April 7, 2011

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Ms. Gail Dieter
New York State Department of Environmental Conservation
Division of Environmental Remediation
Bureau E, Section B
625 Broadway, 12th Floor
Albany, NY 12233-7017

Subject: RCRA Facility Investigation
SWMU 1 Soil Vapor Intrusion Investigation Report, April 2011
Former Hampshire Chemical Corp. Facility
Waterloo, New York

Dear Ms. Dieter:

The Dow Chemical Company is pleased to submit one hard copy and one electronic copy (CD) of the attached *SWMU 1 Soil Vapor Intrusion Investigation Report, April 2011* for the Former Hampshire Chemical Corp. Facility in Waterloo, New York. The investigation activities were conducted at the request of the New York State Department of Environmental Conservation (NYSDEC) and New York State Department of Health (NYSDOH). In a letter dated February 26, 2010, the NYSDEC and NYSDOH approved the *RCRA Facility Investigation – Revised Work Plan, SWMU 1 Soil Vapor Investigation, Former Hampshire Chemical Corp., Waterloo, New York – February 2010.*

The April 2011 report includes the SWMU 1 and the residential property downgradient of SWMU 1 soil vapor intrusion investigation results for the field work that was conducted by CH2M HILL during March 2010.

This work is being performed pursuant to an amended Administrative Order on Consent (Index No. 8-20000218-3281, June 1, 2004). If you have any questions or comments, please contact me at 304-747-7788 or Dakon Brodmerkel at 610-280-0924.

Sincerely,

Jerome E. Cibrik, P.G.
Remediation Leader

Attachments

cc: Mr. Pete Hoffmire, NYSDEC Region 8 (CD)
Mr. Scott Foti, NYSDEC Region 8 (CD)
Mrs. Katherine Fish, NYSDOH (Hard copy)
Mr. Steve Brusso, Evans Chemetics (Hard copy)
CH2M HILL Project File (Hard copy and CD)

Final Report

RCRA Facility Investigation SWMU 1 Soil Vapor Intrusion Investigation

Former Hampshire Chemical Corp. Facility Waterloo, New York

NYD002234763

Prepared for

The Dow Chemical Company

April 2011

CH2MHILL

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Acronyms and Abbreviations

µg/m^3	micrograms per cubic meter
AOC	area of concern
DCE	dichloroethene
facility	former Hampshire Chemical Corp. Facility in Waterloo, New York
GC	gas chromatography
HCC	Hampshire Chemical Corp
IRA	interim response action
MEK	methyl ethyl ketone
MIBK	methyl isobutyl ketone
MS	mass spectrometry
NYCRR	New York Codes Rules and Regulations
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OB&G	O'Brien & Gere Engineers, Inc.
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RCRA	Resource Conservation and Recovery Act
RFI	Resource Conservation and Recovery Act facility investigation
RSCO	Recommended Soil Cleanup Objectives
RUSCO	restricted use soil cleanup objectives
Sanborn	Sanborn Fire Insurance
SOP	standard operating procedure
SSCO	Supplemental Soil Cleanup Objectives
SVOC	semivolatile organic compound
SWMU	solid waste management unit
TAGM	Technical and Administrative Guidance Memorandum

TCE	trichloroethene
TOGS	Technical Operation Guidance Series
USEPA	United States Environmental Protection Agency
VOC	volatile organic compound

SECTION 1

Introduction

This soil vapor intrusion investigation report presents the data and findings obtained from the soil vapor intrusion investigation activities conducted at the Solid Waste Management Unit (SWMU) 1 area of the former Hampshire Chemical Corp. (HCC) Facility in Waterloo, New York (hereafter referred to as the facility) (Figure 1). HCC is a wholly owned subsidiary of The Dow Chemical Company.

The investigation activities were conducted at the request of the New York State Department of Environmental Conservation (NYSDEC). In comments transmitted on December 14, 2009, and January 7, 2010 to HCC, regarding the Resource Conservation and Recovery Act (RCRA) facility investigation (RFI) addendum report (CH2M HILL 2008), NYSDEC requested the preparation of a work plan to evaluate potential soil vapor intrusion pathways in the residential property south and west of the landfill (NYSDEC 2009, 2010a). The RFI SWMU 1 soil vapor investigation work plan was submitted on January 22, 2010 (CH2M HILL 2010a).

In comments transmitted on February 5, 2010, regarding the RFI SWMU 1 soil vapor investigation work plan, NYSDEC and the New York State Department of Health (NYSDOH) (collectively referred to as the agencies) issued conditional approval of the January 2010 work plan (NYSDEC 2010b). NYSDEC requested submittal of a revised work plan for the Department's approval prior to conducting the field sampling. The revised work plan was submitted on February 18, 2010 (CH2M HILL 2010b). The revisions included the following items:

- Eliminating the proposed soil vapor sample location, SGP-11, at the northeast area outside the residential property
- Including the NYSDOH building survey form for use during the pre-sampling building survey of the residential property
- Analyzing samples to be based on the analyte list included in Appendix A and Table 2-4 of the *Quality Assurance Project Plan* (QAPP; CH2M HILL 2009)

The revised work plan was approved on February 26, 2010, and the investigation activities were conducted according to this revised work plan.

On March 23 and 24, 2010, CH2M HILL conducted a soil vapor, crawl space air, indoor air, and ambient air sampling event at the facility and the residential property downgradient of SWMU 1 (Figure 2). The purpose of this investigation was to collect data to evaluate potential soil vapor intrusion pathways in the residential property between SWMU 1 and the Seneca-Cayuga Canal. During this sampling event, two soil vapor and one ambient air samples were collected at SWMU 1; one crawl space, one indoor, and one ambient air samples were collected at the residential property; and two ambient air samples were collected at the facility. The sampling and data evaluation was consistent with the *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH 2006).

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SECTION 2

Site Background

2.1 Site Background and Setting

The former HCC facility is located at 228 East Main Street in the Village of Waterloo, Seneca County, New York (Figure 1). The facility is bordered to the north by East Main Street, the east by Gorham Street, the west by East Water Street, and the south by the Seneca-Cayuga Canal.

The facility is operated by Evans Chemetics LP, a wholly owned subsidiary of Bruno Bock, and manufactures divalent organic sulfur chemical intermediates used for the cosmetic, pharmaceutical, and plastics industries. These products have been manufactured at the facility since approximately 1943. Before 1943, the facility was owned by the Waterloo Woolen Manufacturing Company, which had operated a woolen textile mill from 1836 until approximately 1936, when the mill was closed.

The facility has undergone significant changes over time. A number of onsite buildings were constructed in the 1800s, some of which are still standing, others of which subsequently were demolished.

The facility is regulated under 6 New York Codes Rules and Regulations (NYCRR) Part 373 and RCRA with NYSDEC as the lead agency. HCC has retained environmental liabilities for the facility, in accordance with the terms described in the purchase agreement between HCC and Bruno Bock, the current property owner.

2.2 SWMU 1

SWMU 1 corresponds to the former Village of Waterloo Dump site. Sanborn Fire Insurance (Sanborn) maps of the facility indicate that until 1948, the Village of Waterloo Dump site was occupied by part of the Seneca-Cayuga Canal, a lock, and several raceways. SWMU 1 managed municipal waste from the village of Waterloo until probably 1951, which suggests a maximum operation period of 3 years as a dump for debris, soil, and refuse. The 1964 Sanborn map for the facility shows that the canal and raceways were filled to the western edge of the old lock, and the area is identified as the Village of Waterloo Dump.

The former dump site contains fill material, including glass and plastic fragments, scrap metal, ash, ceramics, shoes, brake pads, copper wire, tires, cobbles, bricks, wood, and metal scrap. Intact glass bottles containing a white liquid also were encountered in four test pits completed within the landfill; the bottles were primarily encountered at or just below the water table. CH2M HILL developed an interim response action (IRA) to address liquid-containing bottles at the former Village of Waterloo Dump site (CH2M HILL 2004a), discovered at Test Pit 9 during the RCRA facility assessment sampling visit (O'Brien & Gere Engineers, Inc. [OB&G] 2003). Test Pit 9 was located southwest of SWMU 1. In April 2004 during a limited IRA, CH2M HILL removed approximately 7 cubic yards of fill material

containing broken and intact glass bottles and associated soil. The limited IRA was conducted because the extent of the bottle-containing fill is unknown. Waste characterization sampling confirmed that the material was nonhazardous (CH2M HILL 2004b).

A sample of liquid from a glass bottle collected during the sampling visit contained acetone at a concentration of 90,000 micrograms per liter (OB&G 2003); however, samples from two bottles (one clear liquid and one white liquid) collected during the RFI did not contain detectable volatile organic compounds (VOCs) or semivolatile organic compounds (SVOCs) (CH2M HILL 2004b). It is important to note that these samples had elevated reporting limits because of sample matrix interference (CH2M HILL 2004b).

The municipal fill material is not exposed at the surface; it is covered by soil. However, some bottle debris was observed at the surface during site visits in 2007, 2008, and 2009. CH2M HILL conducted fieldwork in 2009 to determine the extent of the offsite debris at SWMU 1, and the results were submitted to NYSDEC in the *RCRA Facility Investigation, Visual Subsurface Investigation at the Former Village of Waterloo Dump Site (SWMU 1)* in 2010 (CH2M HILL 2010c).

No releases have been reported from SWMU 1.

SECTION 3

Vapor Intrusion Conceptual Site Model

In general, potential indoor air exposures in the residential property may result from VOCs in subsurface soil and/or shallow groundwater volatilizing, migrating vertically (and horizontally to a limited extent) through the soil column, and entering buildings through cracks. The VOCs then may be inhaled by house occupants. Sources of chemicals potentially contributing to vapor intrusion comprise the VOCs detected in soil and in groundwater at the facility which is in close proximity to the residential property.

Sources of constituents potentially contributing to vapor intrusion include VOCs detected in groundwater at SWMU 1. Based on data collected during the RFI, site groundwater within both the shallow and intermediate groundwater zones flows to the south toward the Seneca-Cayuga Canal.

The potential sources of VOCs and migration pathways at SWMU 1 are discussed in the following sections.

3.1 Potential Sources in Soil

Historical soil sample results indicate only one VOC, methyl isobutyl ketone (MIBK), which is also known as 4-methyl-2-pentanone, in exceedance of the January 24, 1994 Technical and Administrative Guidance Memorandum (TAGM) 4046 Recommended Soil Cleanup Objectives (RSCOs) of 1 milligram per kilogram (mg/kg) at Area of Concern (AOC) B. This AOC is located approximately 800 feet east and side-gradient of the residential property, within the facility. In 1994, MIBK was reported at a concentration of 2.2 mg/kg from a sample collected at BLDG4-PIT-S1. In 1995, MIBK was reported at a concentration of 8.1 mg/kg from a sample collected at soil boring for installation of monitoring well MW-03. In 2004, MIBK was reported at a concentration of 5.85 mg/kg from a sample collected at soil boring SB-16.

In 2007, CH2M HILL collected soil samples at SWMU 1 and AOC B. No VOCs were detected in exceedance of the TAGM 4046, the Supplemental Soil Cleanup Objectives (SSCO) (Industrial) of the Departments Draft Soil Cleanup Guidance dated November 4, 2009, and the December 14, 2006 NYSDEC Restricted Use Soil Cleanup Objectives (RUSCO) industrial screening criteria (CH2M HILL 2010b). No criterion was available for MIBK based on the SSCO and the RUSCO industrial screening criteria (CH2M HILL 2010b).

On October 21, 2010, NYSDEC issued CP-51/Soil Cleanup Guidance, which applies to each of the remedial programs administered by NYSDEC's Division of Environmental Remediation and replaced the TAGM 4046: Determination of Soil Cleanup Objectives and Cleanup Levels (NYSDEC 2010c). The SSCO section of this document indicates a protection of groundwater criteria of 1 mg/kg for MIBK. No NYSDEC SSCO Residential, Restricted Residential, or Industrial criterion has been established for MIBK.

Although the soil screening levels do not specifically include the vapor intrusion pathway, comparison of site data to these values gives an indication of the magnitude of concentrations of VOCs in soil. Therefore, with the exception of MIBK, VOCs in soil are not expected to contribute to the vapor intrusion pathway at the residential property.

Benzo(a)pyrene and dibenzo(a,h)anthracene are the only constituents found in soil in SWMU 1 that have been detected above the RUSCO industrial screening criteria, but have not been detected in groundwater at SWMU 1. Benzo(a)pyrene and dibenzo(a,h)anthracene are not volatile chemicals, so they are not expected to contribute to the vapor intrusion pathway.

3.2 Potential Sources in Groundwater

Monitoring wells associated with SWMU 1 are MW-14, MW-15, MW-16S, MW-16I, MW-17, and MW-18 (Figure 3). Groundwater at SWMU 1 historically contained the following VOCs and SVOCs at concentrations above the Technical Operation Guidance Series New York State Ambient Water Quality Standards and Guidance Values - Class GA Water Values (TOGS Class GA) (NYSDEC 1998): acetone, benzo(b)fluoranthene, chrysene, and naphthalene. The overall results of the groundwater samples collected at SWMU 1 during the last four sampling events (December 2007, October 2008, April 2009, and October 2009) indicate that the concentrations did not exceed the NYSDEC Class GA standards (CH2M HILL 2010d). Acetone has not exceeded the Class GA standard since 2004.

VOCs, including MIBK, have been identified in exceedance of the NYSDEC Class GA standards in groundwater samples collected during 1995, 2002, 2004, 2005, 2007, 2008, and 2009 at AOC B (CH2M HILL 2010d). However, as previously indicated, AOC B is located east and side-gradient of the residential property.

3.3 Potential Sources in Soil Vapor

On December 18, 2007, CH2M HILL conducted a soil vapor sampling event at SWMU 1 soil vapor points SGP-9 and SGP-10. MIBK, toluene, m,p-xylenes, trichloroethene, carbon tetrachloride, and tetrachloroethene were detected at SGP-09 at concentrations below the NYSDOH 90th percentile indoor air background values. Acetone, MIBK, toluene, chloroform, carbon tetrachloride, and tetrachloroethene were detected at SGP-10 at concentrations below the NYSDOH 90th percentile indoor air background values.

One ambient air sample was collected at SWMU 1, and MIBK, toluene, m,p-xylenes, chloroform and carbon tetrachloride were detected, but did not exceed the NYSDOH 90th percentile indoor air background values.

These low concentrations of VOCs are not expected to result in a complete vapor intrusion pathway at the residential property.

SECTION 4

Sampling Procedures and Methods

On March 23 and 24, 2010, two soil vapor samples and one ambient air sample were collected at SWMU 1. One crawl space air sample, one indoor air sample, and one ambient air sample were collected at the residential property. Two ambient air samples were collected at the facility following *Guidance for Evaluating Soil Vapor Intrusion in the State of New York* (NYSDOH 2006) and in accordance with the revised *RFI Soil Vapor Investigation Work Plan* (CH2M HILL 2010b). The sample locations are shown on Figure 4. The NYSDOH indoor air quality questionnaire and building inventory form are provided in Appendix A. The field sampling log sheets are provided as Appendix B.

4.1 Soil Vapor Sampling

Two soil vapor probes (SGP-09 and SGP-10) were installed at 6 and 7.5 feet below ground surface, respectively, hydraulically upgradient of the residence and downgradient of SWMU 1. The two soil vapor samples were collected over a 24-hour period using 6-liter SUMMA™ canisters equipped with flow controllers and dedicated Teflon® tubing, as described in the QAPP (CH2M HILL 2009). A standard operating procedure (SOP) for soil vapor sampling using SUMMA™ canisters is presented in Appendix B of the revised work plan (CH2M HILL 2010b).

One duplicate sample (SGP-DUP) was collected at sample location SGP-10 for quality assurance (QA)/quality control (QC) purposes.

4.2 Crawl Space Air Sampling

One crawl space air sample (RP-CS-1) was collected at the residential property. The final crawl space sample point was adjusted onsite per NYSDOH's request and installed through a crawl space vent at the southwest corner of the residential property. The crawl space air sample was collected over a 24-hour period using 6-liter SUMMA™ canisters equipped with flow controllers and dedicated Teflon® tubing, as described in the QAPP (CH2M HILL 2009). The SOP for crawl space sampling using SUMMA™ canisters is presented in Appendix B of the revised work plan (CH2M HILL 2010b).

4.3 Indoor Air Sampling

A survey of the residential property was performed prior to indoor air sampling activities, using an NYSDOH indoor air quality questionnaire and building inventory form (NYSDOH 2005). The survey was conducted to determine an appropriate indoor air sample location. The completed form is presented in Appendix A.

The indoor air sample was collected over a 24-hour period using SUMMA™ canisters equipped with flow controllers. SOPs for SUMMA™ canister sampling and flow controller calibration are presented in Appendix B of the revised work plan (CH2M HILL 2010b).

One indoor air sample (RP-IA-1) was collected from inside the residential property at a height of approximately 3 feet above the floor in a centrally located high activity area of the house. A height of 3 feet above the floor represents the breathing zone of occupants that are normally seated and/or lying down to sleep (NYSDOH 2006). The location was based on the information gathered in the building survey and the NYSDOH representative indicated the location chosen was acceptable for sample collection.

4.4 Ambient Air Sampling

Ambient air samples were collected over a 24-hour period using SUMMA™ canisters equipped with flow controllers. SOPs for SUMMA™ canister sampling and flow controller calibration are presented in Appendix B of the revised work plan (CH2M HILL 2010b).

Four ambient air samples were collected: one at SWMU 1 (SGP-RP), one at the residential property (SGP-SWMU1), and two at the facility (SG-B2 and SG-B4). These samples were collected at a height of 3 to 5 feet above ground surface and away from wind obstructions such as trees or bushes, and chemical storage areas.

At the residential property, the final ambient air sample location was adjusted onsite per NYSDOH's request and located at the southwest corner of the house. The ambient air sample SGP-RP was collected simultaneously with indoor air sample RP-IA-1 to evaluate the potential influence of ambient air on indoor air quality. The ambient air sample was collected upwind of the house. The canister was placed at a height of 3 to 5 feet above ground surface and away from wind obstructions such as trees or bushes. This height is representative of standing breathing zones (NYSDOH 2006).

During the sampling activities, the temperature was measured onsite using portable instruments and recorded in the field book. The barometric pressure was obtained for the area from the weather report.

4.5 Quality Assurance/Quality Control

As mentioned in Section 4.1, a QA/QC sample (SGP-DUP) for this sampling event included a co-located sample (field duplicate). The tubing from the field duplicate was connected to the parent canister using a "T" fixture, so the sample drew the same air from the soil vapor probe once the valves were opened simultaneously. One field blank was collected by placing two canisters side by side and not opening one of the valves. The QA/QC results are presented in Appendix C.

4.6 Investigation-Derived Waste Management

Rubbish, personal protective equipment, and other waste material were managed and disposed of in accordance with the materials management plan (CH2M HILL 2007, 2008).

4.7 Laboratory Analysis and Validation

Air samples (crawl space, indoor, and ambient air) and soil vapor were collected in certified clean SUMMA™ canisters with individual tracking numbers and calibrated flow regulators. The samples were analyzed for site-specific analytes following U.S. Environmental Protection Agency (USEPA) Method TO-15, *Determination of Volatile Organic Compounds In Air Collected In Specially Prepared Canisters and Analyzed by Gas Chromatography* [GC]*/Mass Spectrometry* [MS] (USEPA 1999). Analyses were performed by Columbia Analytical Services, Inc. of Simi Valley, California, which is a laboratory certified under the New York State Environmental Laboratory Approval Program certification process for the appropriate analyte and environmental matrix combinations. The measurement quality objectives for analyses using Method TO-15 GC/MS and GC/MS–selective ion monitoring analysis are described in the QAPP (CH2M HILL 2009). A site-specific analyte list and associated reporting limits are presented in Table 2-4 of the QAPP (CH2M HILL 2009) and Appendix A of the work plan (CH2MHILL 2010b).

The data were validated using applicable quality criteria in the *National Functional Guidelines for Organic Data Review* (USEPA 1994) and USEPA Region 2 data validation procedures (USEPA 2007). Appendix D contains the laboratory data package and the data quality evaluation report for the samples collected during this investigation.

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SECTION 5

Data Evaluation and Analytical Results

The soil vapor, crawl space, indoor, and ambient air sample results collected from SWMU 1, the residential property, and the facility were evaluated and are presented in Table 1. The indoor air sample collected from the residential property was used to assess current exposures to volatile chemicals in air. As stated in NYSDOH guidance (2006), the detection of volatile chemicals in indoor air samples does not necessarily indicate soil vapor intrusion is occurring or actions should be taken to address exposures. The following lines of evidence were evaluated in this report to determine the potential significance of the vapor intrusion pathways in the residential property.

- Comparison of the indoor air sampling results to background levels of volatile chemicals in indoor air to 90th percentile indoor air background levels from C.1 NYSDOH 2003: Study of Volatile Organic Chemicals in Air of Fuel Oil Heated Homes (NYSDOH, Appendix C, 2006).
- Comparison of the indoor air sampling results to other types of air sample results collected during this sampling event (i.e., soil vapor, crawl space, and ambient air).

The concentration levels of the chemicals were compared to the criteria described in Section 5.1. The results are summarized in Section 5.2.

5.1 Criteria Used for Comparison

5.1.1 90th Percentile Indoor Air Background Levels (NYSDOH)

The indoor air data collected from the residential property were compared to the 90th percentile indoor air background levels provided in NYSDOH (2006) Appendix C. Note that background indoor air concentrations are not risk-based, and an exceedance only indicates if the indoor air concentration is different from background aboveground indoor air concentrations, which provides one line of evidence in determining if vapor intrusion is a potential concern and/or if additional investigations are needed to further assess the soil vapor intrusion pathway. Additionally, some of the detected chemicals do not have background indoor air concentrations listed in the NYSDOH guidance document (2006).

5.1.2 Site-Specific Soil Vapor, Crawl Space, and Ambient Air Concentrations

The indoor air data collected from the residential property were compared to the site-specific soil vapor, crawl space, and ambient air data to provide one line of evidence to determine if vapor intrusion is a potential concern and/or if additional investigations are needed to further assess the soil vapor intrusion pathway. Two soil vapor samples (SGP-9 and SGP-10) were collected at SWMU 1. One crawl space air sample (RP-CS-1) was collected at the residential property. Four ambient air samples were collected during this sampling event: one sample collected near the residential property (SGP-RP), one sample

collected in SWMU 1 (SGP-SWMU1), and two samples collected at the facility (SG-B2 and SG-B4), approximately 1,000 feet east of the residential property.

5.2 Analytical Results

One field blank was collected by placing two canisters side by side and not opening one of the valves. Low levels of acetone (1.6 micrograms per cubic meter [µg/m^3]) and toluene (0.56 µg/m^3) were detected in the field blank. The QA/QC results are presented in Appendix C.

5.2.1 Residential Property

The indoor, crawl space, and ambient air sample locations and results are presented in Table 1 and Figure 4.

In the indoor air sample (RP-IA), methyl ethyl ketone (MEK) which also is known as 2-butanone, was detected at the 90th percentile indoor air background level (NYSDOH 2006), while MIBK exceeded the background level (NYSDOH 2006). All other detected compounds were below the background levels.

In the crawl space air sample (RP-CS-1), the MEK and MIBK concentrations were lower than the concentrations in the indoor air sample. The concentrations of other detected compounds were comparable to the concentrations in the indoor air sample, except for cis-1,2-dichloroethene (cis-1,2-DCE) and trichloroethene (TCE),which were not detected in the indoor air sample. Cis-1,2-DCE and TCE were not detected in the groundwater samples collected from the crossgradient monitoring wells (MW-17 and MW-18) (Figure 3) during the October 2009 sampling event (CH2M HILL 2010d). In addition, cis-1,2-DCE was not detected in any other wells in SWMU 1 since January 2002; TCE was not detected in any other wells in SWMU 1 during the October 2009 sampling event (CH2M HILL 2010d).

In the ambient air sample (SGP-RP), the MEK and MIBK concentrations were lower than the concentrations in the indoor and crawl space air samples. The concentrations of all other detected compounds were comparable to the concentrations in the indoor air sample. Cis-1,2-DCE and TCE were not detected in the ambient air sample.

5.2.2 SWMU 1

Two soil vapor (SGP-9 and SGP-10) and one ambient air (SGP-SWMU1) samples were collected at SWMU 1 during this sampling event. The sample locations and analytical results are presented in Table 1 and Figure 4.

In the soil vapor and ambient air samples, the MEK and MIBK concentrations were lower than the concentrations in the residential property indoor air sample. The concentrations of all other compounds detected in SWMU 1 were comparable to the concentrations detected in the residential property indoor air sample. Cis-1,2-DCE and TCE were not detected in the soil vapor or ambient air samples in SWMU 1.

5.2.3 Evans Chemetics Facility

Two ambient air samples (SG-B2 and SG-B4) were collected from the facility. The sample locations and analytical results are presented in Table 1 and Figure 4.

In the ambient air samples, the MEK concentrations were lower than the concentration in the indoor air sample collected from the residential property. Elevated MIBK concentrations were detected in both ambient air samples at 140 $\mu g/m^3$ (SG-B2) and 52 $\mu g/m^3$ (SG-B4), and were higher than the indoor air (4.8 $\mu g/m^3$) and crawl space air concentrations (1.5 $\mu g/m^3$) at the residential property. Cis-1,2-DCE was not detected in either of the ambient air samples. TCE was detected in both ambient air samples at 3.3 $\mu g/m^3$ (SG-B2) and 5 $\mu g/m^3$ (SG-B4), which were lower than the concentration (49 $\mu g/m^3$) detected in the residential property crawl space air sample. TCE was not detected in the indoor air sample at the residential property. The concentrations of all other detected compounds were comparable to those detected in the residential property indoor air sample.

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SECTION 6

Conclusions

6.1 Summary

- MEK and MIBK detected at or above the 90th percentile indoor air background level (NYSDOH 2006) in the residential property indoor air sample are not believed to be related to subsurface conditions because lower concentrations were detected in the residential property crawl space air sample and the soil vapor samples collected from SWMU 1.
- Higher concentrations of MIBK detected in ambient air at the site indicate the potential for MIBK to be detected at higher concentrations in ambient air at the residential property.
- Higher concentrations of cis-1,2-DCE and TCE detected in the residential property crawl space air sample are not believed to be related to subsurface conditions because these two compounds were not detected in the soil vapor samples collected from SWMU 1. In addition, it is not believed that these two compounds have impact to indoor air because they were not detected in the residential property indoor air sample. Cis-1,2-DCE and TCE were not detected in the groundwater samples collected from the crossgradient monitoring wells (MW-17 and MW-18) (Figure 3) during the October 2009 sampling event (CH2M HILL 2010d). In addition, cis-1,2-DCE was not detected in any other wells in SWMU 1 since January 2002; TCE was not detected in any other wells in SWMU 1 during the October 2009 sampling event (CH2M HILL 2010d).

6.2 Proposed Path Forward

Based on the evaluation of the soil vapor, crawl space, indoor, and ambient air sampling data obtained during the March 2010 soil vapor investigation, only two compounds (MEK and MIBK) in the residential property indoor air sample were detected at or above the 90th percentile indoor air background level (NYSDOH 2006). No further evaluation is proposed because lower MEK and MIBK concentrations were detected in the residential property crawl space air sample and the soil vapor samples collected from SWMU 1, which suggested that MEK and MIBK in the residential property indoor air do not appear to be related to vapor intrusion. Based on discussions with NYSDEC and NYSDOH on May 7, 2010, the agencies agreed that no additional vapor intrusion evaluation was needed on the residential property.

