: 6
Acq On : 16 Jul 2013 11:33 am Operator:
Sample : 8994-02 10.0 ml Inst : GC/MS 597
Misc : Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jul 22 11:29 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Data File : C:\HPCHEM\1\DATA\JL16_13\8994_03.D
 Acq On : 16 Jul 2013 12:08 pm
 Sample : 8994-03 10.0 ml
 Misc :

Vial: 7 0052
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

MS Integration Params: ODD.P

Quant Time: Jul 22 11:29 2013

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)

Title : EPA Method 8260B tune 10-11

Last Update : Tue May 07 16:06:17 2013

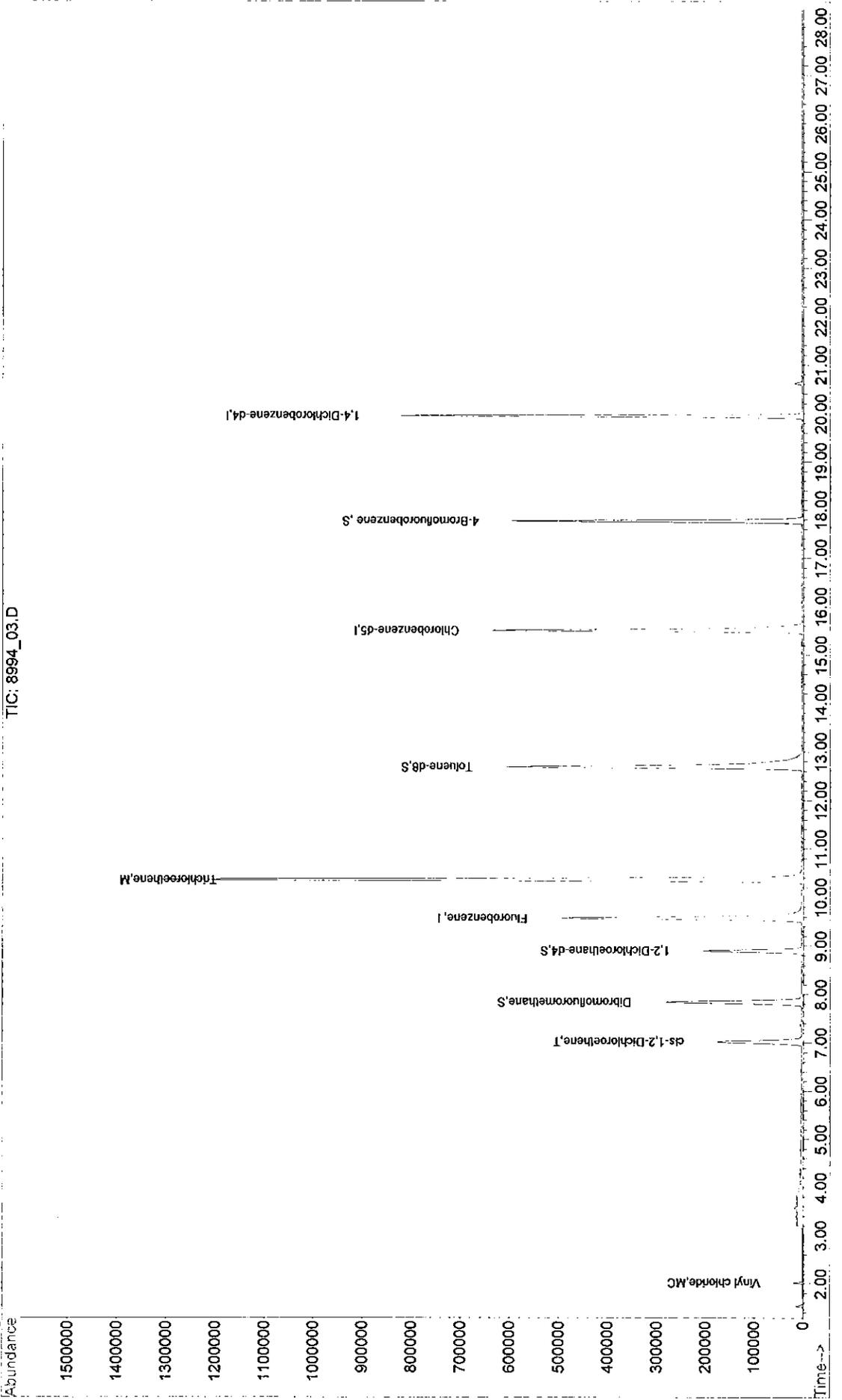
Response via : Initial Calibration

DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.57	96	1167734	25.00	ug/L	0.01
36) Chlorobenzene-d5	15.50	117	943285	25.00	ug/L	0.01
58) 1,4-Dichlorobenzene-d4	19.94	152	424408	25.00	ug/L	0.00
System Monitoring Compounds						
16) Dibromofluoromethane	7.84	113	377978	25.71	ug/L	0.00
Spiked Amount				25.000		
				Recovery	=	102.84%
19) 1,2-Dichloroethane-d4	8.90	65	234477	23.40	ug/L	0.00
Spiked Amount				25.000		
				Recovery	=	93.60%
28) Toluene-d8	12.69	98	1115102	26.40	ug/L	0.00
Spiked Amount				25.000		
				Recovery	=	105.60%
45) 4-Bromofluorobenzene	17.76	95	410462	26.07	ug/L	0.00
Spiked Amount				25.000		
				Recovery	=	104.28%
Target Compounds						
4) Vinyl chloride	2.02	62	17268	1.16	ug/L	97
13) cis-1,2-Dichloroethene	7.02	96	194109	11.38	ug/L	98
23) Trichloroethene	10.36	95	890504	58.51	ug/L	97