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SECTION 7

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Table

TABLE 1
Soil Vapor, Crawl Space Air, Indoor Air, and Ambient Air Analytical Results - March 201(
SWMU 1 Soil Vapor Intrusion Investigation Report
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Area			*Ambient Air*				*Residential Property*		*SWMU 1*		
Location			*Residential Property*	*SGP-SWMU1*	SG-B2	SG-B4	*Indoor Air*	*Crawl Space*	*SGP-09*	*SGP-10*	*SGP-10*
Sample ID		*NYSDOH*	*SGP-RP-032410*	SGP-SWMU1-032410	WAT-SG-B2-032310	WAT-SG-B4-032310	*RP-IA-032410*	RP-CS-1-032410	*SGP-9-032410*	SGP-10-032410	SGP-DUP-032410
Sample Date		*(App C)*	*3/24/2010*	*3/24/2010*	3/23/2010	3/23/2010	*3/24/2010*	*3/24/2010*	*3/24/2010*	*3/24/2010*	*3/24/2010*
Sample Type		*Indoor Air*	*Normal*	*Normal*	Normal	Normal	*Normal*	*Normal*	*Normal*	*Normal*	*Duplicate*
Sample Matrix	*CAS #*	*90th Percentile Background Value*[1] *a*	*Ambient*	*Ambient*	Ambient	Ambient	*Air*	*Air*	*Soil Vapor*	*Soil Vapor*	*Soil Vapor*
TO-15 (ug/m^3)											
1,1,1-Trichloroethane	71-55-6	3.1	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,1,2,2-Tetrachloroethane	79-34-5	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,1,2-Trichloroethane	79-00-5	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,1-Dichloroethane	75-34-3	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,1-Dichloroethene	75-35-4	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,2-Dichloroethane	107-06-2	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,2-Dichloroethene, cis-	156-59-2	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	**4**	0.22 U	0.12 U	0.12 U
1,2-Dichloroethene, trans-	156-60-5	--	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,2-Dichloropropane	78-87-5	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
1,3-Dichloropropene, cis-	10061-01-5	0.25	0.68 U	0.76 U	0.63 U	0.71 U	0.7 U	0.82 U	1.1 U	0.61 U	0.59 U
1,3-Dichloropropene, trans-	10061-02-6	0.25	0.68 U	0.76 U	0.63 U	0.71 U	0.7 U	0.82 U	1.1 U	0.61 U	0.59 U
Acetone	67-64-1	110	6.8 U	**14**	6.3 U	**18**	**20**	**20 J**	**57**	**12 J**	5.9 U
Acrylonitrile	107-13-1	--	0.68 U	0.76 U	**0.33 J**	**0.39 J**	0.7 U	0.82 U	1.1 U	0.61 U	0.59 U
Benzene	71-43-2	15	**0.54**	**0.53**	**0.62**	**0.68**	**0.75**	**0.71**	**0.93**	**0.61**	**0.58**
Bromodichloromethane	75-27-4	--	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Bromoform	75-25-2	--	0.68 U	0.76 U	0.63 U	0.71 U	0.7 U	0.82 U	1.1 U	0.61 U	0.59 U
Bromomethane	74-83-9	--	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Carbon Disulfide	75-15-0	--	6.8 U	7.6 U	6.3 U	**0.83 J**	7 U	8.2 U	11 U	6.1 U	5.9 U
Carbon Tetrachloride	56-23-5	0.8	**0.55**	**0.56**	**0.54**	**0.52**	**0.53**	**0.61**	**0.51**	**0.54**	**0.57**
Chlorobenzene	108-90-7	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Chloroethane	75-00-3	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Chloroform	67-66-3	1.4	0.14 U	0.15 U	**0.28**	**0.15**	**0.085 J**	**0.31**	0.22 U	**0.13 J**	**2.4 J**
Chloromethane	74-87-3	3.3	**0.41**	**0.52**	**0.42**	**0.47**	**0.46**	**0.49**	**0.25 J**	**0.45**	**0.41**
Dibromochloromethane	124-48-1	--	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Ethylbenzene	100-41-4	7.3	0.68 U	0.76 U	**0.32 J**	**0.35 J**	**0.31 J**	**0.33 J**	1.1 U	0.61 U	**0.23 J**
Methyl Ethyl Ketone (2-Butanone)	78-93-3	16	**2.5 J**	**1.5 J**	6.3 U	**0.99 J**	**16**[a]	**3.2 J**	**12**	6.1 U	5.9 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	2.2	**0.85**	**0.49**	**140**	**52**	**4.8**[a]	**1.5**	**1.7**	**0.31**	**0.65**
Methylene chloride	75-09-2	22	0.68 U	0.76 U	**0.28 J**	**0.29 J**	0.7 U	**0.45 J**	**0.45 J**	0.61 U	**0.26 J**
Styrene	100-42-5	1.3	0.68 U	0.76 U	0.63 U	0.71 U	**0.3 J**	0.82 U	1.1 U	0.61 U	0.59 U
tert-Butyl Methyl Ether		--	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Tetrachloroethene	127-18-4	2.9	0.14 U	**0.19**	**0.084 J**	0.14 U	**0.29**	**0.72**	0.22 U	0.12 U	**0.52 J**
Toluene	108-88-3	58	**3**	**1.2**	**2.4**	**9.3**	**2.1**	**6.8**	**3.1**	**1.1**	**1.5**
Trichloroethene	79-01-6	0.5	0.14 U	0.15 U	**3.3**	**5**	0.14 U	**49**	0.22 U	0.12 U	0.12 U
Vinyl chloride	75-01-4	0.25	0.14 U	0.15 U	0.13 U	0.14 U	0.14 U	0.16 U	0.22 U	0.12 U	0.12 U
Xylene, m,p-	108-38-3/1	12	**0.63 J**	0.76 U	**0.78**	**1.1**	**0.82**	**1.1**	**1.1 J**	0.61 U	**0.72 J**
Xylene, o-	95-47-6	7.6	**0.26 J**	0.76 U	**0.41 J**	**0.59 J**	**0.38 J**	**0.75 J**	**0.67 J**	0.61 U	**0.32 J**
Epichlorohydrin	106-89-8	--	NF	NF	NF	NF	NF	NF	NF	NF	NF
Tentatively Identified Compounds											
1,1-Difluoroethane		--	-	-	-	-	**30 N**	-	-	-	-
Acetaldehyde + Isobutane		--	**4.1 N**	**26 N**	**5 N**	-	**23 N**	**13 N**	-	-	**12 N**
Benzaldehyde		3500	**5.2 N**	**5.6 N**	**9.4 N**	-	-	-	**10 N**	**7.3 N**	-
Hexamethylcyclotrisiloxane		--	-	-	-	-	-	-	**26 N**	-	-
Isopropyl Cyanate		--	-	-	**8.6 N**	**13 N**	-	-	**33 N**	-	-

Notes:

4[a]	Concentration > or = NYSDOH 90th Percentile Indoor Air Background Value
1.1 U	RL exceeds NYSDOH 90th Percentile Indoor Air Background Value

Bold indicates detected concentration.
"--" No Established NYSDOH (App C) 90th Percentile Indoor Air Background Value
J = The result is an estimated concentration that is less than the method reporting limit (MRL) but greater than or equal to the method detection limit (MDL).
U = Compound was analyzed for, but not detected above the laboratory detection limit.
N = Tentatively Identified Compound (TIC)
NF = Not found by laboratory library search
NYSDEC requested indoor/outdoor air reporting limit of 1 ug/m3 or less for all compounds except TCE which should be 0.25 ug/m3 or less; this is not applicable to tentatively identified compounds (TIC), acetone or epichlorohydrin.
SGP-10-032410 is parent of duplicate sample SGP-DUP-032410.
SG-B2 was collected west of Building 1 and SG-B4 was collected northeast of Building 4 at the facility.
[1]Source: New York State Department of Health (NYSDOH) 2006 Final Soil Vapor Intrusion Guidance, Appendix C, Section C.1. NYSDOH 2003: Study of volatile organic chemicals in air of fuel oil heated homes 90th Percentile.

Figures

\\NORTHEND\PROJ\DOW\WATERLOO\GIS_FOLDERS\MAPFILES\SMWU1\SOIL VAPOR INVESTIGATION REPORT\FIGURE1_FACILITY_LOCATION.MXD MUNWIN 4/1/11

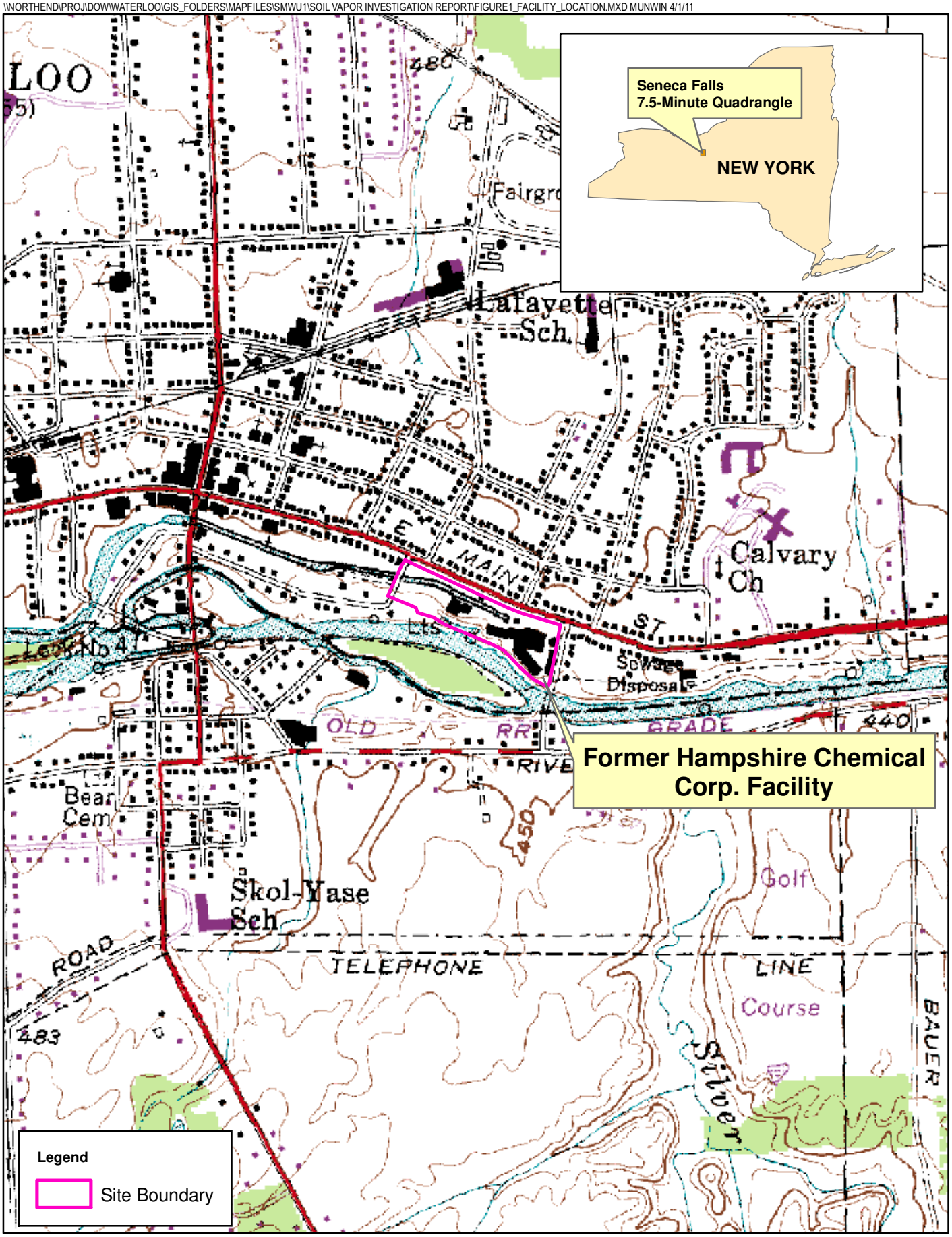

Figure 1
Facility Location Map
SMWU 1 Soil Vapor Intrusion Investigation Report
Former Hampshire Chemical Corp. Facility
Waterloo, New York

CH2MHILL

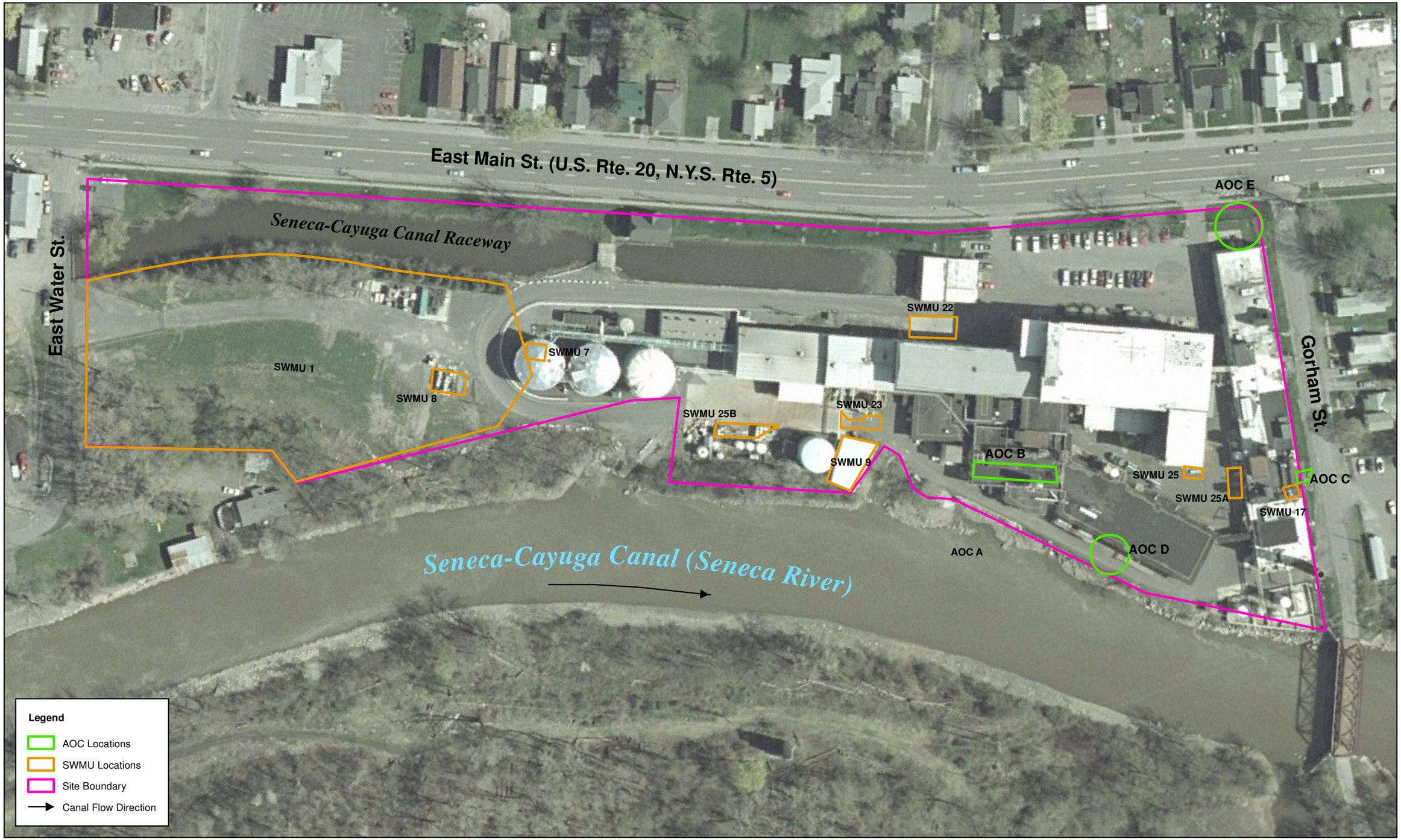

Figure 2
SWMU and AOC Locations
SWMU 1 Soil Vapor Intrusion Investigation Report
Former Hampshire Chemical Corp. Facility
Waterloo, New York

\\NORTHEND\PROJ\DOW\WATERLOO\GIS_FOLDERS\MAPFILES\SMWU1\SOIL VAPOR INVESTIGATION REPORT\FIGURE2_SWMU_AOC_LOCATIONS3.MXD MUNWIN 4/1/11

CH2MHILL

Figure 3
Groundwater Monitoring Well Locations
SWMU 1 Soil Vapor Intrusion Investigation Report
Former Hampshire Chemical Corp. Facility
Waterloo, New York

\\NORTHEND\PROJ\DOW\WATERLOO\GIS_FOLDERS\MAPFILES\SMWU1\SOIL VAPOR INVESTIGATION REPORT\FIGURE3_GW_SAMPLING.MXD MUNWIN 4/1/11

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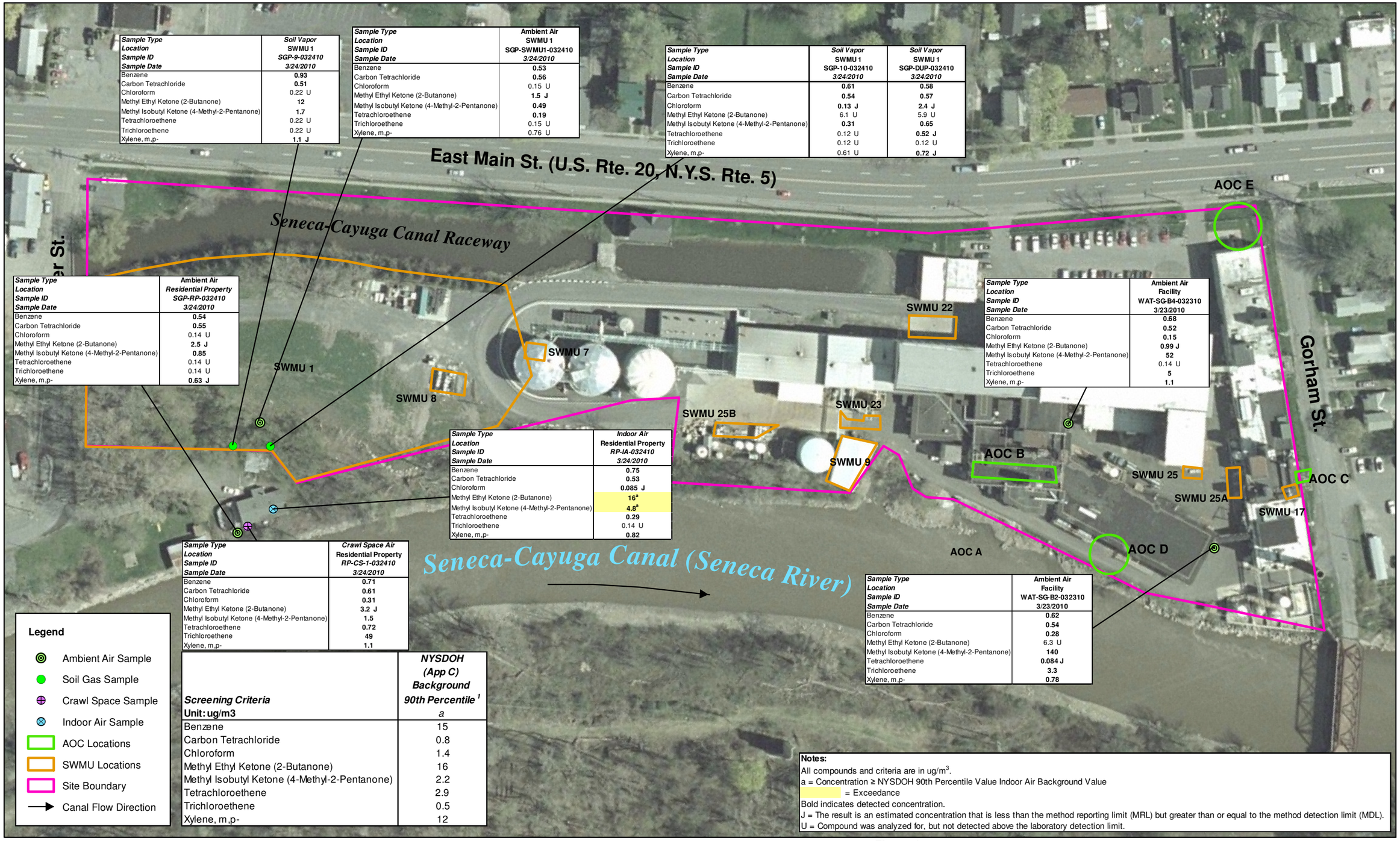


Sample Type	Soil Vapor
Location	SWMU 1
Sample ID	SGP-9-032410
Sample Date	3/24/2010
Benzene	**0.93**
Carbon Tetrachloride	**0.51**
Chloroform	0.22 U
Methyl Ethyl Ketone (2-Butanone)	**12**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**1.7**
Tetrachloroethene	0.22 U
Trichloroethene	0.22 U
Xylene, m,p-	**1.1 J**

Sample Type	Ambient Air
Location	SWMU 1
Sample ID	SGP-SWMU1-032410
Sample Date	3/24/2010
Benzene	**0.53**
Carbon Tetrachloride	**0.56**
Chloroform	0.15 U
Methyl Ethyl Ketone (2-Butanone)	**1.5 J**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**0.49**
Tetrachloroethene	**0.19**
Trichloroethene	0.15 U
Xylene, m,p-	0.76 U

Sample Type	Soil Vapor	Soil Vapor
Location	SWMU 1	SWMU 1
Sample ID	SGP-10-032410	SGP-DUP-032410
Sample Date	3/24/2010	3/24/2010
Benzene	**0.61**	**0.58**
Carbon Tetrachloride	**0.54**	**0.57**
Chloroform	**0.13 J**	**2.4 J**
Methyl Ethyl Ketone (2-Butanone)	6.1 U	5.9 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**0.31**	**0.65**
Tetrachloroethene	0.12 U	**0.52 J**
Trichloroethene	0.12 U	0.12 U
Xylene, m,p-	0.61 U	**0.72 J**

Sample Type	Ambient Air
Location	Residential Property
Sample ID	SGP-RP-032410
Sample Date	3/24/2010
Benzene	**0.54**
Carbon Tetrachloride	**0.55**
Chloroform	0.14 U
Methyl Ethyl Ketone (2-Butanone)	**2.5 J**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**0.85**
Tetrachloroethene	0.14 U
Trichloroethene	0.14 U
Xylene, m,p-	**0.63 J**

Sample Type	Ambient Air
Location	Facility
Sample ID	WAT-SG-B4-032310
Sample Date	3/23/2010
Benzene	**0.68**
Carbon Tetrachloride	**0.52**
Chloroform	**0.15**
Methyl Ethyl Ketone (2-Butanone)	**0.99 J**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**52**
Tetrachloroethene	0.14 U
Trichloroethene	**5**
Xylene, m,p-	**1.1**

Sample Type	Indoor Air
Location	Residential Property
Sample ID	RP-IA-032410
Sample Date	3/24/2010
Benzene	**0.75**
Carbon Tetrachloride	**0.53**
Chloroform	**0.085 J**
Methyl Ethyl Ketone (2-Butanone)	**16[a]**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**4.8[a]**
Tetrachloroethene	**0.29**
Trichloroethene	0.14 U
Xylene, m,p-	**0.82**

Sample Type	Crawl Space Air
Location	Residential Property
Sample ID	RP-CS-1-032410
Sample Date	3/24/2010
Benzene	**0.71**
Carbon Tetrachloride	**0.61**
Chloroform	**0.31**
Methyl Ethyl Ketone (2-Butanone)	**3.2 J**
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**1.5**
Tetrachloroethene	**0.72**
Trichloroethene	**49**
Xylene, m,p-	**1.1**

Sample Type	Ambient Air
Location	Facility
Sample ID	WAT-SG-B2-032310
Sample Date	3/23/2010
Benzene	**0.62**
Carbon Tetrachloride	**0.54**
Chloroform	**0.28**
Methyl Ethyl Ketone (2-Butanone)	6.3 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	**140**
Tetrachloroethene	**0.084 J**
Trichloroethene	**3.3**
Xylene, m,p-	**0.78**

Screening Criteria Unit: ug/m3	NYSDOH (App C) Background 90th Percentile [1] a
Benzene	15
Carbon Tetrachloride	0.8
Chloroform	1.4
Methyl Ethyl Ketone (2-Butanone)	16
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	2.2
Tetrachloroethene	2.9
Trichloroethene	0.5
Xylene, m,p-	12

Legend

- Ambient Air Sample
- Soil Gas Sample
- Crawl Space Sample
- Indoor Air Sample
- AOC Locations
- SWMU Locations
- Site Boundary
- Canal Flow Direction

Notes:

All compounds and criteria are in ug/m^3.

a = Concentration ≥ NYSDOH 90th Percentile Value Indoor Air Background Value

= Exceedance

Bold indicates detected concentration.

J = The result is an estimated concentration that is less than the method reporting limit (MRL) but greater than or equal to the method detection limit (MDL).

U = Compound was analyzed for, but not detected above the laboratory detection limit.

N

0 50 100 150 200

Feet

[1]Source: New York State Department of Health (NYSDOH) 2006 Final Soil Vapor Intrusion Guidance, Appendix C, Section C.1. NYSDOH 2003: Study of volatile organic chemicals in air of fuel oil heated homes 90th percentile.

Figure 4

Soil Vapor, Crawl Space Air, Indoor Air, and Ambient Air Sample Locations and Results
SMWU 1 Soil Vapor Intrusion Investigation Report
Former Hampshire Chemical Corp. Facility
Waterloo, New York

Appendix A

NYSDOH Indoor Air Quality Questionnaire and Building Inventory

OSR – 3

NEW YORK STATE DEPARTMENT OF HEALTH
INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY
CENTER FOR ENVIRONMENTAL HEALTH

This form must be completed for each residence involved in indoor air testing.

Preparer's Name Graham Sharkey / Lisa La Fortune Date/Time Prepared 1105

Preparer's Affiliation CH2M Hill Phone No.

Purpose of Investigation Determine proper locations for indoor Air Sampling

1. OCCUPANT:

Interviewed: (Y) / N

Last Name: Nadeau First Name: Jimmi / Robb S.

Address: 60 East Water Street, Waterloo, NY

County: Seneca

Home Phone: Office Phone:

Number of Occupants/persons at this location 2 Age of Occupants ~20's ~45

2. OWNER OR LANDLORD: (Check if same as occupant ___)

Interviewed: (Y) / N

Last Name: Nadeau First Name: Robb S.

Address: 60 East Water Street, Waterloo, NY

County: Seneca

cell
~~Home~~ Phone: 585-750-8631 ~~Office Phone:~~ NA

3. BUILDING CHARACTERISTICS

Type of Building: (Circle appropriate response)

(Residential)	School	Commercial/Multi-use
Industrial	Church	Other:

If the property is residential, type? (Circle appropriate response)

(Ranch)	2-Family	3-Family
Raised Ranch	Split Level	Colonial
Cape Cod	Contemporary	Mobile Home
Duplex	Apartment House	Townhouses/Condos
Modular	Log Home	Other:_____

If multiple units, how many? No

If the property is commercial, type?

Business Type(s) NA

Does it include residences (i.e., multi-use)? Y / N NA If yes, how many? NA

Other characteristics:

Number of floors 1 Building age 1972 (38 yrs)

Is the building insulated? (Y) N How air tight? Tight / (Average) / Not Tight

All windows original & may have a leak except for main living room window (2005)

4. AIRFLOW

Use air current tubes or tracer smoke to evaluate airflow patterns and qualitatively describe:

Airflow between floors

NA

Airflow near source

NA

Outdoor air infiltration

NA

Infiltration into air ducts

NA

5. BASEMENT AND CONSTRUCTION CHARACTERISTICS (Circle all that apply)

a. Above grade construction:	wood frame	concrete	stone	brick
b. Basement type:	full	crawlspace	slab	other _____
c. Basement floor:	concrete	dirt	stone	other _____
d. Basement floor:	uncovered	covered	covered with _____	
e. Concrete floor:	unsealed	sealed	sealed with _____	
f. Foundation walls:	poured	block	stone	other _____
g. Foundation walls:	unsealed	sealed	sealed with _____	
h. The basement is: NA	wet	damp	dry	moldy
i. The basement is: NA	finished	unfinished	partially finished	
j. Sump present?	Y / N			
k. Water in sump?	Y / N / not applicable			

Basement/Lowest level depth below grade: 0 (feet)

Identify potential soil vapor entry points and approximate size (e.g., cracks, utility ports, drains)

No potential soil vapor entry points observed in the main floor

6. HEATING, VENTING and AIR CONDITIONING (Circle all that apply)

Type of heating system(s) used in this building: (circle all that apply – note primary)

Hot air circulation	Heat pump	Hot water baseboard	
Space Heaters	Stream radiation	Radiant floor	
Electric baseboard	Wood stove	Outdoor wood boiler	Other _____

The primary type of fuel used is:

Natural Gas	Fuel Oil	Kerosene
Electric	Propane	Solar
Wood	Coal	

Domestic hot water tank fueled by: Electric

Boiler/furnace located in: Basement Outdoors Main Floor Other _____

Air conditioning: Central Air Window units Open Windows None

Are there air distribution ducts present? (Y) / N

Describe the supply and cold air return ductwork, and its condition where visible, including whether there is a cold air return and the tightness of duct joints. Indicate the locations on the floor plan diagram.

Ductwork is underground, the condition cannot be observed. Vents are shown on the site diagram.
HVAC - Colman EVCON → relatively new condition

7. OCCUPANCY

Is basement/lowest level occupied? Full-time Occasionally Seldom Almost Never

Level	**General Use of Each Floor (e.g., familyroom, bedroom, laundry, workshop, storage)**
Basement	NA
1st Floor	All the livable space
2nd Floor	NA
3rd Floor	NA
4th Floor	NA

8. FACTORS THAT MAY INFLUENCE INDOOR AIR QUALITY

a. Is there an attached garage? Y (N)

b. Does the garage have a separate heating unit? Y / (N) / ~~NA~~

c. Are petroleum-powered machines or vehicles stored in the garage (e.g., lawnmower, atv, car) (Y) / N / NA Please specify 2 Motorcycles

d. Has the building ever had a fire? Y / (N) When? Unknown

e. Is a kerosene or unvented gas space heater present? Y / (N) Where? _____

f. Is there a workshop or hobby/craft area? (Y) / N Where & Type? Garage – auto maintenance

g. Is there smoking in the building? (Y) / N How frequently? Daily

h. Have cleaning products been used recently? (Y) / N When & Type? Laundary 2 days ago

i. Have cosmetic products been used recently? Y / (N) When & Type? _____

j. Has painting/staining been done in the last 6 months? Y (N) Where & When? Painted 6/2009

k. Is there new carpet, drapes or other textiles? Y / N Where & When? Carpet put in 6/2009

l. Have air fresheners been used recently? (Y) / N When & Type? Febreze for pets

m. Is there a kitchen exhaust fan? Y / N If yes, where vented? Above Stove

n. Is there a bathroom exhaust fan? (Y) / N If yes, where vented? ~~Above stove~~ (ES) ceiling

o. Is there a clothes dryer? (Y) / N If yes, is it vented outside? (Y) / N

p. Has there been a pesticide application? Y / (N) When & Type? _____

Are there odors in the building? (Y) / N
If yes, please describe: Smokey, possibly due to cigarettes or firewood

Do any of the building occupants use solvents at work? Y (N)
(e.g., chemical manufacturing or laboratory, auto mechanic or auto body shop, painting, fuel oil delivery, boiler mechanic, pesticide application, cosmetologist

If yes, what types of solvents are used? NA

If yes, are their clothes washed at work? Y (N)

Do any of the building occupants regularly use or work at a dry-cleaning service? (Circle appropriate response)

Yes, use dry-cleaning regularly (weekly)
Yes, use dry-cleaning infrequently (monthly or less)
Yes, work at a dry-cleaning service
(No)
Unknown

Is there a radon mitigation system for the building/structure? Y (N) Date of Installation: _____
Is the system active or passive? Active/Passive

9. WATER AND SEWAGE

Water Supply:	(Public Water)	Drilled Well	Driven Well	Dug Well	Other: _____
Sewage Disposal:	Public Sewer	(Septic Tank)	Leach Field	Dry Well	Other: _____

10. RELOCATION INFORMATION (for oil spill residential emergency) NA

a. Provide reasons why relocation is recommended: NA

b. Residents choose to: remain in home relocate to friends/family relocate to hotel/motel

c. Responsibility for costs associated with reimbursement explained? Y / N

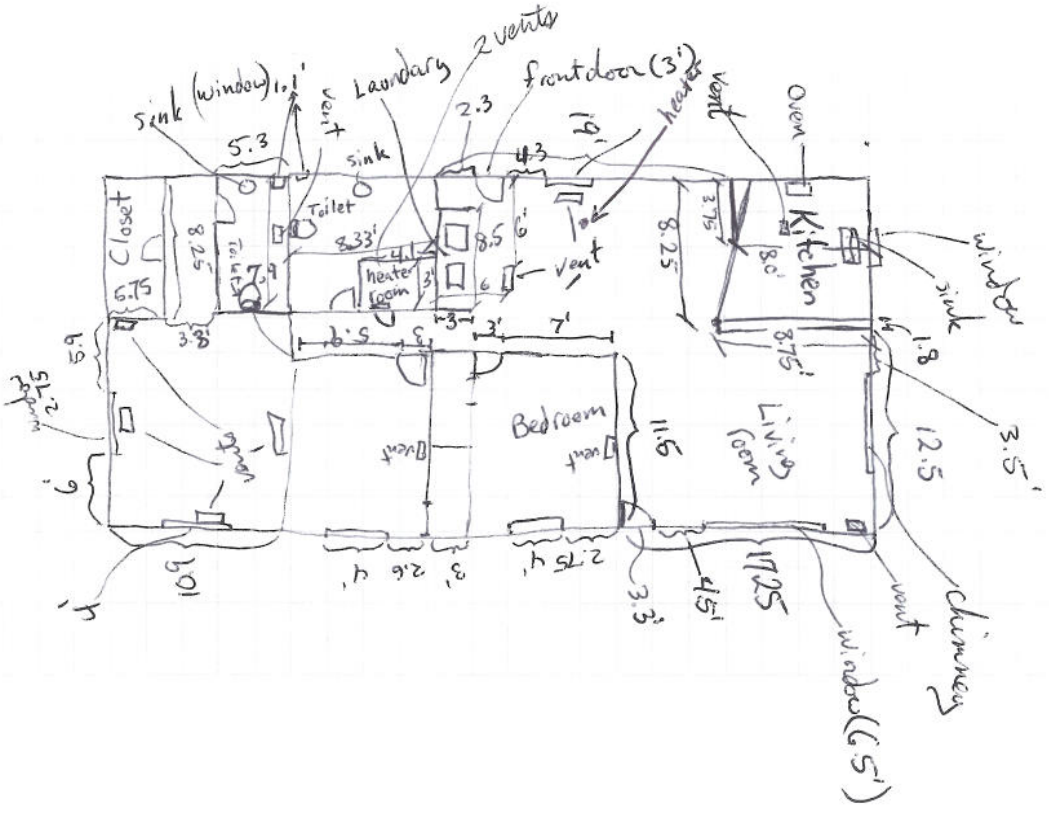
d. Relocation package provided and explained to residents? Y / N

11. FLOOR PLANS

Draw a plan view sketch of the basement and first floor of the building. Indicate air sampling locations, possible indoor air pollution sources and PID meter readings. If the building does not have a basement, please note.

Basement:

First Floor:



13. PRODUCT INVENTORY FORM

Make & Model of field instrument used: NA

List specific products found in the residence that have the potential to affect indoor air quality.

Location	Product Description	Size (units)	Condition*	Chemical Ingredients	Field Instrument Reading (units)	Photo ** Y / N
LAUNDRY	DOWNY FABRIC SOFTNER	3L	1 EMPTY 1 FULL	NOT SHOWN		N
LAUNDRY	ARM & HAMMER DETERGENT	1.5	1 FULL	NOT SHOWN		N
	LESTOIL	4.43	3/4 FULL	ANIONIC & IONIC SURFACTANTS PETROLEUM DISTILLATES		N
	STAIN REMOVER RESOLVE	890ml	3/4 FULL	CONTAINS NO PHOSPHATES.		N
	SPRAY WASH	122gr	1/2 FULL	CONTAINS NO PHOSPHATES		N
	GLASS CLEANER w/AMMONIA TOUCH OF GLASS	950ml	1/4 FULL	CONTAINS NO PHOSPHATES		N
	VINYL SPACKLING	237ml	FULL (U)	$CaCO_3$, Mg Al silicate		N
	FEBREZE	890ml	1/2 FULL	ODOR ELIMINATOR BASED FROM CORN WATER, ALCOHOL, FRAGRANCE		N
	FEBREEZE	2L	1/2 FULL	SAME		N
	TORCH (BLUE)	1L	1/2 FULL	GAS (BUTANE?)		N
KITCHEN SINK	GLASS GLOW	946ml	1 1/2 FULL	GLASS CLEANER WITH AMMONIA		N
	TILEX	946ml	1/10 FULL	SHOWER CLEANER		N
	HOT SHOT	425ml	1/4 FULL	FLYING INSECT KILLER		N
	PLEDGE	12.5oz	3/4 FULL	MULTI-SURFACE CLEANS & DUST		N
	BRILLO	8 units	1/2 FULL	STEEL WOOL PADS GREASE FIGHTER		N
MIDDLE BATHROOM	SOFTSCRUB	24oz	1/2 FULL	NaOCl Hypochlorite 1.1% BLEACH CLEANSER		N
MAIN BATHROOM	BARBASOL	11oz	1/2 FULL	SHAVING CREAM		N
	POVIDONE IODINE SOLUTION	8oz	237ml 3/4 FULL	NaOH, citric acid, disodium phosphate glycerin, nonoxynol-9, purified water		N
	ISOPROPYL ALCOHOL	12Floz	1/4 FULL	50%		N
	ARM & HAMMER	1.1	1 FULL (U)	NOT SHOWN		

* Describe the condition of the product containers as **Unopened (UO), Used (U),** or **Deteriorated (D)**

** Photographs of the **front and back** of product containers can replace the handwritten list of chemical ingredients. However, the photographs must be of good quality and ingredient labels must be legible.

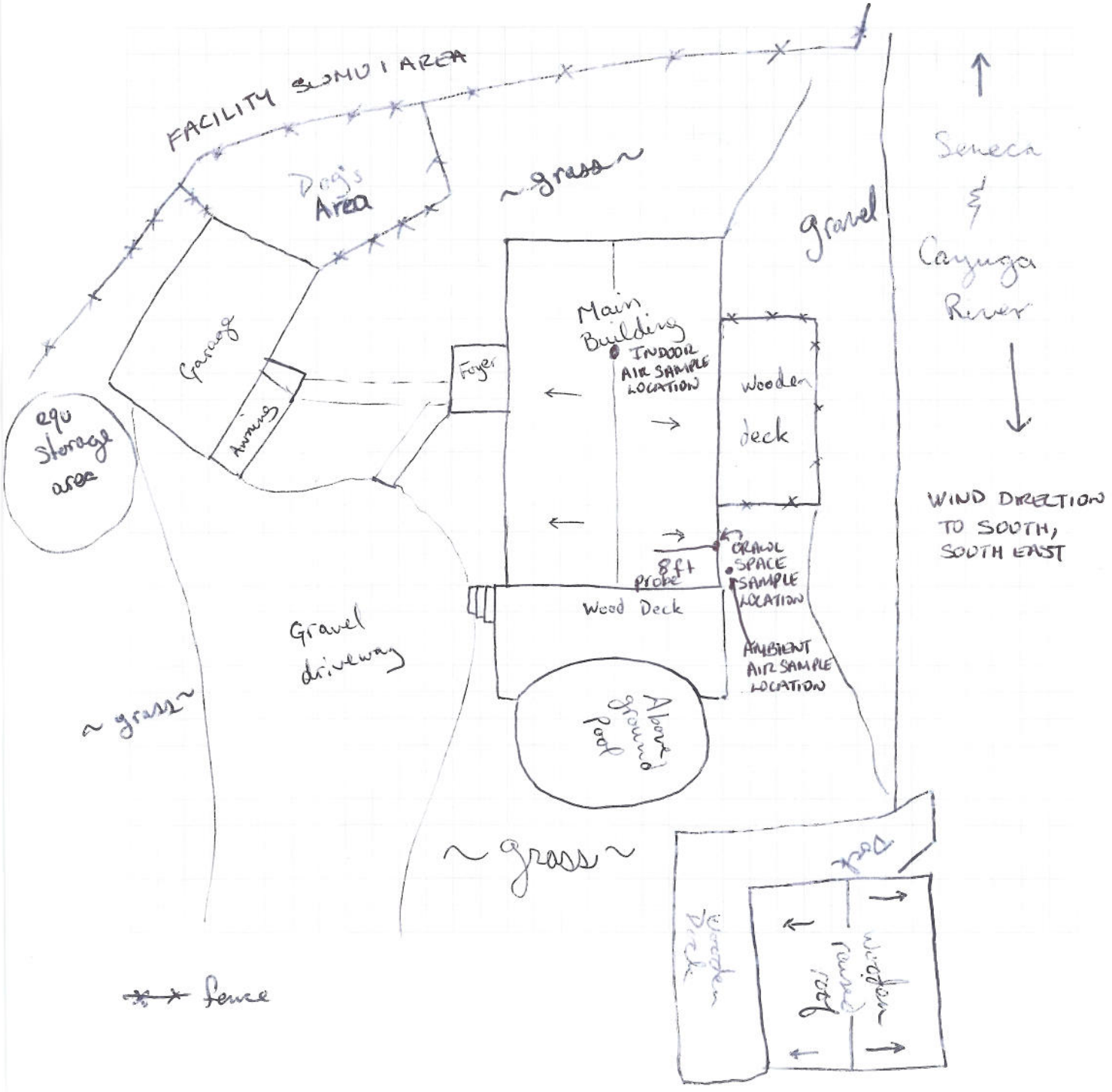
13. PRODUCT INVENTORY FORM (CONT'D ON BACK OF PAGE 8)

American Value	Kitchen & Bath cleaner with Bleach (A)	976ml	Na hypochlorite, alkOH, nonionic surfactant, fragrance no phosphates
Kaboom	Shower Tub & Tile Cleaner (D)	650ml or 22 FL	ingredients not on bottle
Spic & Span	The complete Home Cleaner (U)	32fl	No phosphate, chlorine, bleach or ammonia
Hydrogen Peroxide	(U)	946 ml	Hydrogen peroxide 3%

12. OUTDOOR PLOT

Draw a sketch of the area surrounding the building being sampled. If applicable, provide information on spill locations, potential air contamination sources (industries, gas stations, repair shops, landfills, etc.), outdoor air sampling location(s) and PID meter readings.

Also indicate compass direction, wind direction and speed during sampling, the locations of the well and septic system, if applicable, and a qualifying statement to help locate the site on a topographic map.



12: OUTDOOR PLOT (CONT'D ON BACK OF PAGE 7)

- Glass found along the fence on North side of property
  - by entrance of property, from road to garage
  - Buried up to ~4' deep
  - Metal buried under pool area

Appendix B
Field Sampling Log Sheets

CH2M HILL *Applied Sciences Laboratory* Sheet 1 of 1

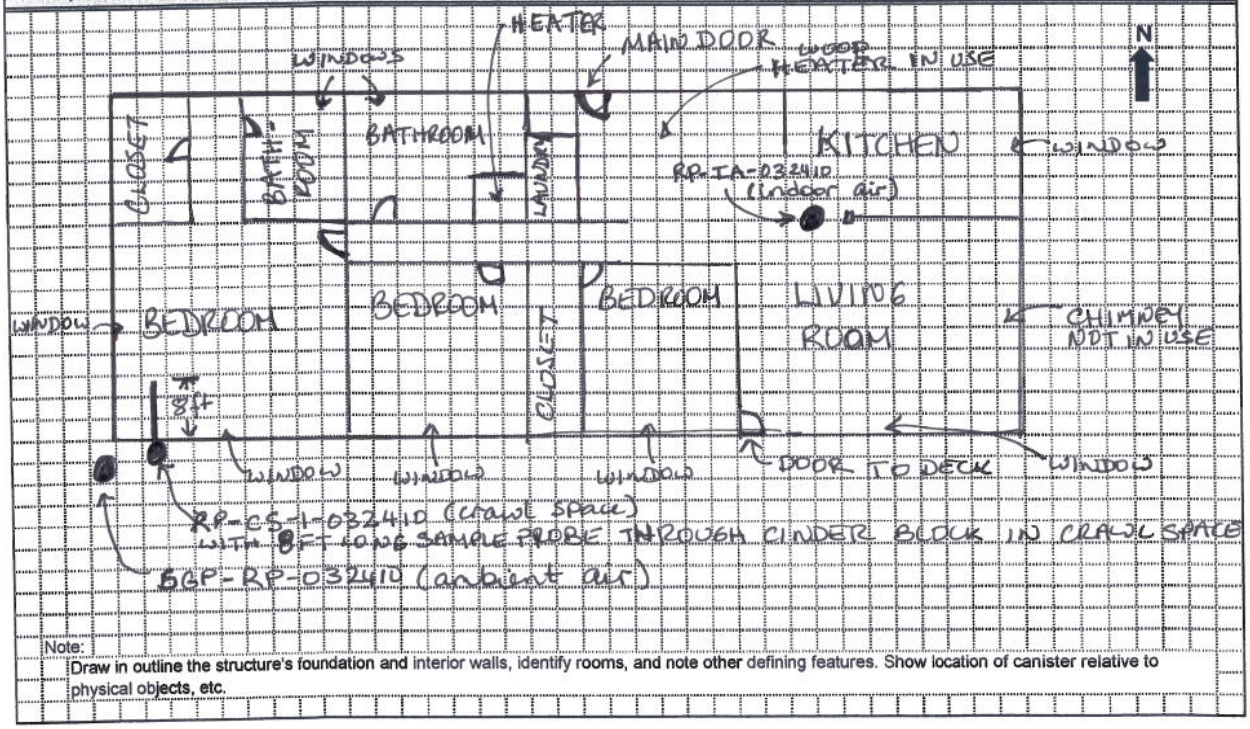
Ambient, Indoor, Outdoor & Crawl Space Air Sampling Log (Summa Canister)

Project Information	Former Hampshire Chemical Corp Facility, Watkins, NY
Project Name: ~~SWMU 1~~ SWMU 1 SOIL VAPOR INVESTIGATION	Project #: 386132.05.C1.FI
By: LISA LA FORTUNE/NJO; GRAHAM SHARKEY/NJO	Date: 03/24/10

Sampling Data Log

Sample Location	Field ID	Canister ID	Flow Controller ID	Initial Canister Pressure ("Hg)	Initial Flow Controller Rate (ml/min)	Start Date & Time	End Data & Time	Final Pressure ("Hg)	Final Flow Controller Rate (ml/min)
RESIDENTIAL INDOOR AIR	RP-IA-032410	AC01240	FC00783 AVG01321	-28	4ml/min	03/23/10 1501	03/24/10 1510	-2	4ml/min
RESIDENTIAL CRAWL SPACE	RP-CS-1-032410	AC01590	FC00557 AVG01012	-30	↓	03/23/10 456	03/24/10 1505	-8	↓
RESIDENTIAL AMBIENT AIR	SGP-RP-032410	AC01335	FC00111 AVG00981	-29	↓	03/23/10 1445	03/24/10 1500	-3	↓

Sample Location Diagram



Note:
Draw in outline the structure's foundation and interior walls, identify rooms, and note other defining features. Show location of canister relative to physical objects, etc.

Other Observations and Comments (note any unique circumstances): MORE DETAILS IN NYSDOH INDOOR AIR QUALITY QUESTIONNAIRE AND BUILDING INVENTORY. SWAGELOK GAS TIGHT FITTINGS USED ON CRAWL SPACE SAMPLE PROBE.

CH2MHILL *Applied Sciences Laboratory*

Indoor Vapor Intrusion Assessment
Soil Gas Sampling Field Log

Project Info

Project Name: Former Hampshire Chemical Corp Facility, Waterloo, NY Project # : 386132.05.C1.FI

By: Lisa La Fortune/NJO; Graham Shankey/NJO Date: 03/24/10

Structure

Identification: SWMU 1 SOIL VAPOR INVESTIGATION

Address: Waterloo, NY

Sample Location type:

- ☐ concrete slab on grade
- ☐ concrete footing w/crawl space
- ☐ basement
- ☐ Yard or Driveway
- ☒ other (describe) GRASSY SLOPE OUTSIDE MAIN BUILDINGS

Soil Gas Sampling System

Probe type (describe): Geoprobe soil gas implant finished as a stick up

Probe to sample interface system (describe): Swagelok gas tight fittings used on soil gas probe

Sample collection type: ☐ Syringe ☐ Tedlar bag ☒ Summa canister

Other info (describe other aspects) 24 hr sampling commenced on 03/23/10 and was completed on 03/24/10.

Soil Gas Probe Purging & Sampling Log

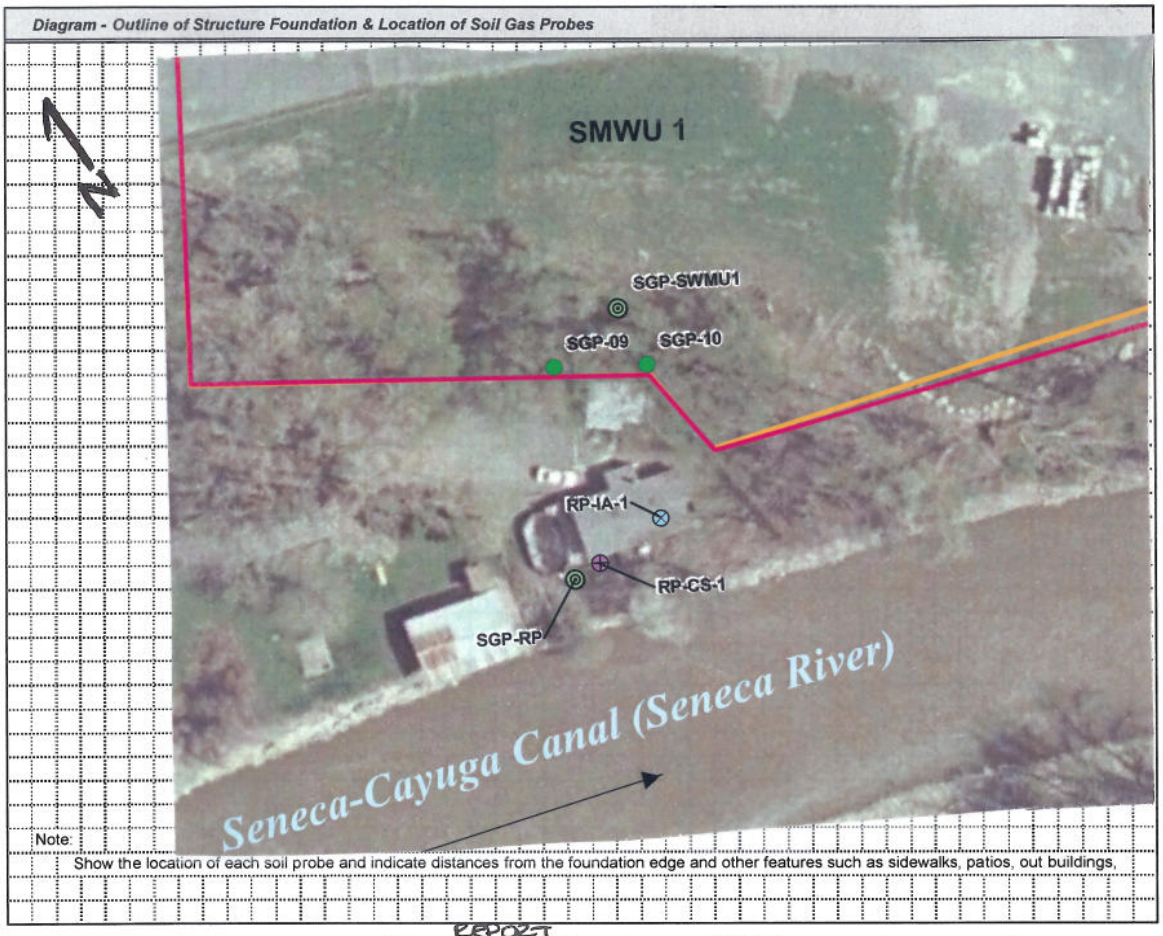
Sample location (show in diagram)	SGP-9	SGP-10	DUPLICATE	AMBIENT AIR
Sample Identification (field ID)	SGP-9-032410	SGP-10-032410	SGP-DUP-032410	SGP-SWMU1-032410
Time Installed (PROBE)	12/13/2007	12/13/2007	N/A	N/A
Depth of installed probe (feet bgs)	5.5-6.0	7.0-7.5	DUPLICATE	AMBIENT AIR
Leak check, vacuum (probe/sampling interface)	OK	OK	OF SGP-10	N/A
Calculated dead volume (1 purge volume), cc	175 ml	205 ml	N/A	N/A
Calculated purge volume (3 purge volume), cc	525 ml	615 ml	N/A	N/A
Purge rate, cc/min.	150 ml/min	150ml/min	150ml/min	N/A
Purge duration, min.	3min 30sec	4min 6sec	N/A	N/A
Purge started (time of day)	1432	1415	1415	N/A
Purge vacuum, " Hg	0	0	0	N/A
Max Helium Leak Check Reading	0.0	0.0	0.0	N/A
Purge completed (time of day)	1436	1419	1419	N/A
Sampling period started (time of day)	1437	1420	1420	1405
Sampling rate, cc/min	4ml/min	4 ml/min	4 ml/min	4ml/min
Sampling vacuum, " Hg	-28/-14	-29/0	-30/0	-30/-8
Sampling period ended (time of day)	1450 03/24/10	1247 03/24/10	1247 03/24/10	1445 03/24/10

Observations and Comments: Water was observed during the purge of SGP-9. The purge was completed and the sample was collected.

CH2MHILL *Applied Sciences Group*

Indoor Vapor Intrusion Assessment
Soil Gas Sampling Field Log

Diagram - Outline of Structure Foundation & Location of Soil Gas Probes



Note:
Show the location of each soil probe and indicate distances from the foundation edge and other features such as sidewalks, patios, out buildings.

Other observations and comments: SEE REPORT FIGURE FOR SAMPLE LOCATIONS; NO BUILDINGS, FOUNDATIONS, OR SIDEWALKS NEARBY.

Appendix C

Quality Assurance/Quality Control Results Table

APPENDIX C

Quality Analysis/Quality Control Results Table - March 2010

SWMU 1 Soil Vapor Intrusion Investigation Report

Former Hampshire Chemical Corp. Facility, Waterloo, New York

Area		***SWMU 1***		***-***
Location		***SGP-10***	***SGP-10***	***Field QC***
Sample ID		***SGP-10-032410***	***SGP-DUP-032410***	***WAT-SG-FB-032310***
Sample Date		***3/24/2010***	***3/24/2010***	***3/23/2010***
Sample Type		***Normal***	***Duplicate***	***Field Blank***
Sample Matrix	***CAS #***	***Vapor***	***Vapor***	***Vapor***
TO-15 (ug/m3)				
1,1,1-Trichloroethane	71-55-6	0.12 U	0.12 U	0.1 U
1,1,2,2-Tetrachloroethane	79-34-5	0.12 U	0.12 U	0.1 U
1,1,2-Trichloroethane	79-00-5	0.12 U	0.12 U	0.1 U
1,1-Dichloroethane	75-34-3	0.12 U	0.12 U	0.1 U
1,1-Dichloroethene	75-35-4	0.12 U	0.12 U	0.1 U
1,2-Dichloroethane	107-06-2	0.12 U	0.12 U	0.1 U
1,2-Dichloroethene, cis-	156-59-2	0.12 U	0.12 U	0.1 U
1,2-Dichloroethene, trans-	156-60-5	0.12 U	0.12 U	0.1 U
1,2-Dichloropropane	78-87-5	0.12 U	0.12 U	0.1 U
1,3-Dichloropropene, cis-	10061-01-5	0.61 U	0.59 U	0.5 U
1,3-Dichloropropene, trans-	10061-02-6	0.61 U	0.59 U	0.5 U
Acetone	67-64-1	**12 J**	5.9 U	**1.6 J**
Acrylonitrile	107-13-1	0.61 U	0.59 U	0.5 U
Benzene	71-43-2	**0.61**	**0.58**	0.1 U
Bromodichloromethane	75-27-4	0.12 U	0.12 U	0.1 U
Bromoform	75-25-2	0.61 U	0.59 U	0.5 U
Bromomethane	74-83-9	0.12 U	0.12 U	0.1 U
Carbon Disulfide	75-15-0	6.1 U	5.9 U	5 U
Carbon Tetrachloride	56-23-5	**0.54**	**0.57**	0.1 U
Chlorobenzene	108-90-7	0.12 U	0.12 U	0.1 U
Chloroethane	75-00-3	0.12 U	0.12 U	0.1 U
Chloroform	67-66-3	**0.13 J**	**2.4 J**	0.1 U
Chloromethane	74-87-3	**0.45**	**0.41**	0.2 U
Dibromochloromethane	124-48-1	0.12 U	0.12 U	0.1 U
Ethylbenzene	100-41-4	0.61 U	**0.23 J**	0.5 U
Methyl Ethyl Ketone (2-Butanone)	78-93-3	6.1 U	5.9 U	5 U
Methyl Isobutyl Ketone (4-Methyl-2-Pentanone)	108-10-1	**0.31**	**0.65**	0.5 U
Methylene chloride	75-09-2	0.61 U	**0.26 J**	0.5 U
Styrene	100-42-5	0.61 U	0.59 U	0.5 U
tert-Butyl Methyl Ether		0.12 U	0.12 U	0.1 U
Tetrachloroethene	127-18-4	0.12 U	**0.52 J**	0.1 U
Toluene	108-88-3	**1.1**	**1.5**	**0.56**
Trichloroethene	79-01-6	0.12 U	0.12 U	0.1 U
Vinyl chloride	75-01-4	0.12 U	0.12 U	0.1 U
Xylene, m,p-	108-38-3/1	0.61 U	**0.72 J**	0.5 U
Xylene, o-	95-47-6	0.61 U	**0.32 J**	0.5 U
Epichlorohydrin	106-89-8	NF	NF	NF
Tentatively Identified Compounds				
Acetaldehyde + Isobutane		-	**12 N**	-
Benzaldehyde		**7.3 N**	-	-

Notes:

Bold indicates detected concentration.