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JUL16_13\8994_03.D
Acq On : 16 Jul 2013 12:08 pm
Sample : 8994-03 10.0 ml
Misc :
MS Integration Params: ODD.P
Quant Time: Jul 22 11:29 2013
Vial: 7
Operator:
Inst : GC/MS 597
Multiplr: 1.00
Quant Results File: MY06_13.RES



0053

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_4.D
 Acq On : 16 Jul 2013 4:48 pm
 Sample : 8994_04 10.0 ml
 Misc : Time: 11:45 am
 MS Integration Params: ODD.P
 Quant Time: Jul 22 11:27 2013

Vial: 15
 Operator:
 Inst : GC/MS 597
 Multiplr: 1.00

0054

Quant Results File: MY06_13.RES

Quant Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
 Title : EPA Method 8260B tune 10-11
 Last Update : Tue May 07 16:06:17 2013
 Response via : Initial Calibration
 DataAcq Meth : RN71

Internal Standards	R.T.	QIon	Response	Conc	Units	Dev(Min)
1) Fluorobenzene	9.58	96	1175972	25.00	ug/L	0.02
36) Chlorobenzene-d5	15.50	117	927954	25.00	ug/L	0.00
58) 1,4-Dichlorobenzene-d4	19.94	152	436571	25.00	ug/L	0.00
System Monitoring Compounds						
16) Dibromofluoromethane	7.85	113	387829	26.19	ug/L	0.01
Spiked Amount				25.000		
			Recovery		=	104.76%
19) 1,2-Dichloroethane-d4	8.90	65	233985	23.19	ug/L	0.00
Spiked Amount				25.000		
			Recovery		=	92.76%
28) Toluene-d8	12.70	98	1096702	25.79	ug/L	0.00
Spiked Amount				25.000		
			Recovery		=	103.16%
45) 4-Bromofluorobenzene	17.77	95	393734	25.42	ug/L	0.00
Spiked Amount				25.000		
			Recovery		=	101.68%