J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

U = Compound was analyzed for, but not detected above the laboratory detection limit.

N = Tentatively Identified Compound

- = Not identified

Appendix D

Validated Laboratory Data Package & CD

Data Quality Evaluation for the March 2010 Soil Vapor/Indoor Air Investigation, Former Hampshire Chemical Corp. Facility, Waterloo, New York

PREPARED BY: CH2M HILL

DATE: March 30, 2011

Introduction

The objective of this Data Quality Evaluation (DQE) report is to assess the data quality of analytical results for soil vapor and indoor air samples collected from the Former Hampshire Chemical Corp. Facility in Waterloo, New York. HCC is a wholly owned subsidiary of The Dow Chemical Company.

CH2M HILL collected samples March 23-24, 2010. Guidance for this DQE report came from the *Quality Assurance Project Plan, RCRA Facility Investigation, Former Hampshire Chemical Corp. Facility, Waterloo, New York* (CH2M HILL 2009); *U.S. Environmental Protection Agency (USEPA) Contract Laboratory National Functional Guidelines (NFG) for Organic Data Review, October 1999* (USEPA 1999); individual method requirements; and, historical laboratory quality control limits.

This report is intended as a general data quality assessment designed to summarize data issues.

Analytical Data

This DQE report covers five soil vapor samples, five indoor air samples, four ambient air, one crawl space, two field duplicate (FD) and one field blank (FB). The samples were reported as one sample delivery group (SDG), P1001084. Two soil vapor samples (SGP-09 and SGP-10), one crawl space air sample (RP-CS-1), one indoor air sample (RP-IA-1), four ambient air samples (SGP-RP, SGP-SWMU1, SG-B2, and SG-B4), one field duplicate (SGP-DUP) and one field blank (WAT-SG-FB) are discussed in the attached April 2011 SWMU 1 Soil Vapor Intrusion Investigation Report. Other analytical results reported in SDG P1001084 correspond to the soil vapor intrusion investigation that was conducted at the facility buildings and will be discussed in a future soil vapor intrusion report.

Samples were collected and delivered to Columbia Analytical Services (CAS) in Simi Valley, California. The samples were analyzed by the method listed in Table 1.

TABLE 1
Analytical Parameter
SWMU 1 Soil Vapor Intrusion Investigation,
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Parameter	Method	Laboratory
Volatile Organic Compounds (VOC)	TO-15	CAS

The SDG was assessed by reviewing the following: (1) the chain-of- custody documentation; (2) holding-time compliance; (3) initial and continuing calibration criteria; (4) method blanks and a FB; (5) laboratory control sample recoveries; (6) surrogate spike recoveries; (7) internal standard recoveries; (8) FD precision; and (9) the required quality control (QC) samples at the specified frequencies.

Data flags were assigned according to the Waterloo QAPP. Multiple flags are routinely applied to specific sample method/matrix/analyte combinations, but there will only be one final flag. A final flag is applied to the data and is the most conservative of the applied validation flags. The final flag also includes matrix and blank sample impacts.

The data flags are those listed in the Waterloo QAPP and are defined below:

- J = The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- R = The sample result was rejected due to serious deficiencies in the ability to analyze the sample and meet the QC criteria. The presence or absence of the analyte could not be verified.
- U = The analyte was analyzed for but was not detected above the reported sample quantitation limit.
- UJ = The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.

Findings

The overall summaries of the data validation are contained in the following sections and Table 2.

Holding Time

All holding time criteria were met.

Calibration

Initial and continuing calibration analyses were performed as required by the methods. All acceptance criteria were met.

Method Blanks

Method blanks were analyzed at the required frequency and were free of contamination.

Field Blanks (Ambient Blank)

One FB was collected and was free of contamination with the following exceptions:

Acetone and toluene were detected in the FB at concentrations less than the reporting limit (RL). The field blank detects suggest that the ambient air may contribute to detects in the samples. Data were not qualified for FB contaminations.

Canister Certifications

The samples were collected in Summa canisters, which are certified "clean" per project instructions prior to shipment to the project site. The laboratory was not able to certify all canisters clean to the method detection limit for all target analytes. Low-level detections in the samples associated with these canisters are possibly due to canister contamination. Detected results less than five times (10 times for acetone, methylene chloride and 2-butanone) the concentrations detected in the canister certification were flagged "U" in the associated samples.

Laboratory Control Samples

LCSs were analyzed as required and all accuracy and precision criteria were met.

Internal Standards

All acceptance criteria were met.

Surrogates

Surrogates were added to all samples and all acceptance criteria were met.

Field Duplicates

FDs were collected and analyzed as required and all precision criteria were met.

Tentatively Identified Compounds

Tentatively identified compounds were reported in the VOC analysis to determine the presence/absence of epichlorohydrin. The library search did not identify this analyte in the samples.

Quanitification

Acetone coeluted with a non-target analyte in sample WAT-SG-7a-032310, potentially causing the concentration to be biased high. The result was qualified as estimated and flagged "J" in the sample.

Chain of Custody

Required procedures were followed and were free of errors.

Overall Assessment

The goal of this assessment is to demonstrate that a sufficient number of representative samples were collected and the resulting analytical data can be used to support the decision making process. The following summary highlights the PARCC findings for the above-defined events:

Precision of the data was verified through the review of the field and laboratory data quality indicators that include FD RPDs. Precision was acceptable.

Accuracy of the data was verified through the review of the calibration data, LCS, internal standard, and surrogate recoveries. Accuracy was acceptable.

Representativeness of the data was verified through the sample's collection, storage and preservation procedures, verification of holding-time compliance, evaluation of method/FB data and canister certifications. All data were reported from analyses within the USEPA-recommended holding time. The method/FB samples were generally free of contamination. The FB sample contained low-level detections of acetone and toluene; however, the data was not qualified due to the FB contamination. Several analytes were qualified as not detected due to contamination in the canisters. Data users should consider the impact to any result that is qualified as estimated as it may contain a bias, which could affect the decision-making process.

Comparability of the data was ensured through the use of standard USEPA analytical procedures and standard units for reporting. Results obtained are comparable to industry standards in that the collection and analytical techniques followed approved, documented procedures.

Completeness is a measure of the number of valid measurements obtained in relation to the total number of measurements planned. Completeness is expressed as the percentage of valid or usable measurements compared to planned measurements. Valid data are defined as all data that are not rejected for project use. All data were considered valid. The completeness goal of 95 percent was met for all analyte/method combinations.

TABLE 2
Qualified Data
SWMU 1 Soil Vapor Intrusion Investigation,
Former Hampshire Chemical Corp. Facility, Waterloo, New York

Sample ID	Method	Analyte	Final Result	Units	Final Flag	Reason
WAT-IA-6-032310	TO15	2-Butanone	UG/M3	7.1	U	CanCert<RL
WAT-IA-6-032310	TO15	Acetone	UG/M3	24	U	CanCert<RL
WAT-IA-7-032310	TO15	2-Butanone	UG/M3	6.7	U	CanCert<RL
WAT-SG-7a-032310	TO15	Acetone	UG/M3	42	J	Coelution
WAT-SG-B2-032310	TO15	2-Butanone	UG/M3	6.3	U	CanCert<RL
WAT-SG-B2-032310	TO15	Acetone	UG/M3	8.9	U	CanCert<RL

Validation Reasons

CanCert<RL The analyte was detected in the Summa canister at a concentration less than the reporting limit.
Coelution Analyte coeluted with a nontarget analyte.

Columbia Analytical Services, Inc. 2655 Park Center Drive, Suite A | Simi Valley, CA 93065 | 805.526.7161 | 805.526.7270 fax | www.caslab.com

LABORATORY REPORT

April 14, 2010

Dave Newman
CH2M Hill
119 Cherry Hill Road, Suite 300
Parsippany, NJ 07054

RE: DOW Waterloo, NY / 386132.05.C1.FI

Dear Dave:

Enclosed are the results of the samples submitted to our laboratory on March 26, 2010. For your reference, these analyses have been assigned our service request number P1001084.

All analyses were performed according to our laboratory's NELAP-approved quality assurance program. The test results meet requirements of the current NELAP standards, where applicable, and except as noted in the laboratory case narrative provided. For a specific list of NELAP-accredited analytes, refer to the certifications section at www.caslab.com. Results are intended to be considered in their entirety and apply only to the samples analyzed and reported herein. Your report contains 92 pages.

Columbia Analytical Services, Inc. is certified by the California Department of Health Services, NELAP Laboratory Certificate No. 02115CA; Arizona Department of Health Services, Certificate No. AZ0694; Florida Department of Health, NELAP Certification E871020; New Jersey Department of Environmental Protection, NELAP Laboratory Certification ID #CA009; New York State Department of Health, NELAP NY Lab ID No: 11221; Oregon Environmental Laboratory Accreditation Program, NELAP ID: CA20007; The American Industrial Hygiene Association, Laboratory #101661; United States Department of Defense Environmental Laboratory Accreditation Program (DoD-ELAP), Certificate No. L10-3; Pennsylvania Registration No. 68-03307; TX Commission of Environmental Quality, NELAP ID T104704413-09-TX; Minnesota Department of Health, Certificate No. 11495AA. Each of the certifications listed above have an explicit Scope of Accreditation that applies to specific matrices/methods/analytes; therefore, please contact me for information corresponding to a particular certification.

If you have any questions, please call me at (805) 526-7161.

Respectfully submitted,

Columbia Analytical Services, Inc.

Kate Aguilera

Kate Aguilera
Project Manager

Client:	CH2M Hill	CAS Project No:	P1001084
Project:	DOW Waterloo, NY / 386132.05.C1.FI	NJ Certification ID:	CA009

CASE NARRATIVE

The samples were received intact under chain of custody on March 26, 2010 and were stored in accordance with the analytical method requirements. Please refer to the sample acceptance check form for additional information. The results reported herein are applicable only to the condition of the samples at the time of sample receipt.

Volatile Organic Compound Analysis

The samples were analyzed for selected volatile organic compounds and tentatively identified compounds in accordance with EPA Method TO-15 from the Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air, Second Edition (EPA/625/R-96/010b), January, 1999. The analytical system was comprised of a gas chromatograph / mass spectrometer (GC/MS) interfaced to a whole-air preconcentrator.

The results of analyses are given in the attached laboratory report. All results are intended to be considered in their entirety, and Columbia Analytical Services, Inc. (CAS) is not responsible for utilization of less than the complete report.

Client: CH2M Hill **Folder:** P1001084

Project: DOW Waterloo, NY 386132.05.C1.FI

Detailed Sample Information

CAS Sample ID	Client Sample ID	Container Type	Pi1 (Hg)	Pi1 (psig)	Pf1	Pi2 (Hg)	Pi2 (psig)	Pf2	Cont ID	Order #	FC ID
P1001084-001.01	SGP-10-032410	6.0 L-Summa Canister Ambient		0.4	3.7				AC01103	**17081**	FC00674
P1001084-002.01	SGP-9-032410	6.0 L-Summa Canister Ambient	-13.1	-6.4	3.5				AC01467	**17081**	FC00470
P1001084-003.01	SGP-RP-032410	6.0 L-Summa Canister Ambient	-2.5	-1.2	3.5				AC01335	**17081**	FC00111
P1001084-004.01	RP-IA-032410	6.0 L-Summa Canister Ambient	-3.1	-1.5	3.6				AC01240	**17081**	FC00783
P1001084-005.01	SGP-SWMU1-032410	6.0 L-Summa Canister Ambient	-5.5	-2.7	3.5				AC01462	**17081**	FC00619
P1001084-006.01	RP-CS-1-032410	6.0 L-Summa Canister Ambient	-7.1	-3.5	3.5				AC01590	**17081**	FC00557
P1001084-007.01	SGP-DUP-032410	6.0 L-Summa Canister Ambient		0.7	3.5				AC00642	**17081**	FC00462
P1001084-008.01	WAT-SG-B2-032310	6.0 L-Summa Canister Ambient		0.4	4.3				AC00824	**17081**	FC00812
P1001084-009.01	WAT-SG-B4-032310	6.0 L-Summa Canister Ambient	-3.3	-1.6	3.9				AC00977	**17081**	FC00386
P1001084-010.01	WAT-SG-FB-032310	6.0 L-Summa Canister Ambient	-29.7	-14.6	3.5				AC01257	**17081**	FC00223
P1001084-011.01	WAT-IA-3-032310	6.0 L-Summa Canister Ambient	-4.6	-2.3	3.6				AC01425	**17081**	FC00522
P1001084-012.01	WAT-IA-5-032310	6.0 L-Summa Canister Ambient	-0.2	-0.1	3.6				AC00515	**17081**	FC00354
P1001084-013.01	WAT-IA-7-032310	6.0 L-Summa Canister Ambient	-2.1	-1.0	3.5				AC00527	**17081**	FC00439
P1001084-014.01	WAT-IA-6-032310	6.0 L-Summa Canister Ambient	-3.7	-1.8	3.5				AC00623	**17081**	FC00413
P1001084-015.01	WAT-SG-4-032310	6.0 L-Summa Canister Source	-0.7	-0.3	3.5				SC01013	**17081**	OA01357
P1001084-016.01	WAT-SG-7a-032310	6.0 L-Summa Canister Source	-1.1	-0.5	3.5				SC00139	**17081**	OA01344
P1001084-017.01	WAT-SG-DUP-032310	6.0 L-Summa Canister Source	-0.2	-0.1	3.6				SC00592	**17081**	OA00808
P1001084-018.01	WAT-SG-9-032310	6.0 L-Summa Canister Source	-2.6	-1.3	3.5				SC00982	**17081**	OA01411
P1001084-019.01	SC00847	6.0 L-Summa Canister Source							SC00847	**17081**	
P1001084-020.01	SC01093	6.0 L-Summa Canister Source							SC01093	**17081**	
P1001084-021.01	AC00383	6.0 L-Summa Canister Ambient							AC00383	**17081**	
P1001084-022.01	AC01677	6.0 L-Summa Canister Ambient							AC01677	**17081**	

Air - Chain of Custody Record & Analytical Service Request

Columbia Analytical Services™
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P1001084

CAS Contact: KATE AGUILERA

Company Name & Address (Reporting Information):
CH2M HILL
119 CHERRY HILL RD, STE 300
PARSIPPANY, NJ 07054

Project Name: DoD WATERLOO, NY

Project Number: 386132.05.C1.FI

Project Manager: DAVID NEUSMAN

P.O. # / Billing Information: 9387714

Phone: 973 3169300

Fax: 973-334 5847

Email Address for Result Reporting: lisa.lafortune@ch2m.com

Sampler (Print & Sign): GRAHAM SUMMERS / Lisa La Fortune

Analysis Method and/or Analytes

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Sample Type (Air/Tube/ Solid)	Canister ID (Bar Code # - AC, SC, etc.)	Flow Controller (Bar Code - FC #)	Sample Volume	TO-15 see Purchase Order				Comments e.g. Actual Preservative or specific instructions
SGP-10-032410	(1) -10.4	3/24/10	1247	AIR	AC01103	FC00674	6L	X				
SGP-9-032410	(2) -12.8		1450		AC01467	FC00470		X				
SGP-RP-032410	(3) -2.4		1500		AC01335	FC00111		X				
RP-IA-032410	(4) -2.9		1510		AC01240	FC00683		X				
SGP-SWMU1-032410	(5) -5.1		1445		AC01462	FC00619		X				
RP-CS-1-032410	(6) -6.8		1505		AC01590	FC00557		X				
SGP-Dup-032410	(7) -10.7	↓	—	↓	AC00642	FC00462	↓	X				
WAT-SG-B2-032310	(8) -10.4	3/23/10	1855	AIR	AC00824	FC00812	6L	X				
WAT-SG-B4-032310	(9) -3.2		2025		AC00977	FC00386		X				
WAT-SG-FB-032310	(10) -25.6		1928		AC01257	FC00223		X				
WAT-IA-3-032310	(11) -4.4		2023		AC01425	FC00522		X				
WAT-IA-5-032310	(12) -0.2		1850		AC00515	FC00354		X				
WAT-IA-7-032310	(13) -2.1		1929		AC00527	FC00439		X				WAT-IA-7-032310
WAT-IA-6-032310	(14) -3.6	↓	2019	↓	AC00623	FC00413	↓	X				WAT-IA-6-032310

Report Tier Levels - please select
Tier I - (Results/Default if not specified) ____
Tier II - (Results + QC) ____
Tier III - (Data Validation Package) 10% Surcharge ____
Tier V - (client specified) X

EDD required: (Yes) / No
Type: Lab Spec 7
EDD Units: mg/m3

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
			Ultamura	3/26/10	0945
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank
Temperature ____ °C

Air - Chain of Custody Record & Analytical Service Request

Columbia Analytical Services™
2655 Park Center Drive, Suite A
Simi Valley, California 93065
Phone (805) 526-7161
Fax (805) 526-7270

Requested Turnaround Time in Business Days (Surcharges) please circle
1 Day (100%) 2 Day (75%) 3 Day (50%) 4 Day (35%) 5 Day (25%) 10 Day - Standard

CAS Project No. P1001084

Company Name & Address (Reporting Information)
CH2M HILL
119 Cherry Hill Road, Ste 300
Parsippany, NJ 07054

Project Name: Dow Waterloo

Project Number: 386132.05.C1.FI

CAS Contact: KATE AGOILERA

Project Manager: David Newman

P.O. # / Billing Information: 938714

Phone: 973 316 9300 Fax: 973 334 5847

Email Address for Result Reporting: lisa.lafortune@ch2m.com

Sampler (Print & Sign): Graham Sharkey / GSharkey

Client Sample ID	Laboratory ID Number	Date Collected	Time Collected	Sample Type (Air/Tube/ Solid)	Canister ID (Bar Code # - AC, SC, etc.)	Flow Controller (Bar Code - FC #)	Sample Volume	Analysis Method and/or Analytes: TO-15 (see PO)				Comments e.g. Actual Preservative or specific instructions
WAT-SG-4-032310	(15)-05	03/23/10	2104	AIR	SC01013	OA01357	6L	X				
WAT-SG-7a-032310	(11)-13	↓	2057	↓	SC00139	OA01344	↓	X				
WAT-SG-Dup-032310	(17)-04	↓	—	↓	SC00592	OA00808	↓	X				
WAT-SG-9-032310	(18)-26	↓	2048	↓	SC00982	OA01411	↓	X				
	-24.2											
	-24.1											
	-25A											
	-25B											

Report Tier Levels - please select
Tier I - (Results/Default if not specified) ____
Tier II - (Results + QC) ____
Tier III - (Data Validation Package) 10% Surcharge ____
Tier V - (client specified) X

EDD required (Yes) No
Type: Lab Spec 7
EDD Units: mg/m³

Project Requirements (MRLs, QAPP)

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Date:	Time:

Cooler / Blank
Temperature °C

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1001084

Project: DOW Waterloo, NY / 386132.05.C1.FI

Sample(s) received on: 03/26/10 Date opened: 03/26/10 by: MZAMORA

Note: This form is used for all samples received by CAS. The use of this form for custody seals is strictly meant to indicate presence/absence and not as an indication of compliance or nonconformity. Thermal preservation and pH will only be evaluated either at the request of the client and/or as required by the method/SOP.

		Yes	No	N/A
1	Were **sample containers** properly marked with client sample ID?	☒	☐	☐
2	Container(s) **supplied by CAS**?	☒	☐	☐
3	Did **sample containers** arrive in good condition?	☒	☐	☐
4	Was a **chain-of-custody** provided?	☒	☐	☐
5	Was the **chain-of-custody** properly completed?	☒	☐	☐
6	Did **sample container labels** and/or tags agree with custody papers?	☒	☐	☐
7	Was **sample volume** received adequate for analysis?	☒	☐	☐
8	Are samples within specified holding times?	☒	☐	☐
9	Was proper **temperature** (thermal preservation) of cooler at receipt adhered to?	☐	☐	☒
	Cooler Temperature _____ °C Blank Temperature _____ °C			
10	Was a **trip blank** received?	☐	☒	☐
	Trip blank supplied by CAS: _____			
11	Were **custody seals** on outside of cooler/Box?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
	Were custody seals on outside of sample container?	☐	☒	☐
	Location of seal(s)? _____ Sealing Lid?	☐	☐	☒
	Were signature and date included?	☐	☐	☒
	Were seals intact?	☐	☐	☒
12	Do containers have appropriate **preservation**, according to method/SOP or Client specified information?	☐	☐	☒
	Is there a client indication that the submitted samples are **pH** preserved?	☐	☐	☒
	Were **VOA vials** checked for presence/absence of air bubbles?	☐	☐	☒
	Does the client/method/SOP require that the analyst check the sample pH and if necessary alter it?	☐	☐	☒
13	**Tubes:** Are the tubes capped and intact?	☐	☐	☒
	Do they contain moisture?	☐	☐	☒
14	**Badges:** Are the badges properly capped and intact?	☐	☐	☒
	Are dual bed badges separated and individually capped and intact?	☐	☐	☒

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1001084-001.01	6.0 L Ambient Can					
P1001084-002.01	6.0 L Ambient Can					
P1001084-003.01	6.0 L Ambient Can					
P1001084-004.01	6.0 L Ambient Can					
P1001084-005.01	6.0 L Ambient Can					
P1001084-006.01	6.0 L Ambient Can					

Explain any discrepancies: (include lab sample ID numbers): _____

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12); Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12) RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

Columbia Analytical Services, Inc.
Sample Acceptance Check Form

Client: CH2M Hill Work order: P1001084

Project: DOW Waterloo, NY / 386132.05.C1.FI

Sample(s) received on: 03/26/10 Date opened: 03/26/10 by: MZAMORA

Lab Sample ID	Container Description	Required pH *	Received pH	Adjusted pH	VOA Headspace (Presence/Absence)	Receipt / Preservation Comments
P1001084-007.01	6.0 L Ambient Can					
P1001084-008.01	6.0 L Ambient Can					
P1001084-009.01	6.0 L Ambient Can					
P1001084-010.01	6.0 L Ambient Can					
P1001084-011.01	6.0 L Ambient Can					
P1001084-012.01	6.0 L Ambient Can					
P1001084-013.01	6.0 L Ambient Can					
P1001084-014.01	6.0 L Ambient Can					
P1001084-015.01	6.0 L Source Can					
P1001084-016.01	6.0 L Source Can					
P1001084-017.01	6.0 L Source Can					
P1001084-018.01	6.0 L Source Can					

Explain any discrepancies: (include lab sample ID numbers):

*Required pH: Phenols/COD/NH3/TOC/TOX/NO3+NO2/TKN/T.PHOS, H2SO4 (pH<2); Metals, HNO3 (pH<2); CN (NaOH or NaOH/Asc Acid) (pH>12);
Diss. Sulfide, NaOH (pH>12); T. Sulfide, NaOH/ZnAc (pH>12) RSK - MEEPP, HCL (pH<2); RSK - CO2, (pH 5-8); Sulfur (pH>4)

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-10-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01103

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.4 Final Pressure (psig): 3.7

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.45**	0.24	0.13	**0.22**	0.12	0.065	
75-01-4	Vinyl Chloride	0.12	0.12	0.079	0.048	0.048	0.031	U
74-83-9	Bromomethane	0.12	0.12	0.089	0.031	0.031	0.023	U
75-00-3	Chloroethane	0.12	0.12	0.098	0.046	0.046	0.037	U
67-64-1	**Acetone**	**12**	6.1	1.6	**5.2**	2.6	0.67	
107-13-1	Acrylonitrile	0.61	0.61	0.27	0.28	0.28	0.12	U
75-35-4	1,1-Dichloroethene	0.12	0.12	0.092	0.031	0.031	0.023	U
75-09-2	Methylene Chloride	0.61	0.61	0.23	0.18	0.18	0.067	U
75-15-0	Carbon Disulfide	6.1	6.1	0.29	2.0	2.0	0.094	U
156-60-5	trans-1,2-Dichloroethene	0.12	0.12	0.072	0.031	0.031	0.018	U
75-34-3	1,1-Dichloroethane	0.12	0.12	0.076	0.030	0.030	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.12	0.12	0.085	0.034	0.034	0.024	U
78-93-3	**2-Butanone (MEK)**	**0.64**	6.1	0.27	**0.22**	2.1	0.091	J
156-59-2	cis-1,2-Dichloroethene	0.12	0.12	0.070	0.031	0.031	0.018	U
67-66-3	**Chloroform**	**0.13**	0.12	0.072	**0.026**	0.025	0.015	
107-06-2	1,2-Dichloroethane	0.12	0.12	0.076	0.030	0.030	0.019	U
71-55-6	1,1,1-Trichloroethane	0.12	0.12	0.090	0.022	0.022	0.017	U
71-43-2	**Benzene**	**0.61**	0.12	0.084	**0.19**	0.038	0.026	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/9/10

Client: **CH2M Hill**
Client Sample ID: **SGP-10-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-001

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01103

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.4 Final Pressure (psig): 3.7

Canister Dilution Factor: 1.22

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.54**	0.12	0.092	**0.085**	0.019	0.015	
78-87-5	1,2-Dichloropropane	0.12	0.12	0.089	0.026	0.026	0.019	U
75-27-4	Bromodichloromethane	0.12	0.12	0.088	0.018	0.018	0.013	U
79-01-6	Trichloroethene	0.12	0.12	0.076	0.023	0.023	0.014	U
10061-01-5	cis-1,3-Dichloropropene	0.61	0.61	0.20	0.13	0.13	0.043	U
108-10-1	**4-Methyl-2-pentanone**	**0.31**	0.61	0.23	**0.075**	0.15	0.057	J
10061-02-6	trans-1,3-Dichloropropene	0.61	0.61	0.24	0.13	0.13	0.054	U
79-00-5	1,1,2-Trichloroethane	0.12	0.12	0.067	0.022	0.022	0.012	U
108-88-3	**Toluene**	**1.1**	0.61	0.23	**0.30**	0.16	0.062	
124-48-1	Dibromochloromethane	0.12	0.12	0.083	0.014	0.014	0.0097	U
127-18-4	Tetrachloroethene	0.12	0.12	0.072	0.018	0.018	0.011	U
108-90-7	Chlorobenzene	0.12	0.12	0.061	0.027	0.027	0.013	U
100-41-4	Ethylbenzene	0.61	0.61	0.23	0.14	0.14	0.053	U
179601-23-1	m,p-Xylenes	0.61	0.61	0.44	0.14	0.14	0.10	U
75-25-2	Bromoform	0.61	0.61	0.26	0.059	0.059	0.025	U
100-42-5	Styrene	0.61	0.61	0.23	0.14	0.14	0.054	U
95-47-6	o-Xylene	0.61	0.61	0.23	0.14	0.14	0.053	U
79-34-5	1,1,2,2-Tetrachloroethane	0.12	0.12	0.070	0.018	0.018	0.010	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-10-032410** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-001

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/24/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC01103

Initial Pressure (psig): 0.4 Final Pressure (psig): 3.7

Canister Dilution Factor: 1.22

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
5.41	Isobutane	**3.5**	
5.97	n-Butane	**4.1**	
23.82	Benzaldehyde	**7.3**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-9-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01467

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -6.4 Final Pressure (psig): 3.5