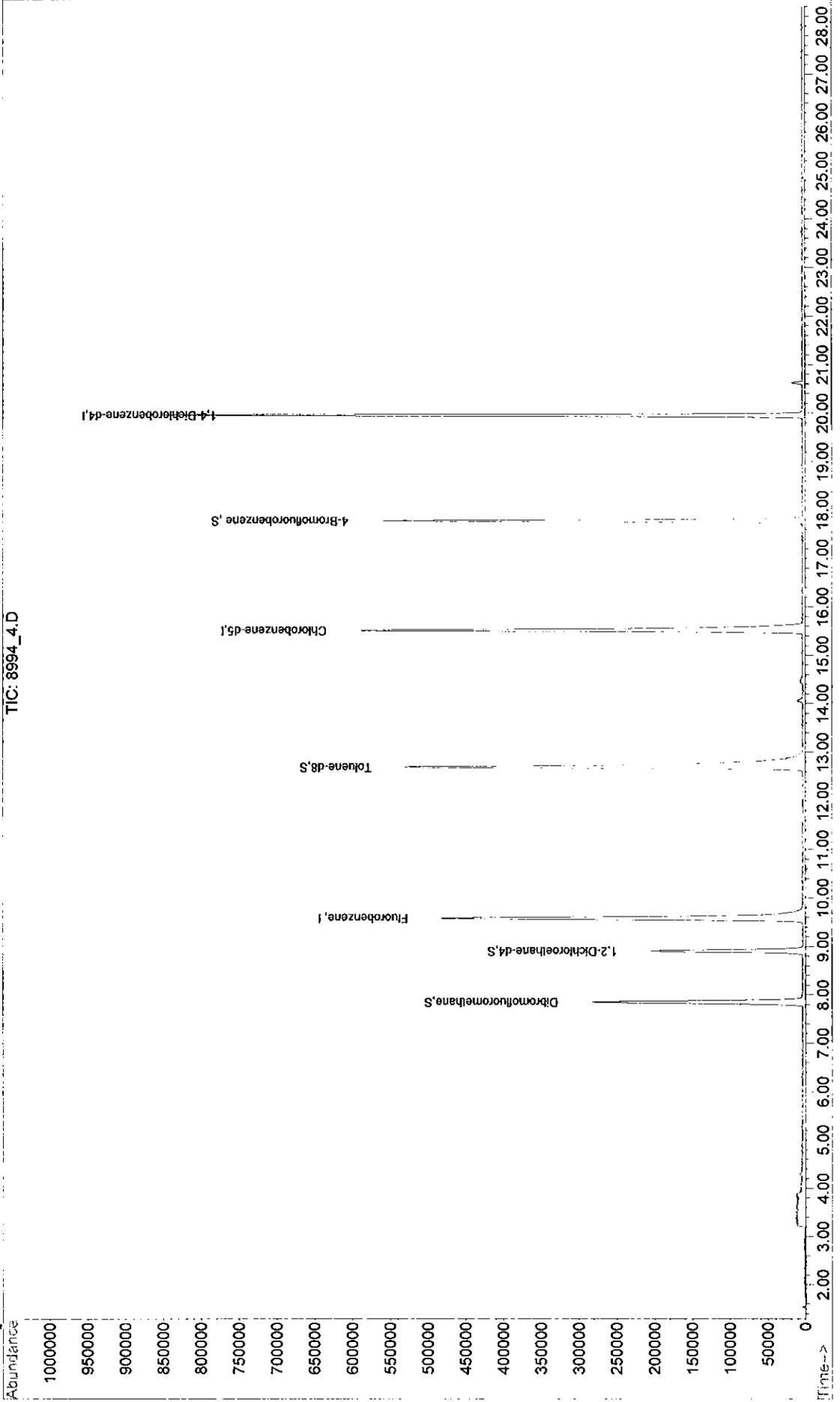
Target Compounds

Qvalue

Quantitation Report

Data File : C:\HPCHEM\1\DATA\JL16_13\8994_4.D Vial: 15
Acq On : 16 Jul 2013 4:48 pm Operator:
Sample : 8994_04 10.0 ml Inst : GC/MS 597
Misc : Time: 11:45 am Multiplr: 1.00
MS Integration Params: ODD.P
Quant Time: Jul 22 11:27 2013 Quant Results File: MY06_13.RES

Method : C:\HPCHEM\1\METHODS\MY06_13.M (RTE Integrator)
Title : EPA Method 8260B tune 10-11
Last Update : Tue May 07 16:06:17 2013
Response via : Initial Calibration



Technical Report for

Taylor Progressive Services, LLC

Indian Head Site 57; VA

146395

Accutest Job Number: FA6224

Sampling Date: 07/08/13

Report to:

Shaw E & I, Inc.

natasha.sullivan@shawgrp.com

ATTN: Natasha Sullivan

Total number of pages in report: 21



Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Conference and/or state specific certification programs as applicable.