Canister Dilution Factor: 2.19

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.25**	0.44	0.24	**0.12**	0.21	0.12	**J**
75-01-4	Vinyl Chloride	0.22	0.22	0.14	0.086	0.086	0.056	**U**
74-83-9	Bromomethane	0.22	0.22	0.16	0.056	0.056	0.041	**U**
75-00-3	Chloroethane	0.22	0.22	0.18	0.083	0.083	0.066	**U**
67-64-1	**Acetone**	**57**	11	2.8	**24**	4.6	1.2	
107-13-1	Acrylonitrile	1.1	1.1	0.48	0.50	0.50	0.22	**U**
75-35-4	1,1-Dichloroethene	0.22	0.22	0.16	0.055	0.055	0.041	**U**
75-09-2	**Methylene Chloride**	**0.45**	1.1	0.42	**0.13**	0.32	0.12	**J**
75-15-0	Carbon Disulfide	11	11	0.53	3.5	3.5	0.17	**U**
156-60-5	trans-1,2-Dichloroethene	0.22	0.22	0.13	0.055	0.055	0.033	**U**
75-34-3	1,1-Dichloroethane	0.22	0.22	0.14	0.054	0.054	0.034	**U**
1634-04-4	Methyl tert-Butyl Ether	0.22	0.22	0.15	0.061	0.061	0.043	**U**
78-93-3	**2-Butanone (MEK)**	**12**	11	0.48	**4.2**	3.7	0.16	
156-59-2	cis-1,2-Dichloroethene	0.22	0.22	0.12	0.055	0.055	0.031	**U**
67-66-3	Chloroform	0.22	0.22	0.13	0.045	0.045	0.026	**U**
107-06-2	1,2-Dichloroethane	0.22	0.22	0.14	0.054	0.054	0.034	**U**
71-55-6	1,1,1-Trichloroethane	0.22	0.22	0.16	0.040	0.040	0.030	**U**
71-43-2	**Benzene**	**0.93**	0.22	0.15	**0.29**	0.069	0.047	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-9-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-002

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01467

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -6.4 Final Pressure (psig): 3.5

Canister Dilution Factor: 2.19

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.51**	0.22	0.16	**0.081**	0.035	0.026	
78-87-5	1,2-Dichloropropane	0.22	0.22	0.16	0.047	0.047	0.035	U
75-27-4	Bromodichloromethane	0.22	0.22	0.16	0.033	0.033	0.024	U
79-01-6	Trichloroethene	0.22	0.22	0.14	0.041	0.041	0.025	U
10061-01-5	cis-1,3-Dichloropropene	1.1	1.1	0.35	0.24	0.24	0.077	U
108-10-1	**4-Methyl-2-pentanone**	**1.7**	1.1	0.42	**0.41**	0.27	0.10	
10061-02-6	trans-1,3-Dichloropropene	1.1	1.1	0.44	0.24	0.24	0.097	U
79-00-5	1,1,2-Trichloroethane	0.22	0.22	0.12	0.040	0.040	0.022	U
108-88-3	**Toluene**	**3.1**	1.1	0.42	**0.83**	0.29	0.11	
124-48-1	Dibromochloromethane	0.22	0.22	0.15	0.026	0.026	0.017	U
127-18-4	Tetrachloroethene	0.22	0.22	0.13	0.032	0.032	0.019	U
108-90-7	Chlorobenzene	0.22	0.22	0.11	0.048	0.048	0.024	U
100-41-4	Ethylbenzene	1.1	1.1	0.42	0.25	0.25	0.096	U
179601-23-1	**m,p-Xylenes**	**1.1**	1.1	0.79	**0.25**	0.25	0.18	J
75-25-2	Bromoform	1.1	1.1	0.46	0.11	0.11	0.044	U
100-42-5	Styrene	1.1	1.1	0.42	0.26	0.26	0.098	U
95-47-6	**o-Xylene**	**0.67**	1.1	0.42	**0.15**	0.25	0.096	J
79-34-5	1,1,2,2-Tetrachloroethane	0.22	0.22	0.12	0.032	0.032	0.018	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-9-032410** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-002

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/24/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC01467

Initial Pressure (psig): -6.4 Final Pressure (psig): 3.5

Canister Dilution Factor: 2.19

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
8.72	Unidentified Compound	**55**	
11.72	Isopropyl Cyanate	**33**	
20.77	Hexamethylcyclotrisiloxane	**26**	
23.82	Benzaldehyde	**10**	
26.27	n-Nonanal	**10**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-RP-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01335

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.2 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.41**	0.27	0.15	**0.20**	0.13	0.072	
75-01-4	Vinyl Chloride	0.14	0.14	0.088	0.053	0.053	0.034	**U**
74-83-9	Bromomethane	0.14	0.14	0.099	0.035	0.035	0.025	**U**
75-00-3	Chloroethane	0.14	0.14	0.11	0.051	0.051	0.041	**U**
67-64-1	**Acetone**	**12**	6.8	1.8	**5.1**	2.8	0.74	
107-13-1	Acrylonitrile	0.68	0.68	0.30	0.31	0.31	0.14	**U**
75-35-4	1,1-Dichloroethene	0.14	0.14	0.10	0.034	0.034	0.026	**U**
75-09-2	Methylene Chloride	0.68	0.68	0.26	0.19	0.19	0.074	**U**
75-15-0	Carbon Disulfide	6.8	6.8	0.32	2.2	2.2	0.10	**U**
156-60-5	trans-1,2-Dichloroethene	0.14	0.14	0.080	0.034	0.034	0.020	**U**
75-34-3	1,1-Dichloroethane	0.14	0.14	0.084	0.033	0.033	0.021	**U**
1634-04-4	Methyl tert-Butyl Ether	0.14	0.14	0.095	0.037	0.037	0.026	**U**
78-93-3	**2-Butanone (MEK)**	**2.5**	6.8	0.30	**0.84**	2.3	0.10	**J**
156-59-2	cis-1,2-Dichloroethene	0.14	0.14	0.077	0.034	0.034	0.019	**U**
67-66-3	Chloroform	0.14	0.14	0.080	0.028	0.028	0.016	**U**
107-06-2	1,2-Dichloroethane	0.14	0.14	0.084	0.033	0.033	0.021	**U**
71-55-6	1,1,1-Trichloroethane	0.14	0.14	0.10	0.025	0.025	0.018	**U**
71-43-2	**Benzene**	**0.54**	0.14	0.093	**0.17**	0.042	0.029	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-RP-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-003

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01335

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.2 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.35

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.55**	0.14	0.10	**0.088**	0.021	0.016	
78-87-5	1,2-Dichloropropane	0.14	0.14	0.099	0.029	0.029	0.021	U
75-27-4	Bromodichloromethane	0.14	0.14	0.097	0.020	0.020	0.015	U
79-01-6	Trichloroethene	0.14	0.14	0.084	0.025	0.025	0.016	U
10061-01-5	cis-1,3-Dichloropropene	0.68	0.68	0.22	0.15	0.15	0.048	U
108-10-1	**4-Methyl-2-pentanone**	**0.85**	0.68	0.26	**0.21**	0.16	0.063	
10061-02-6	trans-1,3-Dichloropropene	0.68	0.68	0.27	0.15	0.15	0.059	U
79-00-5	1,1,2-Trichloroethane	0.14	0.14	0.074	0.025	0.025	0.014	U
108-88-3	**Toluene**	**3.0**	0.68	0.26	**0.78**	0.18	0.068	
124-48-1	Dibromochloromethane	0.14	0.14	0.092	0.016	0.016	0.011	U
127-18-4	Tetrachloroethene	0.14	0.14	0.080	0.020	0.020	0.012	U
108-90-7	Chlorobenzene	0.14	0.14	0.068	0.029	0.029	0.015	U
100-41-4	Ethylbenzene	0.68	0.68	0.26	0.16	0.16	0.059	U
179601-23-1	**m,p-Xylenes**	**0.63**	0.68	0.49	**0.15**	0.16	0.11	J
75-25-2	Bromoform	0.68	0.68	0.28	0.065	0.065	0.027	U
100-42-5	Styrene	0.68	0.68	0.26	0.16	0.16	0.060	U
95-47-6	**o-Xylene**	**0.26**	0.68	0.26	**0.061**	0.16	0.059	J
79-34-5	1,1,2,2-Tetrachloroethane	0.14	0.14	0.077	0.020	0.020	0.011	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **SGP-RP-032410** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-003

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/24/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC01335

Initial Pressure (psig): -1.2 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.35

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
5.41	Acetaldehyde + Isobutane	**4.1**	
23.82	Benzaldehyde	**5.2**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **RP-IA-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01240

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.5 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.46**	0.28	0.15	**0.22**	0.13	0.074	
75-01-4	Vinyl Chloride	0.14	0.14	0.090	0.054	0.054	0.035	U
74-83-9	Bromomethane	0.14	0.14	0.10	0.036	0.036	0.026	U
75-00-3	Chloroethane	0.14	0.14	0.11	0.053	0.053	0.042	U
67-64-1	**Acetone**	**20**	7.0	1.8	**8.6**	2.9	0.76	
107-13-1	Acrylonitrile	0.70	0.70	0.31	0.32	0.32	0.14	U
75-35-4	1,1-Dichloroethene	0.14	0.14	0.10	0.035	0.035	0.026	U
75-09-2	Methylene Chloride	0.70	0.70	0.26	0.20	0.20	0.076	U
75-15-0	Carbon Disulfide	7.0	7.0	0.33	2.2	2.2	0.11	U
156-60-5	trans-1,2-Dichloroethene	0.14	0.14	0.082	0.035	0.035	0.021	U
75-34-3	1,1-Dichloroethane	0.14	0.14	0.086	0.034	0.034	0.021	U
1634-04-4	Methyl tert-Butyl Ether	0.14	0.14	0.097	0.039	0.039	0.027	U
78-93-3	**2-Butanone (MEK)**	**16**	7.0	0.31	**5.3**	2.4	0.10	
156-59-2	cis-1,2-Dichloroethene	0.14	0.14	0.079	0.035	0.035	0.020	U
67-66-3	**Chloroform**	**0.085**	0.14	0.082	**0.017**	0.028	0.017	J
107-06-2	1,2-Dichloroethane	0.14	0.14	0.086	0.034	0.034	0.021	U
71-55-6	1,1,1-Trichloroethane	0.14	0.14	0.10	0.025	0.025	0.019	U
71-43-2	**Benzene**	**0.75**	0.14	0.096	**0.23**	0.044	0.030	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **RP-IA-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-004

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01240

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.5 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.39

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.53**	0.14	0.10	**0.084**	0.022	0.017	
78-87-5	1,2-Dichloropropane	0.14	0.14	0.10	0.030	0.030	0.022	U
75-27-4	Bromodichloromethane	0.14	0.14	0.10	0.021	0.021	0.015	U
79-01-6	Trichloroethene	0.14	0.14	0.086	0.026	0.026	0.016	U
10061-01-5	cis-1,3-Dichloropropene	0.70	0.70	0.22	0.15	0.15	0.049	U
108-10-1	**4-Methyl-2-pentanone**	**4.8**	0.70	0.26	**1.2**	0.17	0.064	
10061-02-6	trans-1,3-Dichloropropene	0.70	0.70	0.28	0.15	0.15	0.061	U
79-00-5	1,1,2-Trichloroethane	0.14	0.14	0.076	0.025	0.025	0.014	U
108-88-3	**Toluene**	**2.1**	0.70	0.26	**0.56**	0.18	0.070	
124-48-1	Dibromochloromethane	0.14	0.14	0.095	0.016	0.016	0.011	U
127-18-4	**Tetrachloroethene**	**0.29**	0.14	0.082	**0.043**	0.021	0.012	
108-90-7	Chlorobenzene	0.14	0.14	0.070	0.030	0.030	0.015	U
100-41-4	**Ethylbenzene**	**0.31**	0.70	0.26	**0.071**	0.16	0.061	J
179601-23-1	**m,p-Xylenes**	**0.82**	0.70	0.50	**0.19**	0.16	0.12	
75-25-2	Bromoform	0.70	0.70	0.29	0.067	0.067	0.028	U
100-42-5	**Styrene**	**0.30**	0.70	0.26	**0.071**	0.16	0.062	J
95-47-6	**o-Xylene**	**0.38**	0.70	0.26	**0.088**	0.16	0.061	J
79-34-5	1,1,2,2-Tetrachloroethane	0.14	0.14	0.079	0.020	0.020	0.012	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **RP-IA-032410** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-004

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/24/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC01240

Initial Pressure (psig): -1.5 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.39

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.52	1,1-Difluoroethane	**30**	
5.38	Acetaldehyde + Isobutane	**23**	
5.96	n-Butane	**3.8**	
8.76	Isoprene	**5.4**	
14.74	1-Butanol	**13**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-SWMU1-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01462

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.52**	0.30	0.17	**0.25**	0.15	0.081	
75-01-4	Vinyl Chloride	0.15	0.15	0.099	0.059	0.059	0.039	U
74-83-9	Bromomethane	0.15	0.15	0.11	0.039	0.039	0.029	U
75-00-3	Chloroethane	0.15	0.15	0.12	0.058	0.058	0.046	U
67-64-1	**Acetone**	**14**	7.6	2.0	**5.8**	3.2	0.83	
107-13-1	Acrylonitrile	0.76	0.76	0.33	0.35	0.35	0.15	U
75-35-4	1,1-Dichloroethene	0.15	0.15	0.11	0.038	0.038	0.029	U
75-09-2	Methylene Chloride	0.76	0.76	0.29	0.22	0.22	0.083	U
75-15-0	Carbon Disulfide	7.6	7.6	0.36	2.4	2.4	0.12	U
156-60-5	trans-1,2-Dichloroethene	0.15	0.15	0.090	0.038	0.038	0.023	U
75-34-3	1,1-Dichloroethane	0.15	0.15	0.094	0.038	0.038	0.023	U
1634-04-4	Methyl tert-Butyl Ether	0.15	0.15	0.11	0.042	0.042	0.030	U
78-93-3	**2-Butanone (MEK)**	**1.5**	7.6	0.33	**0.51**	2.6	0.11	J
156-59-2	cis-1,2-Dichloroethene	0.15	0.15	0.087	0.038	0.038	0.022	U
67-66-3	Chloroform	0.15	0.15	0.090	0.031	0.031	0.018	U
107-06-2	1,2-Dichloroethane	0.15	0.15	0.094	0.038	0.038	0.023	U
71-55-6	1,1,1-Trichloroethane	0.15	0.15	0.11	0.028	0.028	0.021	U
71-43-2	**Benzene**	**0.53**	0.15	0.10	**0.17**	0.048	0.033	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **SGP-SWMU1-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-005

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01462

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -2.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.52

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.56**	0.15	0.11	**0.089**	0.024	0.018	
78-87-5	1,2-Dichloropropane	0.15	0.15	0.11	0.033	0.033	0.024	U
75-27-4	Bromodichloromethane	0.15	0.15	0.11	0.023	0.023	0.016	U
79-01-6	Trichloroethene	0.15	0.15	0.094	0.028	0.028	0.018	U
10061-01-5	cis-1,3-Dichloropropene	0.76	0.76	0.24	0.17	0.17	0.054	U
108-10-1	**4-Methyl-2-pentanone**	**0.49**	0.76	0.29	**0.12**	0.19	0.070	J
10061-02-6	trans-1,3-Dichloropropene	0.76	0.76	0.30	0.17	0.17	0.067	U
79-00-5	1,1,2-Trichloroethane	0.15	0.15	0.084	0.028	0.028	0.015	U
108-88-3	**Toluene**	**1.2**	0.76	0.29	**0.32**	0.20	0.077	
124-48-1	Dibromochloromethane	0.15	0.15	0.10	0.018	0.018	0.012	U
127-18-4	**Tetrachloroethene**	**0.19**	0.15	0.090	**0.028**	0.022	0.013	
108-90-7	Chlorobenzene	0.15	0.15	0.076	0.033	0.033	0.017	U
100-41-4	Ethylbenzene	0.76	0.76	0.29	0.18	0.18	0.067	U
179601-23-1	m,p-Xylenes	0.76	0.76	0.55	0.18	0.18	0.13	U
75-25-2	Bromoform	0.76	0.76	0.32	0.074	0.074	0.031	U
100-42-5	Styrene	0.76	0.76	0.29	0.18	0.18	0.068	U
95-47-6	o-Xylene	0.76	0.76	0.29	0.18	0.18	0.067	U
79-34-5	1,1,2,2-Tetrachloroethane	0.15	0.15	0.087	0.022	0.022	0.013	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-SWMU1-032410** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-005

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/24/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC01462

Initial Pressure (psig): -2.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.52

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
5.41	Acetaldehyde	**26**	
23.82	Benzaldehyde	**5.6**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **RP-CS-1-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01590

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.49**	0.33	0.18	**0.24**	0.16	0.087	
75-01-4	Vinyl Chloride	0.16	0.16	0.11	0.064	0.064	0.041	**U**
74-83-9	Bromomethane	0.16	0.16	0.12	0.042	0.042	0.031	**U**
75-00-3	Chloroethane	0.16	0.16	0.13	0.062	0.062	0.049	**U**
67-64-1	**Acetone**	**20**	8.2	2.1	**8.5**	3.4	0.89	**M1**
107-13-1	Acrylonitrile	0.82	0.82	0.36	0.38	0.38	0.17	**U**
75-35-4	1,1-Dichloroethene	0.16	0.16	0.12	0.041	0.041	0.031	**U**
75-09-2	**Methylene Chloride**	**0.45**	0.82	0.31	**0.13**	0.23	0.089	**J**
75-15-0	Carbon Disulfide	8.2	8.2	0.39	2.6	2.6	0.13	**U**
156-60-5	trans-1,2-Dichloroethene	0.16	0.16	0.096	0.041	0.041	0.024	**U**
75-34-3	1,1-Dichloroethane	0.16	0.16	0.10	0.040	0.040	0.025	**U**
1634-04-4	Methyl tert-Butyl Ether	0.16	0.16	0.11	0.045	0.045	0.032	**U**
78-93-3	**2-Butanone (MEK)**	**3.2**	8.2	0.36	**1.1**	2.8	0.12	**J**
156-59-2	**cis-1,2-Dichloroethene**	**4.0**	0.16	0.093	**1.0**	0.041	0.023	
67-66-3	**Chloroform**	**0.31**	0.16	0.096	**0.063**	0.033	0.020	
107-06-2	1,2-Dichloroethane	0.16	0.16	0.10	0.040	0.040	0.025	**U**
71-55-6	1,1,1-Trichloroethane	0.16	0.16	0.12	0.030	0.030	0.022	**U**
71-43-2	**Benzene**	**0.71**	0.16	0.11	**0.22**	0.051	0.035	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
M1 = Matrix interference due to coelution with a non-target compound; results may be biased high.

Verified By: _____ Date: 4/8/16

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **RP-CS-1-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-006

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01590

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.63

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.61**	0.16	0.12	**0.097**	0.026	0.019	
78-87-5	1,2-Dichloropropane	0.16	0.16	0.12	0.035	0.035	0.026	U
75-27-4	Bromodichloromethane	0.16	0.16	0.12	0.024	0.024	0.018	U
79-01-6	**Trichloroethene**	**49**	0.16	0.10	**9.1**	0.030	0.019	
10061-01-5	cis-1,3-Dichloropropene	0.82	0.82	0.26	0.18	0.18	0.057	U
108-10-1	**4-Methyl-2-pentanone**	**1.5**	0.82	0.31	**0.36**	0.20	0.076	
10061-02-6	trans-1,3-Dichloropropene	0.82	0.82	0.33	0.18	0.18	0.072	U
79-00-5	1,1,2-Trichloroethane	0.16	0.16	0.090	0.030	0.030	0.016	U
108-88-3	**Toluene**	**6.8**	0.82	0.31	**1.8**	0.22	0.082	
124-48-1	Dibromochloromethane	0.16	0.16	0.11	0.019	0.019	0.013	U
127-18-4	**Tetrachloroethene**	**0.72**	0.16	0.096	**0.11**	0.024	0.014	
108-90-7	Chlorobenzene	0.16	0.16	0.082	0.035	0.035	0.018	U
100-41-4	**Ethylbenzene**	**0.33**	0.82	0.31	**0.075**	0.19	0.071	J
179601-23-1	**m,p-Xylenes**	**1.1**	0.82	0.59	**0.26**	0.19	0.14	
75-25-2	Bromoform	0.82	0.82	0.34	0.079	0.079	0.033	U
100-42-5	Styrene	0.82	0.82	0.31	0.19	0.19	0.073	U
95-47-6	**o-Xylene**	**0.75**	0.82	0.31	**0.17**	0.19	0.071	J
79-34-5	1,1,2,2-Tetrachloroethane	0.16	0.16	0.093	0.024	0.024	0.014	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **RP-CS-1-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-006

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes: **T**
Container ID: AC01590

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -3.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.63

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.45	1,1,3,3,3-Pentafluro-1-Propene	**5.4**	
5.29	Unidentified Polyfluorinated Compound	**6.2**	
5.40	Acetaldehyde + Isobutane	**13**	
7.76	Isopentane	**13**	
8.59	n-Pentane	**20**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-DUP-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00642

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.18

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.41**	0.24	0.13	**0.20**	0.11	0.063	
75-01-4	Vinyl Chloride	0.12	0.12	0.077	0.046	0.046	0.030	**U**
74-83-9	Bromomethane	0.12	0.12	0.086	0.030	0.030	0.022	**U**
75-00-3	Chloroethane	0.12	0.12	0.094	0.045	0.045	0.036	**U**
67-64-1	**Acetone**	**41**	5.9	1.5	**17**	2.5	0.65	
107-13-1	Acrylonitrile	0.59	0.59	0.26	0.27	0.27	0.12	**U**
75-35-4	1,1-Dichloroethene	0.12	0.12	0.089	0.030	0.030	0.022	**U**
75-09-2	**Methylene Chloride**	**0.26**	0.59	0.22	**0.075**	0.17	0.065	**J**
75-15-0	Carbon Disulfide	5.9	5.9	0.28	1.9	1.9	0.091	**U**
156-60-5	trans-1,2-Dichloroethene	0.12	0.12	0.070	0.030	0.030	0.018	**U**
75-34-3	1,1-Dichloroethane	0.12	0.12	0.073	0.029	0.029	0.018	**U**
1634-04-4	Methyl tert-Butyl Ether	0.12	0.12	0.083	0.033	0.033	0.023	**U**
78-93-3	**2-Butanone (MEK)**	**4.0**	5.9	0.26	**1.3**	2.0	0.088	**J**
156-59-2	cis-1,2-Dichloroethene	0.12	0.12	0.067	0.030	0.030	0.017	**U**
67-66-3	**Chloroform**	**2.4**	0.12	0.070	**0.48**	0.024	0.014	
107-06-2	1,2-Dichloroethane	0.12	0.12	0.073	0.029	0.029	0.018	**U**
71-55-6	1,1,1-Trichloroethane	0.12	0.12	0.087	0.022	0.022	0.016	**U**
71-43-2	**Benzene**	**0.58**	0.12	0.081	**0.18**	0.037	0.025	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-DUP-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-007

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00642

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.18

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.57**	0.12	0.089	**0.091**	0.019	0.014	
78-87-5	1,2-Dichloropropane	0.12	0.12	0.086	0.026	0.026	0.019	U
75-27-4	Bromodichloromethane	0.12	0.12	0.085	0.018	0.018	0.013	U
79-01-6	Trichloroethene	0.12	0.12	0.073	0.022	0.022	0.014	U
10061-01-5	cis-1,3-Dichloropropene	0.59	0.59	0.19	0.13	0.13	0.042	U
108-10-1	**4-Methyl-2-pentanone**	**0.65**	0.59	0.22	**0.16**	0.14	0.055	
10061-02-6	trans-1,3-Dichloropropene	0.59	0.59	0.24	0.13	0.13	0.052	U
79-00-5	1,1,2-Trichloroethane	0.12	0.12	0.065	0.022	0.022	0.012	U
108-88-3	**Toluene**	**1.5**	0.59	0.22	**0.39**	0.16	0.060	
124-48-1	Dibromochloromethane	0.12	0.12	0.080	0.014	0.014	0.0094	U
127-18-4	**Tetrachloroethene**	**0.52**	0.12	0.070	**0.077**	0.017	0.010	
108-90-7	Chlorobenzene	0.12	0.12	0.059	0.026	0.026	0.013	U
100-41-4	**Ethylbenzene**	**0.23**	0.59	0.22	**0.053**	0.14	0.052	J
179601-23-1	**m,p-Xylenes**	**0.72**	0.59	0.42	**0.17**	0.14	0.098	
75-25-2	Bromoform	0.59	0.59	0.25	0.057	0.057	0.024	U
100-42-5	Styrene	0.59	0.59	0.22	0.14	0.14	0.053	U
95-47-6	**o-Xylene**	**0.32**	0.59	0.22	**0.074**	0.14	0.052	J
79-34-5	1,1,2,2-Tetrachloroethane	0.12	0.12	0.067	0.017	0.017	0.0098	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **SGP-DUP-032410** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-007

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/24/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC00642

Initial Pressure (psig): 0.7 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.18

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
5.41	Acetaldehyde + Isobutane	**12**	
5.80	Isobutene	**6.9**	
5.96	n-Butane	**4.2**	
11.37	n-Butanal	**3.3**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/16

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-B2-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-008

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00824

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.4 Final Pressure (psig): 4.3

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.42**	0.25	0.14	**0.21**	0.12	0.067	
75-01-4	Vinyl Chloride	0.13	0.13	0.082	0.049	0.049	0.032	U
74-83-9	Bromomethane	0.13	0.13	0.092	0.032	0.032	0.024	U
75-00-3	Chloroethane	0.13	0.13	0.10	0.048	0.048	0.038	U
67-64-1	**Acetone**	**8.9**	6.3	1.6	**3.7**	2.7	0.69	
107-13-1	**Acrylonitrile**	**0.33**	0.63	0.28	**0.15**	0.29	0.13	J
75-35-4	1,1-Dichloroethene	0.13	0.13	0.095	0.032	0.032	0.024	U
75-09-2	**Methylene Chloride**	**0.28**	0.63	0.24	**0.080**	0.18	0.069	J
75-15-0	Carbon Disulfide	6.3	6.3	0.30	2.0	2.0	0.097	U
156-60-5	trans-1,2-Dichloroethene	0.13	0.13	0.074	0.032	0.032	0.019	U
75-34-3	1,1-Dichloroethane	0.13	0.13	0.078	0.031	0.031	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.13	0.13	0.088	0.035	0.035	0.024	U
78-93-3	**2-Butanone (MEK)**	**1.1**	6.3	0.28	**0.36**	2.1	0.094	J
156-59-2	cis-1,2-Dichloroethene	0.13	0.13	0.072	0.032	0.032	0.018	U
67-66-3	**Chloroform**	**0.28**	0.13	0.074	**0.057**	0.026	0.015	
107-06-2	1,2-Dichloroethane	0.13	0.13	0.078	0.031	0.031	0.019	U
71-55-6	1,1,1-Trichloroethane	0.13	0.13	0.093	0.023	0.023	0.017	U
71-43-2	**Benzene**	**0.62**	0.13	0.087	**0.20**	0.039	0.027	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-B2-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-008

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00824

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.4 Final Pressure (psig): 4.3

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.54**	0.13	0.095	**0.087**	0.020	0.015	
78-87-5	1,2-Dichloropropane	0.13	0.13	0.092	0.027	0.027	0.020	U
75-27-4	Bromodichloromethane	0.13	0.13	0.091	0.019	0.019	0.014	U
79-01-6	**Trichloroethene**	**3.3**	0.13	0.078	**0.61**	0.023	0.015	
10061-01-5	cis-1,3-Dichloropropene	0.63	0.63	0.20	0.14	0.14	0.044	U
108-10-1	**4-Methyl-2-pentanone**	**140**	0.63	0.24	**33**	0.15	0.058	
10061-02-6	trans-1,3-Dichloropropene	0.63	0.63	0.25	0.14	0.14	0.056	U
79-00-5	1,1,2-Trichloroethane	0.13	0.13	0.069	0.023	0.023	0.013	U
108-88-3	**Toluene**	**2.4**	0.63	0.24	**0.64**	0.17	0.064	
124-48-1	Dibromochloromethane	0.13	0.13	0.086	0.015	0.015	0.010	U
127-18-4	**Tetrachloroethene**	**0.084**	0.13	0.074	**0.012**	0.019	0.011	J
108-90-7	Chlorobenzene	0.13	0.13	0.063	0.027	0.027	0.014	U
100-41-4	**Ethylbenzene**	**0.32**	0.63	0.24	**0.074**	0.15	0.055	J
179601-23-1	**m,p-Xylenes**	**0.78**	0.63	0.45	**0.18**	0.15	0.10	
75-25-2	Bromoform	0.63	0.63	0.26	0.061	0.061	0.026	U
100-42-5	Styrene	0.63	0.63	0.24	0.15	0.15	0.056	U
95-47-6	**o-Xylene**	**0.41**	0.63	0.24	**0.095**	0.15	0.055	J
79-34-5	1,1,2,2-Tetrachloroethane	0.13	0.13	0.072	0.018	0.018	0.010	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-B2-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-008

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	3/23/10
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	3/26/10
Analyst:	Chris Cornett	Date Analyzed:	3/31/10
Sampling Media:	6.0 L Summa Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AC00824		

Initial Pressure (psig): 0.4 Final Pressure (psig): 4.3

Canister Dilution Factor: 1.26

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.70	Propane	**8.6**	
5.41	Acetaldehyde + Isobutane	**5.0**	
23.82	Benzaldehyde	**9.4**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-B4-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-009

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00977

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.6 Final Pressure (psig): 3.9

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.47**	0.28	0.16	**0.23**	0.14	0.076	
75-01-4	Vinyl Chloride	0.14	0.14	0.092	0.056	0.056	0.036	U
74-83-9	Bromomethane	0.14	0.14	0.10	0.037	0.037	0.027	U
75-00-3	Chloroethane	0.14	0.14	0.11	0.054	0.054	0.043	U
67-64-1	**Acetone**	**18**	7.1	1.8	**7.7**	3.0	0.78	
107-13-1	**Acrylonitrile**	**0.39**	0.71	0.31	**0.18**	0.33	0.14	J
75-35-4	1,1-Dichloroethene	0.14	0.14	0.11	0.036	0.036	0.027	U
75-09-2	**Methylene Chloride**	**0.29**	0.71	0.27	**0.083**	0.20	0.078	J
75-15-0	**Carbon Disulfide**	**0.83**	7.1	0.34	**0.27**	2.3	0.11	J
156-60-5	trans-1,2-Dichloroethene	0.14	0.14	0.084	0.036	0.036	0.021	U
75-34-3	1,1-Dichloroethane	0.14	0.14	0.088	0.035	0.035	0.022	U
1634-04-4	Methyl tert-Butyl Ether	0.14	0.14	0.099	0.039	0.039	0.028	U
78-93-3	**2-Butanone (MEK)**	**0.99**	7.1	0.31	**0.33**	2.4	0.11	J
156-59-2	cis-1,2-Dichloroethene	0.14	0.14	0.081	0.036	0.036	0.020	U
67-66-3	**Chloroform**	**0.15**	0.14	0.084	**0.032**	0.029	0.017	
107-06-2	1,2-Dichloroethane	0.14	0.14	0.088	0.035	0.035	0.022	U
71-55-6	1,1,1-Trichloroethane	0.14	0.14	0.11	0.026	0.026	0.019	U
71-43-2	**Benzene**	**0.68**	0.14	0.098	**0.21**	0.044	0.031	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-B4-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-009

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00977

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.6 Final Pressure (psig): 3.9

Canister Dilution Factor: 1.42

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.52**	0.14	0.11	**0.082**	0.023	0.017	
78-87-5	1,2-Dichloropropane	0.14	0.14	0.10	0.031	0.031	0.022	U
75-27-4	Bromodichloromethane	0.14	0.14	0.10	0.021	0.021	0.015	U
79-01-6	**Trichloroethene**	**5.0**	0.14	0.088	**0.94**	0.026	0.016	
10061-01-5	cis-1,3-Dichloropropene	0.71	0.71	0.23	0.16	0.16	0.050	U
108-10-1	**4-Methyl-2-pentanone**	**52**	0.71	0.27	**13**	0.17	0.066	
10061-02-6	trans-1,3-Dichloropropene	0.71	0.71	0.28	0.16	0.16	0.063	U
79-00-5	1,1,2-Trichloroethane	0.14	0.14	0.078	0.026	0.026	0.014	U
108-88-3	**Toluene**	**9.3**	0.71	0.27	**2.5**	0.19	0.072	
124-48-1	Dibromochloromethane	0.14	0.14	0.097	0.017	0.017	0.011	U
127-18-4	Tetrachloroethene	0.14	0.14	0.084	0.021	0.021	0.012	U
108-90-7	Chlorobenzene	0.14	0.14	0.071	0.031	0.031	0.015	U
100-41-4	**Ethylbenzene**	**0.35**	0.71	0.27	**0.081**	0.16	0.062	J
179601-23-1	**m,p-Xylenes**	**1.1**	0.71	0.51	**0.25**	0.16	0.12	
75-25-2	Bromoform	0.71	0.71	0.30	0.069	0.069	0.029	U
100-42-5	Styrene	0.71	0.71	0.27	0.17	0.17	0.063	U
95-47-6	**o-Xylene**	**0.59**	0.71	0.27	**0.14**	0.16	0.062	J
79-34-5	1,1,2,2-Tetrachloroethane	0.14	0.14	0.081	0.021	0.021	0.012	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-B4-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-009

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	3/23/10
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	3/26/10
Analyst:	Chris Cornett	Date Analyzed:	3/31/10
Sampling Media:	6.0 L Summa Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		
Container ID:	AC00977		

Initial Pressure (psig): -1.6 Final Pressure (psig): 3.9

Canister Dilution Factor: 1.42

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
4.70	Propane	**13**	
5.96	n-Butane	**7.9**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-FB-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-010

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01257

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	Chloromethane	0.20	0.20	0.11	0.097	0.097	0.053	U
75-01-4	Vinyl Chloride	0.10	0.10	0.065	0.039	0.039	0.025	U
74-83-9	Bromomethane	0.10	0.10	0.073	0.026	0.026	0.019	U
75-00-3	Chloroethane	0.10	0.10	0.080	0.038	0.038	0.030	U
67-64-1	**Acetone**	**1.6**	5.0	1.3	**0.69**	2.1	0.55	J
107-13-1	Acrylonitrile	0.50	0.50	0.22	0.23	0.23	0.10	U
75-35-4	1,1-Dichloroethene	0.10	0.10	0.075	0.025	0.025	0.019	U
75-09-2	Methylene Chloride	0.50	0.50	0.19	0.14	0.14	0.055	U
75-15-0	Carbon Disulfide	5.0	5.0	0.24	1.6	1.6	0.077	U
156-60-5	trans-1,2-Dichloroethene	0.10	0.10	0.059	0.025	0.025	0.015	U
75-34-3	1,1-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
1634-04-4	Methyl tert-Butyl Ether	0.10	0.10	0.070	0.028	0.028	0.019	U
78-93-3	2-Butanone (MEK)	5.0	5.0	0.22	1.7	1.7	0.075	U
156-59-2	cis-1,2-Dichloroethene	0.10	0.10	0.057	0.025	0.025	0.014	U
67-66-3	Chloroform	0.10	0.10	0.059	0.020	0.020	0.012	U
107-06-2	1,2-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
71-55-6	1,1,1-Trichloroethane	0.10	0.10	0.074	0.018	0.018	0.014	U
71-43-2	Benzene	0.10	0.10	0.069	0.031	0.031	0.022	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-FB-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-010

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01257

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	Carbon Tetrachloride	0.10	0.10	0.075	0.016	0.016	0.012	U
78-87-5	1,2-Dichloropropane	0.10	0.10	0.073	0.022	0.022	0.016	U
75-27-4	Bromodichloromethane	0.10	0.10	0.072	0.015	0.015	0.011	U
79-01-6	Trichloroethene	0.10	0.10	0.062	0.019	0.019	0.012	U
10061-01-5	cis-1,3-Dichloropropene	0.50	0.50	0.16	0.11	0.11	0.035	U
108-10-1	4-Methyl-2-pentanone	0.50	0.50	0.19	0.12	0.12	0.046	U
10061-02-6	trans-1,3-Dichloropropene	0.50	0.50	0.20	0.11	0.11	0.044	U
79-00-5	1,1,2-Trichloroethane	0.10	0.10	0.055	0.018	0.018	0.010	U
108-88-3	**Toluene**	**0.56**	0.50	0.19	**0.15**	0.13	0.050	
124-48-1	Dibromochloromethane	0.10	0.10	0.068	0.012	0.012	0.0080	U
127-18-4	Tetrachloroethene	0.10	0.10	0.059	0.015	0.015	0.0087	U
108-90-7	Chlorobenzene	0.10	0.10	0.050	0.022	0.022	0.011	U
100-41-4	Ethylbenzene	0.50	0.50	0.19	0.12	0.12	0.044	U
179601-23-1	m,p-Xylenes	0.50	0.50	0.36	0.12	0.12	0.083	U
75-25-2	Bromoform	0.50	0.50	0.21	0.048	0.048	0.020	U
100-42-5	Styrene	0.50	0.50	0.19	0.12	0.12	0.045	U
95-47-6	o-Xylene	0.50	0.50	0.19	0.12	0.12	0.044	U
79-34-5	1,1,2,2-Tetrachloroethane	0.10	0.10	0.057	0.015	0.015	0.0083	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-FB-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-010

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/23/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:
Container ID: AC01257

Canister Dilution Factor: 1.00

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
	Epichlorohydrin	NF	

NF = Compound was searched for, but not found.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-3-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-011

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01425

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1 - 4/2/10
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Initial Pressure (psig): -2.3 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.38**	0.30	0.16	**0.19**	0.14	0.079	
75-01-4	Vinyl Chloride	0.15	0.15	0.096	0.058	0.058	0.038	**U**
74-83-9	Bromomethane	0.15	0.15	0.11	0.038	0.038	0.028	**U**
75-00-3	Chloroethane	0.15	0.15	0.12	0.056	0.056	0.045	**U**
67-64-1	**Acetone**	**25**	7.4	1.9	**11**	3.1	0.81	
107-13-1	**Acrylonitrile**	**2.7**	0.74	0.33	**1.3**	0.34	0.15	
75-35-4	1,1-Dichloroethene	0.15	0.15	0.11	0.037	0.037	0.028	**U**
75-09-2	Methylene Chloride	0.74	0.74	0.28	0.21	0.21	0.081	**U**
75-15-0	Carbon Disulfide	7.4	7.4	0.36	2.4	2.4	0.11	**U**
156-60-5	trans-1,2-Dichloroethene	0.15	0.15	0.087	0.037	0.037	0.022	**U**
75-34-3	1,1-Dichloroethane	0.15	0.15	0.092	0.037	0.037	0.023	**U**
1634-04-4	Methyl tert-Butyl Ether	0.15	0.15	0.10	0.041	0.041	0.029	**U**
78-93-3	**2-Butanone (MEK)**	**1.2**	7.4	0.33	**0.42**	2.5	0.11	**J**
156-59-2	cis-1,2-Dichloroethene	0.15	0.15	0.084	0.037	0.037	0.021	**U**
67-66-3	**Chloroform**	**1.4**	0.15	0.087	**0.28**	0.030	0.018	
107-06-2	1,2-Dichloroethane	0.15	0.15	0.092	0.037	0.037	0.023	**U**
71-55-6	1,1,1-Trichloroethane	0.15	0.15	0.11	0.027	0.027	0.020	**U**
71-43-2	**Benzene**	**1.1**	0.15	0.10	**0.35**	0.046	0.032	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-3-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-011

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01425

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1 - 4/2/10
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Initial Pressure (psig): -2.3 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.48

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.49**	0.15	0.11	**0.078**	0.024	0.018	
78-87-5	1,2-Dichloropropane	0.15	0.15	0.11	0.032	0.032	0.023	U
75-27-4	Bromodichloromethane	0.15	0.15	0.11	0.022	0.022	0.016	U
79-01-6	**Trichloroethene**	**1.4**	0.15	0.092	**0.26**	0.028	0.017	
10061-01-5	cis-1,3-Dichloropropene	0.74	0.74	0.24	0.16	0.16	0.052	U
108-10-1	**4-Methyl-2-pentanone**	**410**	7.4	0.28	**100**	1.8	0.069	D
10061-02-6	trans-1,3-Dichloropropene	0.74	0.74	0.30	0.16	0.16	0.065	U
79-00-5	1,1,2-Trichloroethane	0.15	0.15	0.081	0.027	0.027	0.015	U
108-88-3	**Toluene**	**4.7**	0.74	0.28	**1.2**	0.20	0.075	
124-48-1	Dibromochloromethane	0.15	0.15	0.10	0.017	0.017	0.012	U
127-18-4	**Tetrachloroethene**	**0.087**	0.15	0.087	**0.013**	0.022	0.013	J
108-90-7	Chlorobenzene	0.15	0.15	0.074	0.032	0.032	0.016	U
100-41-4	**Ethylbenzene**	**0.54**	0.74	0.28	**0.13**	0.17	0.065	J
179601-23-1	**m,p-Xylenes**	**1.8**	0.74	0.53	**0.41**	0.17	0.12	
75-25-2	Bromoform	0.74	0.74	0.31	0.072	0.072	0.030	U
100-42-5	Styrene	0.74	0.74	0.28	0.17	0.17	0.066	U
95-47-6	**o-Xylene**	**0.69**	0.74	0.28	**0.16**	0.17	0.065	J
79-34-5	1,1,2,2-Tetrachloroethane	0.15	0.15	0.084	0.022	0.022	0.012	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-3-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-011

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/23/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 4/1 - 4/2/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T** 0.10 Liter(s)
Container ID: AC01425

Initial Pressure (psig): -2.3 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.48

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
5.40	Isobutane	**4.0**	
5.96	n-Butane	**6.4**	
8.59	n-Pentane	**5.6**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-5-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-012

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00515

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10 & 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Initial Pressure (psig): -0.1 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.52**	0.25	0.14	**0.25**	0.12	0.067	
75-01-4	Vinyl Chloride	0.13	0.13	0.081	0.049	0.049	0.032	U
74-83-9	Bromomethane	0.13	0.13	0.091	0.032	0.032	0.024	U
75-00-3	Chloroethane	0.13	0.13	0.10	0.047	0.047	0.038	U
67-64-1	**Acetone**	**15**	6.3	1.6	**6.4**	2.6	0.68	
107-13-1	Acrylonitrile	0.63	0.63	0.28	0.29	0.29	0.13	U
75-35-4	**1,1-Dichloroethene**	**0.74**	0.13	0.094	**0.19**	0.032	0.024	
75-09-2	**Methylene Chloride**	**0.34**	0.63	0.24	**0.096**	0.18	0.068	J
75-15-0	**Carbon Disulfide**	**14**	6.3	0.30	**4.5**	2.0	0.096	
156-60-5	trans-1,2-Dichloroethene	0.13	0.13	0.074	0.032	0.032	0.019	U
75-34-3	1,1-Dichloroethane	0.13	0.13	0.078	0.031	0.031	0.019	U
1634-04-4	Methyl tert-Butyl Ether	0.13	0.13	0.088	0.035	0.035	0.024	U
78-93-3	**2-Butanone (MEK)**	**1.3**	6.3	0.28	**0.45**	2.1	0.093	J
156-59-2	cis-1,2-Dichloroethene	0.13	0.13	0.071	0.032	0.032	0.018	U
67-66-3	**Chloroform**	**4.3**	0.13	0.074	**0.88**	0.026	0.015	
107-06-2	1,2-Dichloroethane	0.13	0.13	0.078	0.031	0.031	0.019	U
71-55-6	1,1,1-Trichloroethane	0.13	0.13	0.093	0.023	0.023	0.017	U
71-43-2	**Benzene**	**0.69**	0.13	0.086	**0.22**	0.039	0.027	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-5-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-012

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00515

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10 & 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Initial Pressure (psig): -0.1 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.67**	0.13	0.094	**0.11**	0.020	0.015	
78-87-5	1,2-Dichloropropane	0.13	0.13	0.091	0.027	0.027	0.020	U
75-27-4	Bromodichloromethane	0.13	0.13	0.090	0.019	0.019	0.013	U
79-01-6	**Trichloroethene**	**0.78**	0.13	0.078	**0.14**	0.023	0.014	
10061-01-5	cis-1,3-Dichloropropene	0.63	0.63	0.20	0.14	0.14	0.044	U
108-10-1	**4-Methyl-2-pentanone**	**560**	6.3	0.24	**140**	1.5	0.058	D
10061-02-6	trans-1,3-Dichloropropene	0.63	0.63	0.25	0.14	0.14	0.055	U
79-00-5	1,1,2-Trichloroethane	0.13	0.13	0.069	0.023	0.023	0.013	U
108-88-3	**Toluene**	**3.3**	0.63	0.24	**0.87**	0.17	0.063	
124-48-1	Dibromochloromethane	0.13	0.13	0.085	0.015	0.015	0.010	U
127-18-4	Tetrachloroethene	0.13	0.13	0.074	0.018	0.018	0.011	U
108-90-7	Chlorobenzene	0.13	0.13	0.063	0.027	0.027	0.014	U
100-41-4	**Ethylbenzene**	**0.33**	0.63	0.24	**0.076**	0.14	0.055	J
179601-23-1	**m,p-Xylenes**	**1.1**	0.63	0.45	**0.25**	0.14	0.10	
75-25-2	Bromoform	0.63	0.63	0.26	0.060	0.060	0.025	U
100-42-5	Styrene	0.63	0.63	0.24	0.15	0.15	0.056	U
95-47-6	**o-Xylene**	**0.39**	0.63	0.24	**0.091**	0.14	0.055	J
79-34-5	1,1,2,2-Tetrachloroethane	0.13	0.13	0.071	0.018	0.018	0.010	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-5-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-012

Tentatively Identified Compounds

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes: **T**
Container ID: AC00515

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10 & 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)
0.10 Liter(s)

Initial Pressure (psig): -0.1 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.25

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.70	Propane	**98**	
5.40	Isobutane	**9.7**	
26.26	Cymene Isomer	**10**	
26.79	1,2,3,4-Tetramethyl Benzene	**12**	
27.23	$C_{10}H_{12}$ Aromatic Compound	**12**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-7-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-013

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00527

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.0 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.46**	0.27	0.15	**0.22**	0.13	0.071	
75-01-4	Vinyl Chloride	0.13	0.13	0.086	0.052	0.052	0.034	**U**
74-83-9	Bromomethane	0.13	0.13	0.097	0.034	0.034	0.025	**U**
75-00-3	Chloroethane	0.13	0.13	0.11	0.050	0.050	0.040	**U**
67-64-1	**Acetone**	**30**	6.7	1.7	**13**	2.8	0.73	
107-13-1	**Acrylonitrile**	**0.38**	0.67	0.29	**0.18**	0.31	0.13	**J**
75-35-4	1,1-Dichloroethene	0.13	0.13	0.10	0.034	0.034	0.025	**U**
75-09-2	**Methylene Chloride**	**0.32**	0.67	0.25	**0.093**	0.19	0.073	**J**
75-15-0	**Carbon Disulfide**	**11**	6.7	0.32	**3.6**	2.1	0.10	
156-60-5	trans-1,2-Dichloroethene	0.13	0.13	0.078	0.034	0.034	0.020	**U**
75-34-3	1,1-Dichloroethane	0.13	0.13	0.082	0.033	0.033	0.020	**U**
1634-04-4	Methyl tert-Butyl Ether	0.13	0.13	0.093	0.037	0.037	0.026	**U**
78-93-3	**2-Butanone (MEK)**	**1.1**	6.7	0.29	**0.36**	2.3	0.099	**J**
156-59-2	cis-1,2-Dichloroethene	0.13	0.13	0.076	0.034	0.034	0.019	**U**
67-66-3	**Chloroform**	**0.39**	0.13	0.078	**0.080**	0.027	0.016	
107-06-2	**1,2-Dichloroethane**	**0.13**	0.13	0.082	**0.033**	0.033	0.020	**J**
71-55-6	1,1,1-Trichloroethane	0.13	0.13	0.098	0.024	0.024	0.018	**U**
71-43-2	**Benzene**	**0.71**	0.13	0.092	**0.22**	0.042	0.029	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-7-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-013

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00527

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.0 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.33

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.64**	0.13	0.10	**0.10**	0.021	0.016	
78-87-5	1,2-Dichloropropane	0.13	0.13	0.097	0.029	0.029	0.021	U
75-27-4	Bromodichloromethane	0.13	0.13	0.096	0.020	0.020	0.014	U
79-01-6	**Trichloroethene**	**0.51**	0.13	0.082	**0.095**	0.025	0.015	
10061-01-5	cis-1,3-Dichloropropene	0.67	0.67	0.21	0.15	0.15	0.047	U
108-10-1	**4-Methyl-2-pentanone**	**79**	0.67	0.25	**19**	0.16	0.062	
10061-02-6	trans-1,3-Dichloropropene	0.67	0.67	0.27	0.15	0.15	0.059	U
79-00-5	1,1,2-Trichloroethane	0.13	0.13	0.073	0.024	0.024	0.013	U
108-88-3	**Toluene**	**2.6**	0.67	0.25	**0.69**	0.18	0.067	
124-48-1	Dibromochloromethane	0.13	0.13	0.090	0.016	0.016	0.011	U
127-18-4	Tetrachloroethene	0.13	0.13	0.078	0.020	0.020	0.012	U
108-90-7	Chlorobenzene	0.13	0.13	0.067	0.029	0.029	0.014	U
100-41-4	**Ethylbenzene**	**0.26**	0.67	0.25	**0.061**	0.15	0.058	J
179601-23-1	**m,p-Xylenes**	**0.82**	0.67	0.48	**0.19**	0.15	0.11	
75-25-2	Bromoform	0.67	0.67	0.28	0.064	0.064	0.027	U
100-42-5	Styrene	0.67	0.67	0.25	0.16	0.16	0.059	U
95-47-6	**o-Xylene**	**0.49**	0.67	0.25	**0.11**	0.15	0.058	J
79-34-5	1,1,2,2-Tetrachloroethane	0.13	0.13	0.076	0.019	0.019	0.011	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-7-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-013

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/23/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 4/1/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC00527

Initial Pressure (psig): -1.0 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.33

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.70	Propane	**20**	
23.82	Benzaldehyde	**13**	
26.26	Cymene Isomer	**9.4**	
26.79	1,2,3,4-Tetramethyl Benzene	**12**	
27.23	$C_{10}H_{12}$ Aromatic Compound	**12**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-6-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-014

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00623

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.8 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.46**	0.28	0.16	**0.22**	0.14	0.075	
75-01-4	Vinyl Chloride	0.14	0.14	0.092	0.055	0.055	0.036	**U**
74-83-9	Bromomethane	0.14	0.14	0.10	0.036	0.036	0.027	**U**
75-00-3	Chloroethane	0.14	0.14	0.11	0.053	0.053	0.043	**U**
67-64-1	**Acetone**	**24**	7.1	1.8	**10**	3.0	0.77	
107-13-1	**Acrylonitrile**	**6.7**	0.71	0.31	**3.1**	0.32	0.14	
75-35-4	1,1-Dichloroethene	0.14	0.14	0.11	0.036	0.036	0.027	**U**
75-09-2	**Methylene Chloride**	**0.30**	0.71	0.27	**0.085**	0.20	0.077	**J**
75-15-0	**Carbon Disulfide**	**3.8**	7.1	0.34	**1.2**	2.3	0.11	**J**
156-60-5	trans-1,2-Dichloroethene	0.14	0.14	0.083	0.036	0.036	0.021	**U**
75-34-3	1,1-Dichloroethane	0.14	0.14	0.087	0.035	0.035	0.022	**U**
1634-04-4	Methyl tert-Butyl Ether	0.14	0.14	0.099	0.039	0.039	0.027	**U**
78-93-3	**2-Butanone (MEK)**	**1.0**	7.1	0.31	**0.34**	2.4	0.11	**J**
156-59-2	cis-1,2-Dichloroethene	0.14	0.14	0.080	0.036	0.036	0.020	**U**
67-66-3	**Chloroform**	**0.47**	0.14	0.083	**0.096**	0.029	0.017	
107-06-2	1,2-Dichloroethane	0.14	0.14	0.087	0.035	0.035	0.022	**U**
71-55-6	1,1,1-Trichloroethane	0.14	0.14	0.10	0.026	0.026	0.019	**U**
71-43-2	**Benzene**	**0.73**	0.14	0.097	**0.23**	0.044	0.030	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-6-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-014

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC00623

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.8 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.41

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.63**	0.14	0.11	**0.10**	0.022	0.017	
78-87-5	1,2-Dichloropropane	0.14	0.14	0.10	0.031	0.031	0.022	**U**
75-27-4	Bromodichloromethane	0.14	0.14	0.10	0.021	0.021	0.015	**U**
79-01-6	**Trichloroethene**	**0.11**	0.14	0.087	**0.021**	0.026	0.016	**J**
10061-01-5	cis-1,3-Dichloropropene	0.71	0.71	0.23	0.16	0.16	0.050	**U**
108-10-1	**4-Methyl-2-pentanone**	**130**	0.71	0.27	**31**	0.17	0.065	
10061-02-6	trans-1,3-Dichloropropene	0.71	0.71	0.28	0.16	0.16	0.062	**U**
79-00-5	1,1,2-Trichloroethane	0.14	0.14	0.078	0.026	0.026	0.014	**U**
108-88-3	**Toluene**	**1.8**	0.71	0.27	**0.46**	0.19	0.071	
124-48-1	Dibromochloromethane	0.14	0.14	0.096	0.017	0.017	0.011	**U**
127-18-4	Tetrachloroethene	0.14	0.14	0.083	0.021	0.021	0.012	**U**
108-90-7	Chlorobenzene	0.14	0.14	0.071	0.031	0.031	0.015	**U**
100-41-4	**Ethylbenzene**	**0.51**	0.71	0.27	**0.12**	0.16	0.062	**J**
179601-23-1	**m,p-Xylenes**	**1.7**	0.71	0.51	**0.39**	0.16	0.12	
75-25-2	Bromoform	0.71	0.71	0.30	0.068	0.068	0.029	**U**
100-42-5	Styrene	0.71	0.71	0.27	0.17	0.17	0.063	**U**
95-47-6	**o-Xylene**	**0.49**	0.71	0.27	**0.11**	0.16	0.062	**J**
79-34-5	1,1,2,2-Tetrachloroethane	0.14	0.14	0.080	0.021	0.021	0.012	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-IA-6-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-014

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/23/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 4/1/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: AC00623

Initial Pressure (psig): -1.8 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.41

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.71	Propane	**81**	
5.41	Acetaldehyde + Isobutane	**7.9**	
26.26	Cymene Isomer	**6.4**	
26.79	1,2,3,4-Tetramethyl Benzene	**6.8**	
27.23	$C_{10}H_{12}$ Aromatic Compound	**7.0**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/16

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-4-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-015

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC01013

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10 & 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)
0.050 Liter(s)

Initial Pressure (psig): -0.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	Chloromethane	0.25	0.25	0.14	0.12	0.12	0.067	U
75-01-4	Vinyl Chloride	0.13	0.13	0.082	0.049	0.049	0.032	U
74-83-9	Bromomethane	0.13	0.13	0.092	0.032	0.032	0.024	U
75-00-3	**Chloroethane**	**0.22**	0.13	0.10	**0.084**	0.048	0.038	
67-64-1	**Acetone**	**37**	6.3	1.6	**15**	2.7	0.69	
107-13-1	**Acrylonitrile**	**0.38**	0.63	0.28	**0.18**	0.29	0.13	J
75-35-4	**1,1-Dichloroethene**	**0.34**	0.13	0.095	**0.086**	0.032	0.024	
75-09-2	**Methylene Chloride**	**0.35**	0.63	0.24	**0.10**	0.18	0.069	J
75-15-0	**Carbon Disulfide**	**11**	6.3	0.30	**3.4**	2.0	0.097	
156-60-5	trans-1,2-Dichloroethene	0.13	0.13	0.074	0.032	0.032	0.019	U
75-34-3	**1,1-Dichloroethane**	**4.1**	0.13	0.078	**1.0**	0.031	0.019	
1634-04-4	Methyl tert-Butyl Ether	0.13	0.13	0.088	0.035	0.035	0.024	U
78-93-3	**2-Butanone (MEK)**	**2.0**	6.3	0.28	**0.69**	2.1	0.094	J
156-59-2	cis-1,2-Dichloroethene	0.13	0.13	0.072	0.032	0.032	0.018	U
67-66-3	**Chloroform**	**770**	2.5	0.074	**160**	0.52	0.015	D
107-06-2	1,2-Dichloroethane	0.13	0.13	0.078	0.031	0.031	0.019	U
71-55-6	**1,1,1-Trichloroethane**	**19**	0.13	0.093	**3.6**	0.023	0.017	
71-43-2	**Benzene**	**0.18**	0.13	0.087	**0.055**	0.039	0.027	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-4-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-015