Harry Behzadi, Ph.D.
Laboratory Director

Client Service contact: Heather Wandrey 407-425-6700

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001)
DoD ELAP (L-A-B L2229), CA (04226CA), TX (T104704404), AK, AR, GA, KY, MA, NV, OK, UT, VA, WA, WI

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Test results relate only to samples analyzed.

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Sample Summary

Taylor Progressive Services, LLC

Job No: FA6224

Indian Head Site 57; VA
Project No: 146395

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA6224-1	07/08/13	10:32 JC	07/09/13	AQ	Water	S57IW03
FA6224-1F	07/08/13	10:32 JC	07/09/13	AQ	Water Filtered	S57IW03
FA6224-2	07/08/13	11:10 JC	07/09/13	AQ	Water	S57IW02
FA6224-2F	07/08/13	11:10 JC	07/09/13	AQ	Water Filtered	S57IW02
FA6224-3	07/08/13	12:05 JC	07/09/13	AQ	Water	S57MW41
FA6224-3F	07/08/13	12:05 JC	07/09/13	AQ	Water Filtered	S57MW41

Summary of Hits

Job Number: FA6224
Account: Taylor Progressive Services, LLC
Project: Indian Head Site 57; VA
Collected: 07/08/13

Lab Sample ID	Client Sample ID	Result/ Analyte	LOQ	LOD	Units	Method	
FA6224-1	S57IW03						
		Iron	199 J	300	50	ug/l	SW846 6010C
FA6224-1F	S57IW03						
No hits reported in this sample.							
FA6224-2	S57IW02						
		Iron	796	300	50	ug/l	SW846 6010C
FA6224-2F	S57IW02						
No hits reported in this sample.							
FA6224-3	S57MW41						
		Iron	469	300	50	ug/l	SW846 6010C
FA6224-3F	S57MW41						
		Iron	510	300	50	ug/l	SW846 6010C

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID: S57IW03	Date Sampled: 07/08/13
Lab Sample ID: FA6224-1	Date Received: 07/09/13
Matrix: AQ - Water	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Total Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	199 J	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57IW03	Date Sampled: 07/08/13
Lab Sample ID: FA6224-1F	Date Received: 07/09/13
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Dissolved Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	50 U	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
LOD = Limit of Detection

U = Indicates a result < LOD
J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57IW02	Date Sampled: 07/08/13
Lab Sample ID: FA6224-2	Date Received: 07/09/13
Matrix: AQ - Water	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Total Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	796	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57IW02	Date Sampled: 07/08/13
Lab Sample ID: FA6224-2F	Date Received: 07/09/13
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Dissolved Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	50 U	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57MW41 Lab Sample ID: FA6224-3 Matrix: AQ - Water Project: Indian Head Site 57; VA	Date Sampled: 07/08/13 Date Received: 07/09/13 Percent Solids: n/a
--	---

Total Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	469	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57MW41	Date Sampled: 07/08/13
Lab Sample ID: FA6224-3F	Date Received: 07/09/13
Matrix: AQ - Water Filtered	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Dissolved Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	510	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
LOD = Limit of Detection

U = Indicates a result < LOD
J = Indicates a result > = LOD but < LOQ

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA 6224 CLIENT: CB+1 PROJECT: INDIAN SITE 57
 DATE/TIME RECEIVED: 7-9-13 ^{09:15} (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER
 AIRBILL NUMBERS: 8017 3247 0662

COOLER INFORMATION

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET
- WET ICE PRESENT

TRIP BLANK INFORMATION

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM _____ 5-GRAM _____
 NUMBER OF 5035 FIELD KITS ? _____
 NUMBER OF LAB FILTERED METALS ? _____