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC01013

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/1/10 & 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)
0.050 Liter(s)

Initial Pressure (psig): -0.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.26

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.25**	0.13	0.095	**0.040**	0.020	0.015	
78-87-5	**1,2-Dichloropropane**	**8.0**	0.13	0.092	**1.7**	0.027	0.020	
75-27-4	**Bromodichloromethane**	**0.15**	0.13	0.091	**0.023**	0.019	0.014	
79-01-6	**Trichloroethene**	**4.8**	0.13	0.078	**0.90**	0.023	0.015	
10061-01-5	cis-1,3-Dichloropropene	0.63	0.63	0.20	0.14	0.14	0.044	U
108-10-1	**4-Methyl-2-pentanone**	**10**	0.63	0.24	**2.5**	0.15	0.058	
10061-02-6	trans-1,3-Dichloropropene	0.63	0.63	0.25	0.14	0.14	0.056	U
79-00-5	1,1,2-Trichloroethane	0.13	0.13	0.069	0.023	0.023	0.013	U
108-88-3	**Toluene**	**2.2**	0.63	0.24	**0.59**	0.17	0.064	
124-48-1	Dibromochloromethane	0.13	0.13	0.086	0.015	0.015	0.010	U
127-18-4	**Tetrachloroethene**	**34**	0.13	0.074	**5.0**	0.019	0.011	
108-90-7	Chlorobenzene	0.13	0.13	0.063	0.027	0.027	0.014	U
100-41-4	**Ethylbenzene**	**0.39**	0.63	0.24	**0.090**	0.15	0.055	J
179601-23-1	**m,p-Xylenes**	**0.57**	0.63	0.45	**0.13**	0.15	0.10	J
75-25-2	Bromoform	0.63	0.63	0.26	0.061	0.061	0.026	U
100-42-5	Styrene	0.63	0.63	0.24	0.15	0.15	0.056	U
95-47-6	**o-Xylene**	**0.25**	0.63	0.24	**0.057**	0.15	0.055	J
79-34-5	1,1,2,2-Tetrachloroethane	0.13	0.13	0.072	0.018	0.018	0.010	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-4-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-015

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	3/23/10
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	3/26/10
Analyst:	Chris Cornett	Date Analyzed:	4/1/10 & 4/3/10
Sampling Media:	6.0 L Summa Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		0.050 Liter(s)
Container ID:	SC01013		

Initial Pressure (psig): -0.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.26

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
5.39	Isobutane	**43**	
14.74	1-Butanol	**9.7**	
20.77	Hexamethylcyclotrisiloxane	**7.5**	
21.19	Unidentified Polyfluorinated Compound	**34**	
22.22	Cyclohexanone	**23**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-7a-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-016

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00139

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/3/10 & 4/5/10
Volume(s) Analyzed: 1.00 Liter(s)
0.050 Liter(s)

Initial Pressure (psig): -0.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.28

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.49**	0.26	0.14	**0.24**	0.12	0.068	
75-01-4	**Vinyl Chloride**	**0.096**	0.13	0.083	**0.038**	0.050	0.033	**J**
74-83-9	**Bromomethane**	**0.093**	0.13	0.093	**0.024**	0.033	0.024	**J**
75-00-3	**Chloroethane**	**0.39**	0.13	0.10	**0.15**	0.049	0.039	
67-64-1	**Acetone**	**42**	6.4	1.7	**18**	2.7	0.70	**M1**
107-13-1	**Acrylonitrile**	**0.39**	0.64	0.28	**0.18**	0.30	0.13	**J**
75-35-4	**1,1-Dichloroethene**	**0.86**	0.13	0.096	**0.22**	0.032	0.024	
75-09-2	**Methylene Chloride**	**11**	0.64	0.24	**3.3**	0.18	0.070	
75-15-0	**Carbon Disulfide**	**820**	130	0.31	**260**	41	0.099	**D**
156-60-5	**trans-1,2-Dichloroethene**	**0.32**	0.13	0.076	**0.080**	0.032	0.019	
75-34-3	**1,1-Dichloroethane**	**2.4**	0.13	0.079	**0.58**	0.032	0.020	
1634-04-4	Methyl tert-Butyl Ether	0.13	0.13	0.090	0.036	0.036	0.025	**U**
78-93-3	**2-Butanone (MEK)**	**2.8**	6.4	0.28	**0.95**	2.2	0.096	**J**
156-59-2	**cis-1,2-Dichloroethene**	**1.7**	0.13	0.073	**0.42**	0.032	0.018	
67-66-3	**Chloroform**	**99**	0.13	0.076	**20**	0.026	0.015	
107-06-2	**1,2-Dichloroethane**	**0.12**	0.13	0.079	**0.029**	0.032	0.020	**J**
71-55-6	1,1,1-Trichloroethane	0.13	0.13	0.095	0.023	0.023	0.017	**U**
71-43-2	**Benzene**	**1.1**	0.13	0.088	**0.35**	0.040	0.028	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.
M1 = Matrix interference due to coelution with a non-target compound; results may be biased high.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-7a-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-016

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00139

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/3/10 & 4/5/10
Volume(s) Analyzed: 1.00 Liter(s)
0.050 Liter(s)

Initial Pressure (psig): -0.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.28

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.62**	0.13	0.096	**0.098**	0.020	0.015	
78-87-5	**1,2-Dichloropropane**	**1.4**	0.13	0.093	**0.29**	0.028	0.020	
75-27-4	Bromodichloromethane	0.13	0.13	0.092	0.019	0.019	0.014	**U**
79-01-6	**Trichloroethene**	**2.2**	0.13	0.079	**0.41**	0.024	0.015	
10061-01-5	cis-1,3-Dichloropropene	0.64	0.64	0.20	0.14	0.14	0.045	**U**
108-10-1	**4-Methyl-2-pentanone**	**260**	13	0.24	**63**	3.1	0.059	**D**
10061-02-6	trans-1,3-Dichloropropene	0.64	0.64	0.26	0.14	0.14	0.056	**U**
79-00-5	1,1,2-Trichloroethane	0.13	0.13	0.070	0.023	0.023	0.013	**U**
108-88-3	**Toluene**	**62**	0.64	0.24	**16**	0.17	0.065	
124-48-1	Dibromochloromethane	0.13	0.13	0.087	0.015	0.015	0.010	**U**
127-18-4	**Tetrachloroethene**	**0.80**	0.13	0.076	**0.12**	0.019	0.011	
108-90-7	Chlorobenzene	0.13	0.13	0.064	0.028	0.028	0.014	**U**
100-41-4	**Ethylbenzene**	**12**	0.64	0.24	**2.8**	0.15	0.056	
179601-23-1	**m,p-Xylenes**	**99**	0.64	0.46	**23**	0.15	0.11	
75-25-2	Bromoform	0.64	0.64	0.27	0.062	0.062	0.026	**U**
100-42-5	**Styrene**	**1.6**	0.64	0.24	**0.37**	0.15	0.057	
95-47-6	**o-Xylene**	**23**	0.64	0.24	**5.3**	0.15	0.056	
79-34-5	1,1,2,2-Tetrachloroethane	0.13	0.13	0.073	0.019	0.019	0.011	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-7a-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-016

Tentatively Identified Compounds

Test Code:	EPA TO-15	Date Collected:	3/23/10
Instrument ID:	Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13	Date Received:	3/26/10
Analyst:	Chris Cornett	Date Analyzed:	4/3/10 & 4/5/10
Sampling Media:	6.0 L Summa Canister	Volume(s) Analyzed:	1.00 Liter(s)
Test Notes:	**T**		0.050 Liter(s)
Container ID:	SC00139		

Initial Pressure (psig): -0.5 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.28

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
7.77	Isopentane	**260**	
8.60	n-Pentane	**140**	
9.31	C_5H_{10} Compound	**240**	
23.35	Unidentified Compound	**380**	
25.18	2,2-Oxybispentane	**200**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-DUP-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-017

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00592

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/3/10 & 4/5/10
Volume(s) Analyzed: 1.00 Liter(s)
0.050 Liter(s)

Initial Pressure (psig): -0.1 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.50**	0.25	0.14	**0.24**	0.12	0.067	
75-01-4	**Vinyl Chloride**	**0.83**	0.13	0.081	**0.32**	0.049	0.032	
74-83-9	**Bromomethane**	**0.26**	0.13	0.091	**0.068**	0.032	0.024	
75-00-3	**Chloroethane**	**0.49**	0.13	0.10	**0.18**	0.047	0.038	
67-64-1	**Acetone**	**75**	6.3	1.6	**32**	2.6	0.68	
107-13-1	Acrylonitrile	0.63	0.63	0.28	0.29	0.29	0.13	**U**
75-35-4	**1,1-Dichloroethene**	**1.5**	0.13	0.094	**0.38**	0.032	0.024	
75-09-2	**Methylene Chloride**	**82**	0.63	0.24	**24**	0.18	0.068	
75-15-0	**Carbon Disulfide**	**1,000**	130	0.30	**320**	40	0.096	**D**
156-60-5	**trans-1,2-Dichloroethene**	**2.3**	0.13	0.074	**0.59**	0.032	0.019	
75-34-3	**1,1-Dichloroethane**	**11**	0.13	0.078	**2.8**	0.031	0.019	
1634-04-4	**Methyl tert-Butyl Ether**	**0.13**	0.13	0.088	**0.036**	0.035	0.024	
78-93-3	**2-Butanone (MEK)**	**3.7**	6.3	0.28	**1.2**	2.1	0.093	**J**
156-59-2	**cis-1,2-Dichloroethene**	**9.9**	0.13	0.071	**2.5**	0.032	0.018	
67-66-3	**Chloroform**	**190**	2.5	0.074	**39**	0.51	0.015	**D**
107-06-2	**1,2-Dichloroethane**	**0.11**	0.13	0.078	**0.028**	0.031	0.019	**J**
71-55-6	1,1,1-Trichloroethane	0.13	0.13	0.093	0.023	0.023	0.017	**U**
71-43-2	**Benzene**	**2.2**	0.13	0.086	**0.69**	0.039	0.027	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.
D = The reported result is from a dilution.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-DUP-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-017

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00592

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/3/10 & 4/5/10
Volume(s) Analyzed: 1.00 Liter(s)
0.050 Liter(s)

Initial Pressure (psig): -0.1 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.25

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.53**	0.13	0.094	**0.085**	0.020	0.015	
78-87-5	**1,2-Dichloropropane**	**6.0**	0.13	0.091	**1.3**	0.027	0.020	
75-27-4	Bromodichloromethane	0.13	0.13	0.090	0.019	0.019	0.013	**U**
79-01-6	**Trichloroethene**	**4.4**	0.13	0.078	**0.82**	0.023	0.014	
10061-01-5	cis-1,3-Dichloropropene	0.63	0.63	0.20	0.14	0.14	0.044	**U**
108-10-1	**4-Methyl-2-pentanone**	**930**	13	0.24	**230**	3.1	0.058	**D**
10061-02-6	trans-1,3-Dichloropropene	0.63	0.63	0.25	0.14	0.14	0.055	**U**
79-00-5	1,1,2-Trichloroethane	0.13	0.13	0.069	0.023	0.023	0.013	**U**
108-88-3	**Toluene**	**82**	0.63	0.24	**22**	0.17	0.063	
124-48-1	Dibromochloromethane	0.13	0.13	0.085	0.015	0.015	0.010	**U**
127-18-4	**Tetrachloroethene**	**2.8**	0.13	0.074	**0.41**	0.018	0.011	
108-90-7	Chlorobenzene	0.13	0.13	0.063	0.027	0.027	0.014	**U**
100-41-4	**Ethylbenzene**	**60**	0.63	0.24	**14**	0.14	0.055	
179601-23-1	**m,p-Xylenes**	**600**	13	0.45	**140**	2.9	0.10	**D**
75-25-2	Bromoform	0.63	0.63	0.26	0.060	0.060	0.025	**U**
100-42-5	**Styrene**	**1.7**	0.63	0.24	**0.40**	0.15	0.056	
95-47-6	**o-Xylene**	**120**	0.63	0.24	**28**	0.14	0.055	
79-34-5	1,1,2,2-Tetrachloroethane	0.13	0.13	0.071	0.018	0.018	0.010	**U**

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
D = The reported result is from a dilution.

Verified By: _____ Date: 4/5/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-DUP-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-017

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/23/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 4/3/10 & 4/5/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 0.050 Liter(s)
Test Notes: **T**
Container ID: SC00592

Initial Pressure (psig): -0.1 Final Pressure (psig): 3.6

Canister Dilution Factor: 1.25

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
9.30	C_5H_{10} Compound	**1,400**	
23.34	Unidentified Compound	**2,100**	
25.17	2,2-Oxybispentane	**1,300**	
25.24	Unidentified Compound	**810**	
27.00	Unidentified Compound	**940**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-9-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-018

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00982

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	**Chloromethane**	**0.38**	0.27	0.15	**0.19**	0.13	0.072	
75-01-4	Vinyl Chloride	0.14	0.14	0.088	0.053	0.053	0.035	**U**
74-83-9	Bromomethane	0.14	0.14	0.099	0.035	0.035	0.026	**U**
75-00-3	Chloroethane	0.14	0.14	0.11	0.052	0.052	0.041	**U**
67-64-1	**Acetone**	**14**	6.8	1.8	**6.0**	2.9	0.74	
107-13-1	Acrylonitrile	0.68	0.68	0.30	0.31	0.31	0.14	**U**
75-35-4	1,1-Dichloroethene	0.14	0.14	0.10	0.034	0.034	0.026	**U**
75-09-2	Methylene Chloride	0.68	0.68	0.26	0.20	0.20	0.074	**U**
75-15-0	**Carbon Disulfide**	**5.7**	6.8	0.33	**1.8**	2.2	0.10	**J**
156-60-5	trans-1,2-Dichloroethene	0.14	0.14	0.080	0.034	0.034	0.020	**U**
75-34-3	1,1-Dichloroethane	0.14	0.14	0.084	0.034	0.034	0.021	**U**
1634-04-4	Methyl tert-Butyl Ether	0.14	0.14	0.095	0.038	0.038	0.026	**U**
78-93-3	**2-Butanone (MEK)**	**1.1**	6.8	0.30	**0.37**	2.3	0.10	**J**
156-59-2	cis-1,2-Dichloroethene	0.14	0.14	0.078	0.034	0.034	0.020	**U**
67-66-3	**Chloroform**	**41**	0.14	0.080	**8.3**	0.028	0.016	
107-06-2	**1,2-Dichloroethane**	**0.15**	0.14	0.084	**0.037**	0.034	0.021	
71-55-6	1,1,1-Trichloroethane	0.14	0.14	0.10	0.025	0.025	0.018	**U**
71-43-2	**Benzene**	**0.55**	0.14	0.094	**0.17**	0.043	0.029	

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-9-032310**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-018

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: SC00982

Date Collected: 3/23/10
Date Received: 3/26/10
Date Analyzed: 4/3/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): -1.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.36

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	**Carbon Tetrachloride**	**0.50**	0.14	0.10	**0.079**	0.022	0.016	
78-87-5	**1,2-Dichloropropane**	**1.7**	0.14	0.099	**0.37**	0.029	0.021	
75-27-4	Bromodichloromethane	0.14	0.14	0.098	0.020	0.020	0.015	U
79-01-6	**Trichloroethene**	**13**	0.14	0.084	**2.5**	0.025	0.016	
10061-01-5	cis-1,3-Dichloropropene	0.68	0.68	0.22	0.15	0.15	0.048	U
108-10-1	**4-Methyl-2-pentanone**	**53**	0.68	0.26	**13**	0.17	0.063	
10061-02-6	trans-1,3-Dichloropropene	0.68	0.68	0.27	0.15	0.15	0.060	U
79-00-5	**1,1,2-Trichloroethane**	**0.092**	0.14	0.075	**0.017**	0.025	0.014	J
108-88-3	**Toluene**	**1.8**	0.68	0.26	**0.47**	0.18	0.069	
124-48-1	Dibromochloromethane	0.14	0.14	0.092	0.016	0.016	0.011	U
127-18-4	**Tetrachloroethene**	**0.27**	0.14	0.080	**0.040**	0.020	0.012	
108-90-7	**Chlorobenzene**	**0.086**	0.14	0.068	**0.019**	0.030	0.015	J
100-41-4	Ethylbenzene	0.68	0.68	0.26	0.16	0.16	0.060	U
179601-23-1	**m,p-Xylenes**	**0.61**	0.68	0.49	**0.14**	0.16	0.11	J
75-25-2	Bromoform	0.68	0.68	0.29	0.066	0.066	0.028	U
100-42-5	Styrene	0.68	0.68	0.26	0.16	0.16	0.061	U
95-47-6	o-Xylene	0.68	0.68	0.26	0.16	0.16	0.060	U
79-34-5	1,1,2,2-Tetrachloroethane	0.14	0.14	0.078	0.020	0.020	0.011	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **WAT-SG-9-032310** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P1001084-018

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: 3/23/10
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: 3/26/10
Analyst: Chris Cornett Date Analyzed: 4/3/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes: **T**
Container ID: SC00982

Initial Pressure (psig): -1.3 Final Pressure (psig): 3.5

Canister Dilution Factor: 1.36

GC/MS Retention Time	Compound Identification	Concentration µg/m³	Data Qualifier
4.70	Propane	**15**	
5.40	Acetaldehyde + Isobutane	**6.4**	
8.59	n-Pentane	**4.8**	
26.27	Cymene Isomer	**4.4**	
27.25	Unidentified Compound	**13**	
	Epichlorohydrin	NF	

T = Analyte is a tentatively identified compound, result is estimated.
NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P100331-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	Chloromethane	0.20	0.20	0.11	0.097	0.097	0.053	U
75-01-4	Vinyl Chloride	0.10	0.10	0.065	0.039	0.039	0.025	U
74-83-9	Bromomethane	0.10	0.10	0.073	0.026	0.026	0.019	U
75-00-3	Chloroethane	0.10	0.10	0.080	0.038	0.038	0.030	U
67-64-1	Acetone	5.0	5.0	1.3	2.1	2.1	0.55	U
107-13-1	Acrylonitrile	0.50	0.50	0.22	0.23	0.23	0.10	U
75-35-4	1,1-Dichloroethene	0.10	0.10	0.075	0.025	0.025	0.019	U
75-09-2	Methylene Chloride	0.50	0.50	0.19	0.14	0.14	0.055	U
75-15-0	Carbon Disulfide	5.0	5.0	0.24	1.6	1.6	0.077	U
156-60-5	trans-1,2-Dichloroethene	0.10	0.10	0.059	0.025	0.025	0.015	U
75-34-3	1,1-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
1634-04-4	Methyl tert-Butyl Ether	0.10	0.10	0.070	0.028	0.028	0.019	U
78-93-3	2-Butanone (MEK)	5.0	5.0	0.22	1.7	1.7	0.075	U
156-59-2	cis-1,2-Dichloroethene	0.10	0.10	0.057	0.025	0.025	0.014	U
67-66-3	Chloroform	0.10	0.10	0.059	0.020	0.020	0.012	U
107-06-2	1,2-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
71-55-6	1,1,1-Trichloroethane	0.10	0.10	0.074	0.018	0.018	0.014	U
71-43-2	Benzene	0.10	0.10	0.069	0.031	0.031	0.022	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P100331-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	Carbon Tetrachloride	0.10	0.10	0.075	0.016	0.016	0.012	U
78-87-5	1,2-Dichloropropane	0.10	0.10	0.073	0.022	0.022	0.016	U
75-27-4	Bromodichloromethane	0.10	0.10	0.072	0.015	0.015	0.011	U
79-01-6	Trichloroethene	0.10	0.10	0.062	0.019	0.019	0.012	U
10061-01-5	cis-1,3-Dichloropropene	0.50	0.50	0.16	0.11	0.11	0.035	U
108-10-1	4-Methyl-2-pentanone	0.50	0.50	0.19	0.12	0.12	0.046	U
10061-02-6	trans-1,3-Dichloropropene	0.50	0.50	0.20	0.11	0.11	0.044	U
79-00-5	1,1,2-Trichloroethane	0.10	0.10	0.055	0.018	0.018	0.010	U
108-88-3	Toluene	0.50	0.50	0.19	0.13	0.13	0.050	U
124-48-1	Dibromochloromethane	0.10	0.10	0.068	0.012	0.012	0.0080	U
127-18-4	Tetrachloroethene	0.10	0.10	0.059	0.015	0.015	0.0087	U
108-90-7	Chlorobenzene	0.10	0.10	0.050	0.022	0.022	0.011	U
100-41-4	Ethylbenzene	0.50	0.50	0.19	0.12	0.12	0.044	U
179601-23-1	m,p-Xylenes	0.50	0.50	0.36	0.12	0.12	0.083	U
75-25-2	Bromoform	0.50	0.50	0.21	0.048	0.048	0.020	U
100-42-5	Styrene	0.50	0.50	0.19	0.12	0.12	0.045	U
95-47-6	o-Xylene	0.50	0.50	0.19	0.12	0.12	0.044	U
79-34-5	1,1,2,2-Tetrachloroethane	0.10	0.10	0.057	0.015	0.015	0.0083	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Client: **CH2M Hill**
Client Sample ID: **Method Blank** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100331-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	Epichlorohydrin	NF	

NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P100402-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/2/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	Chloromethane	0.20	0.20	0.11	0.097	0.097	0.053	U
75-01-4	Vinyl Chloride	0.10	0.10	0.065	0.039	0.039	0.025	U
74-83-9	Bromomethane	0.10	0.10	0.073	0.026	0.026	0.019	U
75-00-3	Chloroethane	0.10	0.10	0.080	0.038	0.038	0.030	U
67-64-1	Acetone	5.0	5.0	1.3	2.1	2.1	0.55	U
107-13-1	Acrylonitrile	0.50	0.50	0.22	0.23	0.23	0.10	U
75-35-4	1,1-Dichloroethene	0.10	0.10	0.075	0.025	0.025	0.019	U
75-09-2	Methylene Chloride	0.50	0.50	0.19	0.14	0.14	0.055	U
75-15-0	Carbon Disulfide	5.0	5.0	0.24	1.6	1.6	0.077	U
156-60-5	trans-1,2-Dichloroethene	0.10	0.10	0.059	0.025	0.025	0.015	U
75-34-3	1,1-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
1634-04-4	Methyl tert-Butyl Ether	0.10	0.10	0.070	0.028	0.028	0.019	U
78-93-3	2-Butanone (MEK)	5.0	5.0	0.22	1.7	1.7	0.075	U
156-59-2	cis-1,2-Dichloroethene	0.10	0.10	0.057	0.025	0.025	0.014	U
67-66-3	Chloroform	0.10	0.10	0.059	0.020	0.020	0.012	U
107-06-2	1,2-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
71-55-6	1,1,1-Trichloroethane	0.10	0.10	0.074	0.018	0.018	0.014	U
71-43-2	Benzene	0.10	0.10	0.069	0.031	0.031	0.022	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P100402-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/2/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	Carbon Tetrachloride	0.10	0.10	0.075	0.016	0.016	0.012	U
78-87-5	1,2-Dichloropropane	0.10	0.10	0.073	0.022	0.022	0.016	U
75-27-4	Bromodichloromethane	0.10	0.10	0.072	0.015	0.015	0.011	U
79-01-6	Trichloroethene	0.10	0.10	0.062	0.019	0.019	0.012	U
10061-01-5	cis-1,3-Dichloropropene	0.50	0.50	0.16	0.11	0.11	0.035	U
108-10-1	4-Methyl-2-pentanone	0.50	0.50	0.19	0.12	0.12	0.046	U
10061-02-6	trans-1,3-Dichloropropene	0.50	0.50	0.20	0.11	0.11	0.044	U
79-00-5	1,1,2-Trichloroethane	0.10	0.10	0.055	0.018	0.018	0.010	U
108-88-3	Toluene	0.50	0.50	0.19	0.13	0.13	0.050	U
124-48-1	Dibromochloromethane	0.10	0.10	0.068	0.012	0.012	0.0080	U
127-18-4	Tetrachloroethene	0.10	0.10	0.059	0.015	0.015	0.0087	U
108-90-7	Chlorobenzene	0.10	0.10	0.050	0.022	0.022	0.011	U
100-41-4	Ethylbenzene	0.50	0.50	0.19	0.12	0.12	0.044	U
179601-23-1	m,p-Xylenes	0.50	0.50	0.36	0.12	0.12	0.083	U
75-25-2	Bromoform	0.50	0.50	0.21	0.048	0.048	0.020	U
100-42-5	Styrene	0.50	0.50	0.19	0.12	0.12	0.045	U
95-47-6	o-Xylene	0.50	0.50	0.19	0.12	0.12	0.044	U
79-34-5	1,1,2,2-Tetrachloroethane	0.10	0.10	0.057	0.015	0.015	0.0083	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **Method Blank** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100402-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 4/2/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	Epichlorohydrin	NF	

NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P100405-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/5/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
74-87-3	Chloromethane	0.20	0.20	0.11	0.097	0.097	0.053	U
75-01-4	Vinyl Chloride	0.10	0.10	0.065	0.039	0.039	0.025	U
74-83-9	Bromomethane	0.10	0.10	0.073	0.026	0.026	0.019	U
75-00-3	Chloroethane	0.10	0.10	0.080	0.038	0.038	0.030	U
67-64-1	Acetone	5.0	5.0	1.3	2.1	2.1	0.55	U
107-13-1	Acrylonitrile	0.50	0.50	0.22	0.23	0.23	0.10	U
75-35-4	1,1-Dichloroethene	0.10	0.10	0.075	0.025	0.025	0.019	U
75-09-2	Methylene Chloride	0.50	0.50	0.19	0.14	0.14	0.055	U
75-15-0	Carbon Disulfide	5.0	5.0	0.24	1.6	1.6	0.077	U
156-60-5	trans-1,2-Dichloroethene	0.10	0.10	0.059	0.025	0.025	0.015	U
75-34-3	1,1-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
1634-04-4	Methyl tert-Butyl Ether	0.10	0.10	0.070	0.028	0.028	0.019	U
78-93-3	2-Butanone (MEK)	5.0	5.0	0.22	1.7	1.7	0.075	U
156-59-2	cis-1,2-Dichloroethene	0.10	0.10	0.057	0.025	0.025	0.014	U
67-66-3	Chloroform	0.10	0.10	0.059	0.020	0.020	0.012	U
107-06-2	1,2-Dichloroethane	0.10	0.10	0.062	0.025	0.025	0.015	U
71-55-6	1,1,1-Trichloroethane	0.10	0.10	0.074	0.018	0.018	0.014	U
71-43-2	Benzene	0.10	0.10	0.069	0.031	0.031	0.022	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

RESULTS OF ANALYSIS

Client: **CH2M Hill**
Client Sample ID: **Method Blank**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P100405-MB

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:

Date Collected: NA
Date Received: NA
Date Analyzed: 4/5/10
Volume(s) Analyzed: 1.00 Liter(s)

Canister Dilution Factor: 1.00

CAS #	Compound	Result µg/m³	MRL µg/m³	MDL µg/m³	Result ppbV	MRL ppbV	MDL ppbV	Data Qualifier
56-23-5	Carbon Tetrachloride	0.10	0.10	0.075	0.016	0.016	0.012	U
78-87-5	1,2-Dichloropropane	0.10	0.10	0.073	0.022	0.022	0.016	U
75-27-4	Bromodichloromethane	0.10	0.10	0.072	0.015	0.015	0.011	U
79-01-6	Trichloroethene	0.10	0.10	0.062	0.019	0.019	0.012	U
10061-01-5	cis-1,3-Dichloropropene	0.50	0.50	0.16	0.11	0.11	0.035	U
108-10-1	4-Methyl-2-pentanone	0.50	0.50	0.19	0.12	0.12	0.046	U
10061-02-6	trans-1,3-Dichloropropene	0.50	0.50	0.20	0.11	0.11	0.044	U
79-00-5	1,1,2-Trichloroethane	0.10	0.10	0.055	0.018	0.018	0.010	U
108-88-3	Toluene	0.50	0.50	0.19	0.13	0.13	0.050	U
124-48-1	Dibromochloromethane	0.10	0.10	0.068	0.012	0.012	0.0080	U
127-18-4	Tetrachloroethene	0.10	0.10	0.059	0.015	0.015	0.0087	U
108-90-7	Chlorobenzene	0.10	0.10	0.050	0.022	0.022	0.011	U
100-41-4	Ethylbenzene	0.50	0.50	0.19	0.12	0.12	0.044	U
179601-23-1	m,p-Xylenes	0.50	0.50	0.36	0.12	0.12	0.083	U
75-25-2	Bromoform	0.50	0.50	0.21	0.048	0.048	0.020	U
100-42-5	Styrene	0.50	0.50	0.19	0.12	0.12	0.045	U
95-47-6	o-Xylene	0.50	0.50	0.19	0.12	0.12	0.044	U
79-34-5	1,1,2,2-Tetrachloroethane	0.10	0.10	0.057	0.015	0.015	0.0083	U

U = Compound was analyzed for, but not detected above the laboratory detection limit.
MRL = Method Reporting Limit - The minimum quantity of a target analyte that can be confidently determined by the referenced method.