TEMPERATURE INFORMATION

IR THERM ID 3 CORR. FACTOR +0.4
 OBSERVED TEMPS: 2.8
 CORRECTED TEMPS: 3.2

SAMPLE INFORMATION

- SAMPLE LABELS PRESENT ON ALL BOTTLES
- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- % SOLIDS JAR NOT RECEIVED
- 5035 FIELD KIT FROZEN WITHIN 48 HOUR'S
- RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS: _____

TECHNICIAN SIGNATURE/DATE JC 7-9-13 REVIEWER SIGNATURE/DATE [Signature] 07/09/13

NF 12/10

receipt confirmation 122910.xls

Metals Analysis

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QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA6224
Account: TPSVAVAB - Taylor Progressive Services, LLC
Project: Indian Head Site 57; VA

QC Batch ID: MP25455
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/10/13

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	15	15		
Antimony	6.0	1.3	1.3		
Arsenic	10	1.6	2.5		
Barium	200	1	1		
Beryllium	4.0	.5	.5		
Cadmium	5.0	.5	.5		
Calcium	1000	50	50		
Chromium	10	1.8	2		
Cobalt	50	.5	.5		
Copper	25	1	1		
Iron	300	29	29	-15	<300
Lead	5.0	1.1	1.1		
Magnesium	5000	74	74		
Manganese	15	.7	.7		
Molybdenum	50	.6	1		
Nickel	40	.5	.5		
Potassium	10000	200	200		
Selenium	10	2	2		
Silver	10	.5	.5		
Sodium	10000	500	500		
Strontium	10	.5	.5		
Thallium	10	1.3	1.3		
Tin	50	.7	1.8		
Titanium	10	.9	1		
Vanadium	50	.5	1		
Zinc	20	3	5		

Associated samples MP25455: FA6224-1, FA6224-2, FA6224-3, FA6224-1F, FA6224-2F, FA6224-3F

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA6224
 Account: TPSVAVAB - Taylor Progressive Services, LLC
 Project: Indian Head Site 57; VA

QC Batch ID: MP25455
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 07/10/13 07/10/13

Metal	FA5974-4 Original	DUP	RPD	QC Limits	FA5974-4 Original MS	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum								
Antimony								
Arsenic	anr							
Barium	anr							
Beryllium								
Cadmium	anr							
Calcium								
Chromium	anr							
Cobalt								
Copper								
Iron	5750	5920	2.9	0-20	5750	31200	26000	97.9 80-120
Lead	anr							
Magnesium								
Manganese	anr							
Molybdenum								
Nickel	anr							
Potassium								
Selenium	anr							
Silver	anr							
Sodium								
Strontium								
Thallium								
Tin								
Titanium								
Vanadium								
Zinc	anr							

Associated samples MP25455: FA6224-1, FA6224-2, FA6224-3, FA6224-1F, FA6224-2F, FA6224-3F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

5.1.2
5

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA6224
 Account: TPSVAVAB - Taylor Progressive Services, LLC
 Project: Indian Head Site 57; VA

QC Batch ID: MP25455
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 07/10/13

Metal	FA5974-4 Original MSD	SpikeLot MPFLICP1 % Rec	MSD RPD	QC Limit		
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper						
Iron	5750	31900	26000	100.6	2.2	20
Lead	anr					
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silver	anr					
Sodium						
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP25455: FA6224-1, FA6224-2, FA6224-3, FA6224-1F, FA6224-2F, FA6224-3F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (N) Matrix Spike Rec. outside of QC limits
 (anr) Analyte not requested

5.1.2
5

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA6224
 Account: TPSVAVAB - Taylor Progressive Services, LLC
 Project: Indian Head Site 57; VA

QC Batch ID: MP25455
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 07/10/13

Metal	BSP Result	Spikelot MPFLICP1	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	27300	26000	105.0	80-120
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP25455: FA6224-1, FA6224-2, FA6224-3, FA6224-1F, FA6224-2F, FA6224-3F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA6224
 Account: TPSVAVAB - Taylor Progressive Services, LLC
 Project: Indian Head Site 57; VA

QC Batch ID: MP25455
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date: 07/10/13

Metal	FA5974-4 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper				
Iron	5750	5640	1.9	0-10
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium				
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP25455: FA6224-1, FA6224-2, FA6224-3, FA6224-1F, FA6224-2F, FA6224-3F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (anr) Analyte not requested

5.1.4
5

POST DIGESTATE SPIKE SUMMARY

Login Number: FA6224
 Account: TPSVAVAB - Taylor Progressive Services, LLC
 Project: Indian Head Site 57; VA

QC Batch ID: MP25455
 Matrix Type: AQUEOUS

Methods: SW846 6010C
 Units: ug/l

Prep Date:

07/10/13

Metal	Sample ml	Final ml	FA5974-4 Raw	PS Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron	9.8	10	5750	5635	8662	0.2	150	3000	100.9	80-120
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium										
Silver										
Sodium										
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP25455: FA6224-1, FA6224-2, FA6224-3, FA6224-1F, FA6224-2F, FA6224-3F

Results < IDL are shown as zero for calculation purposes
 (*) Outside of QC limits
 (**) Corr. sample result = Raw * (sample volume / final volume)
 (anr) Analyte not requested

5.1.5
5

Sample Summary

Taylor Progressive Services, LLC

Job No: FA6224

Indian Head Site 57; VA

Project No: 146395

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA6224-1	07/08/13	10:32 JC	07/09/13	AQ	Water	S57IW03
FA6224-1F	07/08/13	10:32 JC	07/09/13	AQ	Water Filtered	S57IW03
FA6224-2	07/08/13	11:10 JC	07/09/13	AQ	Water	S57IW02
FA6224-2F	07/08/13	11:10 JC	07/09/13	AQ	Water Filtered	S57IW02
FA6224-3	07/08/13	12:05 JC	07/09/13	AQ	Water	S57MW41
FA6224-3F	07/08/13	12:05 JC	07/09/13	AQ	Water Filtered	S57MW41

Report of Analysis

Client Sample ID: S57IW03	Date Sampled: 07/08/13
Lab Sample ID: FA6224-1	Date Received: 07/09/13
Matrix: AQ - Water	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Total Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	199 J	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
LOD = Limit of Detection

U = Indicates a result < LOD
J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57IW03 Lab Sample ID: FA6224-1F Matrix: AQ - Water Filtered Project: Indian Head Site 57; VA	Date Sampled: 07/08/13 Date Received: 07/09/13 Percent Solids: n/a
--	---

Dissolved Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	50 U	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57IW02	Date Sampled: 07/08/13
Lab Sample ID: FA6224-2	Date Received: 07/09/13
Matrix: AQ - Water	Percent Solids: n/a
Project: Indian Head Site 57; VA	

Total Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	796	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57IW02 Lab Sample ID: FA6224-2F Matrix: AQ - Water Filtered Project: Indian Head Site 57; VA	Date Sampled: 07/08/13 Date Received: 07/09/13 Percent Solids: n/a
--	---

Dissolved Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	50 U	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57MW41 Lab Sample ID: FA6224-3 Matrix: AQ - Water Project: Indian Head Site 57; VA	Date Sampled: 07/08/13 Date Received: 07/09/13 Percent Solids: n/a
--	---

Total Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	469	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

Report of Analysis

Client Sample ID: S57MW41 Lab Sample ID: FA6224-3F Matrix: AQ - Water Filtered Project: Indian Head Site 57; VA	Date Sampled: 07/08/13 Date Received: 07/09/13 Percent Solids: n/a
--	---

Dissolved Metals Analysis

Analyte	Result	LOQ	LOD	Units	DF	Prep	Analyzed By	Method	Prep Method
Iron	510	300	50	ug/l	1	07/10/13	07/11/13 LM	SW846 6010C ¹	SW846 3010A ²

(1) Instrument QC Batch: MA10886

(2) Prep QC Batch: MP25455

LOQ = Limit of Quantitation
 LOD = Limit of Detection

U = Indicates a result < LOD
 J = Indicates a result > = LOD but < LOQ

ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION

ACCUTEST'S JOB NUMBER: FA 6224 CLIENT: CB+1 PROJECT: INDIAN SITE 57
 DATE/TIME RECEIVED: 7-9-13 ^{09:15} (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER GREYHOUND DELIVERY OTHER
 AIRBILL NUMBERS: 8017 3247 0662

COOLER INFORMATION

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET
- WET ICE PRESENT

TRIP BLANK INFORMATION

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

MISC. INFORMATION

NUMBER OF ENCORES ? 25-GRAM _____ 5-GRAM _____
 NUMBER OF 5035 FIELD KITS ? _____
 NUMBER OF LAB FILTERED METALS ? _____

TEMPERATURE INFORMATION

IR THERM ID 3 CORR. FACTOR +0.4
 OBSERVED TEMPS: 2.8
 CORRECTED TEMPS: 3.2

SAMPLE INFORMATION

- SAMPLE LABELS PRESENT ON ALL BOTTLES
- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- % SOLIDS JAR NOT RECEIVED
- 5035 FIELD KIT FROZEN WITHIN 48 HOUR'S
- RESIDUAL CHLORINE PRESENT

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

SUMMARY OF COMMENTS: _____

TECHNICIAN SIGNATURE/DATE JC 7-9-13 REVIEWER SIGNATURE/DATE [Signature] 07/09/13
 NF 12/10 receipt confirmation 122910.xls

APPENDIX B

TRANSPORTATION & DISPOSAL DOCUMENTATION

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Clearfield MMG

Post Office Box 1444
Chesapeake, VA 23327
(757) 549-8448
FAX: (757) 549-6668

NON-HAZARDOUS SHIPPING MANIFEST

MANIFEST NO. _____

GENERATOR

NAME **NSF Indian Head** TELEPHONE **301-744-2268**

ADDRESS **3972 Ward Road, Suite 101** CITY **Indian Head** STATE **MD 20640**

SHIPMENT ORIGIN **Site 57, Bldg. 292, Thomas Rd.** CITY **Indian Head** STATE **MD 20640**

AUTHORIZED AGENT _____ FIRM **Shaw Environmental, Inc.**

ADDRESS _____ OTHER _____

MATERIAL CHARACTERIZATION

ACTIVITY GENERATING THIS MATERIAL: UST/AST REMOVAL _____ OTHER **Well Purging & Equip. Decon**

PETROLEUM TYPE (S): **None** VIRGIN PRODUCT _____ NON-VIRGIN PRODUCT _____

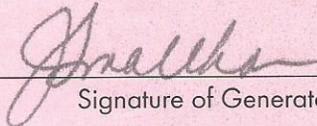
PHYSICAL STATE: STOCKPILED _____ EXCAVATING _____ DRUMS **1** OTHER _____

HANDLING INSTRUCTIONS: **Transport To Facility Designated Below**

FIRE OR SPILL INSTRUCTIONS: **Non-Flammable / Non-Hazardous**

DESTINATION: **Chesapeake Facility, 416 Dominion Blvd. North**

I hereby certify, to the best of my knowledge, the material characterized above is non-hazardous as defined by the Virginia Hazardous Waste Management Regulations, Federal Regulations under Subtitle C - RCRA, U.S. Department of Transportation, or local / state of origin regulations.

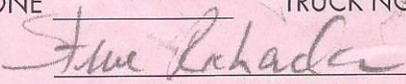

Signature of Generator / Agent

John Smallhorn **8/27/13**
Printed Name / Date

TRANSPORTER

TRANSPORTER NAME **Clearfield MMG, Inc.** TELEPHONE **757-549-8448** TRUCK NO. **14**

I certify that the materials described above were received by me for shipment and delivered to the designated facility.


Transporter Signature / Date

FACILITY

I certify that the materials described above were delivered to the facility and received by me.

ACCEPTED BY _____ DATE _____

REASONS FOR REJECTION _____

Gross Weight	
Tare Weight	
Net Weight	
Tons	

TRANSPORTER