Verified By: _____ Date: 4/8/10

Client: **CH2M Hill**
Client Sample ID: **Method Blank** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100405-MB

Tentatively Identified Compounds

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 4/5/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: 1.00 Liter(s)
Test Notes:

Canister Dilution Factor: 1.00

GC/MS Retention Time	**Compound Identification**	**Concentration µg/m³**	**Data Qualifier**
	Epichlorohydrin	NF	

NF = Compound was searched for, but not found.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

SURROGATE SPIKE RECOVERY RESULTS

Client: **CH2M Hill**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister(s)
Test Notes:

Date(s) Collected: 3/23 - 3/24/10
Date(s) Received: 3/26/10
Date(s) Analyzed: 3/31 - 4/5/10

Client Sample ID	CAS Sample ID	1,2-Dichloroethane-d4 % Recovered	1,2-Dichloroethane-d4 Acceptance Limits	Toluene-d8 % Recovered	Toluene-d8 Acceptance Limits	Bromofluorobenzene % Recovered	Bromofluorobenzene Acceptance Limits	Data Qualifier
Method Blank	P100331-MB	**100**	70-130	**99**	70-130	**99**	70-130	
Method Blank	P100402-MB	**106**	70-130	**103**	70-130	**95**	70-130	
Method Blank	P100405-MB	**98**	70-130	**101**	70-130	**94**	70-130	
Lab Control Sample	P100331-LCS	**96**	70-130	**100**	70-130	**101**	70-130	
Lab Control Sample	P100402-LCS	**95**	70-130	**104**	70-130	**96**	70-130	
Lab Control Sample	P100405-LCS	**99**	70-130	**101**	70-130	**97**	70-130	
SGP-10-032410	P1001084-001	**96**	70-130	**101**	70-130	**102**	70-130	
SGP-10-032410	P1001084-001DUP	**97**	70-130	**100**	70-130	**100**	70-130	
SGP-9-032410	P1001084-002	**105**	70-130	**101**	70-130	**101**	70-130	
SGP-RP-032410	P1001084-003	**97**	70-130	**100**	70-130	**101**	70-130	
RP-IA-032410	P1001084-004	**99**	70-130	**100**	70-130	**101**	70-130	
SGP-SWMU1-032410	P1001084-005	**98**	70-130	**99**	70-130	**101**	70-130	
RP-CS-1-032410	P1001084-006	**98**	70-130	**100**	70-130	**102**	70-130	
SGP-DUP-032410	P1001084-007	**101**	70-130	**99**	70-130	**99**	70-130	
WAT-SG-B2-032310	P1001084-008	**100**	70-130	**98**	70-130	**101**	70-130	
WAT-SG-B4-032310	P1001084-009	**100**	70-130	**98**	70-130	**101**	70-130	
WAT-SG-FB-032310	P1001084-010	**100**	70-130	**100**	70-130	**102**	70-130	
WAT-IA-3-032310	P1001084-011	**101**	70-130	**98**	70-130	**101**	70-130	
WAT-IA-5-032310	P1001084-012	**102**	70-130	**97**	70-130	**101**	70-130	
WAT-IA-7-032310	P1001084-013	**100**	70-130	**98**	70-130	**102**	70-130	
WAT-IA-6-032310	P1001084-014	**98**	70-130	**98**	70-130	**101**	70-130	
WAT-SG-4-032310	P1001084-015	**100**	70-130	**97**	70-130	**102**	70-130	
WAT-SG-7a-032310	P1001084-016	**102**	70-130	**96**	70-130	**92**	70-130	
WAT-SG-DUP-032310	P1001084-017	**97**	70-130	**87**	70-130	**83**	70-130	
WAT-SG-9-032310	P1001084-018	**95**	70-130	**102**	70-130	**96**	70-130	

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100331-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount ng	**Result ng**	**% Recovery**	Project Acceptance Limits	**Data Qualifier**
74-87-3	Chloromethane	25.0	**27.8**	**111**	70-130	
75-01-4	Vinyl Chloride	25.3	**28.8**	**114**	70-130	
74-83-9	Bromomethane	25.8	**30.8**	**119**	70-130	
75-00-3	Chloroethane	25.5	**27.5**	**108**	70-130	
67-64-1	Acetone	132	**133**	**101**	70-130	
107-13-1	Acrylonitrile	25.8	**29.0**	**112**	70-130	
75-35-4	1,1-Dichloroethene	27.5	**31.0**	**113**	70-130	
75-09-2	Methylene Chloride	26.8	**28.2**	**105**	70-130	
75-15-0	Carbon Disulfide	26.0	**27.9**	**107**	70-130	
156-60-5	trans-1,2-Dichloroethene	25.5	**29.3**	**115**	70-130	
75-34-3	1,1-Dichloroethane	26.5	**28.2**	**106**	70-130	
1634-04-4	Methyl tert-Butyl Ether	26.3	**28.9**	**110**	70-130	
78-93-3	2-Butanone (MEK)	26.8	**31.3**	**117**	70-130	
156-59-2	cis-1,2-Dichloroethene	27.0	**29.9**	**111**	70-130	
67-66-3	Chloroform	27.5	**28.6**	**104**	70-130	
107-06-2	1,2-Dichloroethane	26.3	**28.2**	**107**	70-130	
71-55-6	1,1,1-Trichloroethane	26.0	**27.9**	**107**	70-130	
71-43-2	Benzene	25.8	**28.6**	**111**	70-130	

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100331-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 3/31/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount ng	**Result ng**	**% Recovery**	Project Acceptance Limits	**Data Qualifier**
56-23-5	Carbon Tetrachloride	26.3	**28.3**	**108**	70-130	
78-87-5	1,2-Dichloropropane	26.0	**28.2**	**108**	70-130	
75-27-4	Bromodichloromethane	26.3	**29.2**	**111**	70-130	
79-01-6	Trichloroethene	25.8	**28.8**	**112**	70-130	
10061-01-5	cis-1,3-Dichloropropene	24.5	**29.9**	**122**	70-130	
108-10-1	4-Methyl-2-pentanone	26.8	**29.8**	**111**	70-130	
10061-02-6	trans-1,3-Dichloropropene	27.0	**32.5**	**120**	70-130	
79-00-5	1,1,2-Trichloroethane	26.0	**29.8**	**115**	70-130	
108-88-3	Toluene	26.8	**28.9**	**108**	70-130	
124-48-1	Dibromochloromethane	28.3	**31.2**	**110**	70-130	
127-18-4	Tetrachloroethene	25.3	**26.9**	**106**	70-130	
108-90-7	Chlorobenzene	26.5	**28.2**	**106**	70-130	
100-41-4	Ethylbenzene	26.3	**28.8**	**110**	70-130	
179601-23-1	m,p-Xylenes	51.5	**56.4**	**110**	70-130	
75-25-2	Bromoform	26.5	**28.9**	**109**	70-130	
100-42-5	Styrene	26.3	**30.1**	**114**	70-130	
95-47-6	o-Xylene	26.0	**28.5**	**110**	70-130	
79-34-5	1,1,2,2-Tetrachloroethane	27.0	**30.8**	**114**	70-130	

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100402-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 4/02/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount ng	Result ng	% Recovery	Project Acceptance Limits	Data Qualifier
74-87-3	Chloromethane	25.0	**25.4**	**102**	70-130	
75-01-4	Vinyl Chloride	25.3	**26.4**	**104**	70-130	
74-83-9	Bromomethane	25.8	**29.1**	**113**	70-130	
75-00-3	Chloroethane	25.5	**25.7**	**101**	70-130	
67-64-1	Acetone	132	**127**	**96**	70-130	
107-13-1	Acrylonitrile	25.8	**26.9**	**104**	70-130	
75-35-4	1,1-Dichloroethene	27.5	**29.2**	**106**	70-130	
75-09-2	Methylene Chloride	26.8	**26.5**	**99**	70-130	
75-15-0	Carbon Disulfide	26.0	**26.3**	**101**	70-130	
156-60-5	trans-1,2-Dichloroethene	25.5	**27.4**	**107**	70-130	
75-34-3	1,1-Dichloroethane	26.5	**26.8**	**101**	70-130	
1634-04-4	Methyl tert-Butyl Ether	26.3	**27.1**	**103**	70-130	
78-93-3	2-Butanone (MEK)	26.8	**29.8**	**111**	70-130	
156-59-2	cis-1,2-Dichloroethene	27.0	**27.9**	**103**	70-130	
67-66-3	Chloroform	27.5	**26.7**	**97**	70-130	
107-06-2	1,2-Dichloroethane	26.3	**26.0**	**99**	70-130	
71-55-6	1,1,1-Trichloroethane	26.0	**26.3**	**101**	70-130	
71-43-2	Benzene	25.8	**26.8**	**104**	70-130	

Verified By: _____ Date: 4/5/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100402-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 4/02/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount ng	Result ng	% Recovery	Project Acceptance Limits	Data Qualifier
56-23-5	Carbon Tetrachloride	26.3	**26.4**	**100**	70-130	
78-87-5	1,2-Dichloropropane	26.0	**26.4**	**102**	70-130	
75-27-4	Bromodichloromethane	26.3	**27.1**	**103**	70-130	
79-01-6	Trichloroethene	25.8	**26.9**	**104**	70-130	
10061-01-5	cis-1,3-Dichloropropene	24.5	**28.0**	**114**	70-130	
108-10-1	4-Methyl-2-pentanone	26.8	**27.8**	**104**	70-130	
10061-02-6	trans-1,3-Dichloropropene	27.0	**30.0**	**111**	70-130	
79-00-5	1,1,2-Trichloroethane	26.0	**27.9**	**107**	70-130	
108-88-3	Toluene	26.8	**28.5**	**106**	70-130	
124-48-1	Dibromochloromethane	28.3	**30.6**	**108**	70-130	
127-18-4	Tetrachloroethene	25.3	**26.7**	**106**	70-130	
108-90-7	Chlorobenzene	26.5	**28.2**	**106**	70-130	
100-41-4	Ethylbenzene	26.3	**28.6**	**109**	70-130	
179601-23-1	m,p-Xylenes	51.5	**56.3**	**109**	70-130	
75-25-2	Bromoform	26.5	**29.1**	**110**	70-130	
100-42-5	Styrene	26.3	**30.0**	**114**	70-130	
95-47-6	o-Xylene	26.0	**28.5**	**110**	70-130	
79-34-5	1,1,2,2-Tetrachloroethane	27.0	**30.7**	**114**	70-130	

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100405-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 4/05/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount ng	**Result ng**	**% Recovery**	Project Acceptance Limits	**Data Qualifier**
74-87-3	Chloromethane	25.0	**23.0**	**92**	70-130	
75-01-4	Vinyl Chloride	25.3	**24.2**	**96**	70-130	
74-83-9	Bromomethane	25.8	**28.0**	**109**	70-130	
75-00-3	Chloroethane	25.5	**25.4**	**100**	70-130	
67-64-1	Acetone	132	**125**	**95**	70-130	
107-13-1	Acrylonitrile	25.8	**27.0**	**105**	70-130	
75-35-4	1,1-Dichloroethene	27.5	**28.8**	**105**	70-130	
75-09-2	Methylene Chloride	26.8	**25.8**	**96**	70-130	
75-15-0	Carbon Disulfide	26.0	**25.3**	**97**	70-130	
156-60-5	trans-1,2-Dichloroethene	25.5	**27.2**	**107**	70-130	
75-34-3	1,1-Dichloroethane	26.5	**26.2**	**99**	70-130	
1634-04-4	Methyl tert-Butyl Ether	26.3	**26.5**	**101**	70-130	
78-93-3	2-Butanone (MEK)	26.8	**28.1**	**105**	70-130	
156-59-2	cis-1,2-Dichloroethene	27.0	**27.4**	**101**	70-130	
67-66-3	Chloroform	27.5	**26.3**	**96**	70-130	
107-06-2	1,2-Dichloroethane	26.3	**26.1**	**99**	70-130	
71-55-6	1,1,1-Trichloroethane	26.0	**26.4**	**102**	70-130	
71-43-2	Benzene	25.8	**25.7**	**100**	70-130	

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY CONTROL SAMPLE SUMMARY

Client: **CH2M Hill**
Client Sample ID: **Lab Control Sample** CAS Project ID: P1001084
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI** CAS Sample ID: P100405-LCS

Test Code: EPA TO-15 Date Collected: NA
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13 Date Received: NA
Analyst: Chris Cornett Date Analyzed: 4/05/10
Sampling Media: 6.0 L Summa Canister Volume(s) Analyzed: NA Liter(s)
Test Notes:

CAS #	Compound	Spike Amount ng	Result ng	% Recovery	Project Acceptance Limits	Data Qualifier
56-23-5	Carbon Tetrachloride	26.3	**26.6**	**101**	70-130	
78-87-5	1,2-Dichloropropane	26.0	**25.4**	**98**	70-130	
75-27-4	Bromodichloromethane	26.3	**27.1**	**103**	70-130	
79-01-6	Trichloroethene	25.8	**26.1**	**101**	70-130	
10061-01-5	cis-1,3-Dichloropropene	24.5	**27.1**	**111**	70-130	
108-10-1	4-Methyl-2-pentanone	26.8	**27.4**	**102**	70-130	
10061-02-6	trans-1,3-Dichloropropene	27.0	**29.5**	**109**	70-130	
79-00-5	1,1,2-Trichloroethane	26.0	**27.4**	**105**	70-130	
108-88-3	Toluene	26.8	**26.6**	**99**	70-130	
124-48-1	Dibromochloromethane	28.3	**29.3**	**104**	70-130	
127-18-4	Tetrachloroethene	25.3	**25.5**	**101**	70-130	
108-90-7	Chlorobenzene	26.5	**26.4**	**100**	70-130	
100-41-4	Ethylbenzene	26.3	**26.8**	**102**	70-130	
179601-23-1	m,p-Xylenes	51.5	**52.9**	**103**	70-130	
75-25-2	Bromoform	26.5	**27.7**	**105**	70-130	
100-42-5	Styrene	26.3	**28.1**	**107**	70-130	
95-47-6	o-Xylene	26.0	**26.9**	**103**	70-130	
79-34-5	1,1,2,2-Tetrachloroethane	27.0	**28.2**	**104**	70-130	

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **SGP-10-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-001DUP

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01103

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.4 Final Pressure (psig): 3.7

Canister Dilution Factor: 1.22

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
Chloromethane	0.445	0.216	0.366	0.177	0.4055	**19**	25	
Vinyl Chloride	ND	ND	ND	ND	-	-	25	
Bromomethane	ND	ND	ND	ND	-	-	25	
Chloroethane	ND	ND	ND	ND	-	-	25	
Acetone	12.4	5.23	12.9	5.43	12.65	**4**	25	
Acrylonitrile	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethene	ND	ND	ND	ND	-	-	25	
Methylene Chloride	ND	ND	ND	ND	-	-	25	
Carbon Disulfide	ND	ND	ND	ND	-	-	25	
trans-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
1,1-Dichloroethane	ND	ND	ND	ND	-	-	25	
Methyl tert-Butyl Ether	ND	ND	ND	ND	-	-	25	
2-Butanone (MEK)	0.644	0.219	0.570	0.193	0.607	**12**	25	**J**
cis-1,2-Dichloroethene	ND	ND	ND	ND	-	-	25	
Chloroform	0.127	0.0260	0.133	0.0272	0.13	**5**	25	
1,2-Dichloroethane	ND	ND	ND	ND	-	-	25	
1,1,1-Trichloroethane	ND	ND	ND	ND	-	-	25	
Benzene	0.608	0.190	0.643	0.201	0.6255	**6**	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

COLUMBIA ANALYTICAL SERVICES, INC.

LABORATORY DUPLICATE SUMMARY RESULTS

Client: **CH2M Hill**
Client Sample ID: **SGP-10-032410**
Client Project ID: **DOW Waterloo, NY / 386132.05.C1.FI**

CAS Project ID: P1001084
CAS Sample ID: P1001084-001DUP

Test Code: EPA TO-15
Instrument ID: Tekmar AUTOCAN/Agilent 5975Binert/6890N/MS13
Analyst: Chris Cornett
Sampling Media: 6.0 L Summa Canister
Test Notes:
Container ID: AC01103

Date Collected: 3/24/10
Date Received: 3/26/10
Date Analyzed: 3/31/10
Volume(s) Analyzed: 1.00 Liter(s)

Initial Pressure (psig): 0.4 Final Pressure (psig): 3.7

Canister Dilution Factor: 1.22

Compound	Sample Result µg/m³	Sample Result ppbV	Duplicate Sample Result µg/m³	Duplicate Sample Result ppbV	Average µg/m³	% RPD	RPD Limit	Data Qualifier
Carbon Tetrachloride	0.536	0.0852	0.544	0.0865	0.54	**1**	25	
1,2-Dichloropropane	ND	ND	ND	ND	-	-	25	
Bromodichloromethane	ND	ND	ND	ND	-	-	25	
Trichloroethene	ND	ND	ND	ND	-	-	25	
cis-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
4-Methyl-2-pentanone	0.306	0.0748	0.310	0.0756	0.308	**1**	25	**J**
trans-1,3-Dichloropropene	ND	ND	ND	ND	-	-	25	
1,1,2-Trichloroethane	ND	ND	ND	ND	-	-	25	
Toluene	1.13	0.300	1.11	0.295	1.12	**2**	25	
Dibromochloromethane	ND	ND	ND	ND	-	-	25	
Tetrachloroethene	ND	ND	ND	ND	-	-	25	
Chlorobenzene	ND	ND	ND	ND	-	-	25	
Ethylbenzene	ND	ND	ND	ND	-	-	25	
m,p-Xylenes	ND	ND	ND	ND	-	-	25	
Bromoform	ND	ND	ND	ND	-	-	25	
Styrene	ND	ND	ND	ND	-	-	25	
o-Xylene	ND	ND	ND	ND	-	-	25	
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	-	-	25	

ND = Compound was analyzed for, but not detected above the laboratory detection limit.
J = The result is an estimated concentration that is less than the MRL but greater than or equal to the MDL.

Verified By: _____ Date: 4/8/10

Response Factor Report GCMS13

Method : J:\MS13\METHODS\R13032310.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

Calibration Files
0.1 =03231023.D 0.2 =03231024.D 0.5 =03231025.D 1.0 =03231026.D 5.0 =03231027.D
25 =03231028.D 50 =03231029.D 100 =03231030.D = =

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
1)	IR	Bromochloromethan	----------	----------	----------	ISTD	----------	----------	----------	----------		
2)	T	Propene	2.620	2.334	2.828	2.444	2.963	2.043	1.993	2.036	2.408	15.55
3)	T	Dichlorodifluorom	3.541	3.697	4.310	3.827	3.257	2.871	2.681	2.965	3.393	16.24
4)	T	Chloromethane	3.466	3.207	3.938	3.621	3.035	3.099	2.831	2.475	3.209	14.38
5)	T	1,2-Dichloro-1,1,	1.364	1.333	1.592	1.496	1.318	1.264	1.237	1.474	1.385	8.94
6)	T	Vinyl Chloride	1.971	1.992	2.567	2.397	2.150	2.154	2.113	2.558	2.238	10.66
7)	T	1,3-Butadiene	1.816	1.725	2.329	2.141	2.128	2.195	2.198	2.576	2.139	12.61
8)	T	Bromomethane	0.857	0.868	1.141	1.040	1.019	1.042	0.907	1.084	0.995	10.53
9)	T	Chloroethane	1.003	1.003	1.349	1.288	1.189	1.170	1.132	1.304	1.180	11.12
10)	T	Ethanol	1.586	1.531	1.824	1.682	1.596	1.704	1.590	1.756	1.658	6.01
11)	T	Acetonitrile		4.062	5.020	4.642	4.375	4.471	4.193	4.657	4.489	7.14
12)	T	Acrolein			1.156	1.028	1.047	1.168	1.128	1.297	1.137	8.52
13)	T	Acetone	1.678	1.491	1.707	1.601	1.401	1.320	1.254	1.392	1.481	11.32
14)	T	Trichlorofluorome	3.326	3.204	3.586	3.398	3.076	3.052	2.929	3.343	3.239	6.63
15)	T	2-Propanol (Isopr	5.978	5.966	7.522	6.928	4.889	5.942	4.753	5.150	5.891	16.48
16)	T	Acrylonitrile		2.212	3.169	2.935	2.862	2.937	2.781	3.162	2.865	11.26
17)	T	1,1-Dichloroethen	0.929	0.922	1.246	1.163	1.070	1.099	1.065	1.251	1.093	11.51
18)	T	2-Methyl-2-Propan		5.044	6.130	5.712	5.071	5.257	4.969	2.582	4.966	22.81
19)	T	Methylene Chlorid	1.340	1.242	1.404	1.198	1.145	1.180	1.143	1.309	1.245	7.75
20)	T	3-Chloro-1-propen		2.514	3.125	3.055	3.103	3.260	3.109	3.542	3.101	9.91
21)	T	Trichlorotrifluor	0.918	1.037	1.304	1.238	1.084	1.098	1.057	1.193	1.116	11.06
22)	T	Carbon Disulfide		4.234	5.223	4.614	4.376	4.359	4.223	4.884	4.559	8.21
23)	T	trans-1,2-Dichlor	1.988	1.996	2.899	2.734	2.593	2.670	2.530	2.893	2.538	14.22
24)	T	1,1-Dichloroethan	2.595	2.773	3.379	3.112	2.859	2.893	2.769	3.202	2.948	8.84
25)	T	Methyl tert-Butyl	4.361	4.057	5.006	4.591	4.328	4.447	4.283	4.912	4.498	7.18
26)	T	Vinyl Acetate			0.172	0.186	0.199	0.232	0.231	0.258	0.213	15.31
27)	T	2-Butanone (MEK)			0.802	0.802	0.786	0.835	0.809	0.800	0.806	2.02
28)	T	cis-1,2-Dichloroe	2.015	2.327	2.804	2.594	2.449	2.493	2.350	2.691	2.465	9.92
29)	T	Diisopropyl Ether	0.659	0.971	1.294	1.154	1.005	1.016	0.980	1.139	1.027	18.06

(#) Out of Range ### Number of calibration levels exceeded format ###

Method : J:\MS13\METHODS\R13032310.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

Calibration Files
0.1 =03231023.D 0.2 =03231024.D 0.5 =03231025.D 1.0 =03231026.D 5.0 =03231027.D
25 =03231028.D 50 =03231029.D 100 =03231030.D = =

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
30)	T	Ethyl Acetate		0.441	0.614	0.613	0.615	0.619	0.585	0.667	0.593	12.02
31)	T	n-Hexane		3.416	4.074	3.638	3.349	3.275	3.038	3.352	3.449	9.51
32)	T	Chloroform	2.511	2.275	2.744	2.527	2.351	2.384	2.295	2.671	2.470	7.02
33)	S	1,2-Dichloroethan	2.685	2.709	2.729	2.759	2.682	2.668	2.564	2.505	2.663	3.22
34)	T	Tetrahydrofuran (			1.321	1.015	0.831	0.848	0.765	0.883	0.944	21.47
35)	T	Ethyl tert-Butyl	1.419	1.576	1.881	1.776	1.652	1.718	1.644	1.914	1.698	9.55
36)	T	1,2-Dichloroethan	2.639	2.524	3.174	2.806	2.635	2.670	2.477	2.803	2.716	8.04
37)	IR	1,4-Difluorobenze	----------	----------	----------	ISTD	----------	----------	----------	----------		
38)	T	1,1,1-Trichloroet	0.524	0.480	0.566	0.512	0.485	0.489	0.458	0.523	0.505	6.69
39)	T	Isopropyl Acetate	0.187	0.179	0.232	0.217	0.207	0.210	0.197	0.224	0.206	8.76
40)	T	1-Butanol	0.265	0.281	0.411	0.409	0.405	0.427	0.399	0.447	0.380	17.93
41)	T	Benzene	1.026	0.962	1.174	1.039	0.953	0.964	0.923	1.064	1.013	8.00
42)	T	Carbon Tetrachlor	0.462	0.420	0.505	0.475	0.441	0.446	0.420	0.481	0.456	6.60
43)	T	Cyclohexane	0.383	0.368	0.434	0.389	0.360	0.366	0.344	0.396	0.380	7.23
44)	T	tert-Amyl Methyl	0.839	0.819	0.930	0.860	0.803	0.822	0.780	0.898	0.844	5.93
45)	T	1,2-Dichloropropa	0.343	0.294	0.348	0.310	0.297	0.304	0.287	0.327	0.314	7.36
46)	T	Bromodichlorometh	0.361	0.367	0.438	0.402	0.379	0.391	0.368	0.417	0.390	7.00
47)	T	Trichloroethene	0.252	0.253	0.305	0.278	0.246	0.254	0.242	0.277	0.263	8.12
48)	T	1,4-Dioxane		0.160	0.233	0.207	0.203	0.202	0.195	0.220	0.203	11.27
49)	T	2,2,4-Trimethylpe	1.790	1.623	2.027	1.881	1.707	1.704	1.586	1.751	1.759	8.10
50)	T	Methyl Methacryla	0.036	0.096	0.110	0.106	0.106	0.110	0.105	0.121	0.099	26.53
51)	T	n-Heptane	0.223	0.223	0.305	0.276	0.254	0.257	0.244	0.281	0.258	11.07
52)	T	cis-1,3-Dichlorop	0.316	0.355	0.423	0.427	0.418	0.444	0.423	0.484	0.411	12.77
53)	T	4-Methyl-2-pentan		0.266	0.373	0.377	0.354	0.364	0.342	0.385	0.351	11.51
54)	T	trans-1,3-Dichlor		0.344	0.427	0.433	0.415	0.451	0.433	0.499	0.429	10.74
55)	T	1,1,2-Trichloroet	0.182	0.183	0.259	0.239	0.218	0.225	0.215	0.247	0.221	12.66
56)	IR	Chlorobenzene-d5	----------	----------	----------	ISTD	----------	----------	----------	----------		
57)	S	Toluene-d8 (SS2)	2.072	2.060	2.070	2.054	2.045	2.066	2.078	2.073	2.065	0.54

(#) = Out of Range ### Number of calibration levels exceeded format ###

Method : J:\MS13\METHODS\R13032310.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

Calibration Files
0.1 =03231023.D 0.2 =03231024.D 0.5 =03231025.D 1.0 =03231026.D 5.0 =03231027.D
25 =03231028.D 50 =03231029.D 100 =03231030.D = =

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
58)	T	Toluene	2.154	2.007	2.244	2.086	1.905	1.956	1.865	2.139	2.044	6.49
59)	T	2-Hexanone	1.548	1.661	2.205	2.188	2.131	2.110	1.943	2.123	1.989	12.66
60)	T	Dibromochlorometh	0.540	0.504	0.614	0.583	0.537	0.577	0.557	0.647	0.570	8.03
61)	T	1,2-Dibromoethane	0.435	0.490	0.553	0.532	0.518	0.541	0.522	0.606	0.525	9.39
62)	T	n-Butyl Acetate	1.722	1.963	2.558	2.312	2.346	2.446	2.290	2.601	2.280	13.10
63)	T	n-Octane	0.756	0.655	0.861	0.727	0.706	0.701	0.652	0.727	0.723	9.13
64)	T	Tetrachloroethene	0.586	0.536	0.681	0.587	0.539	0.556	0.531	0.614	0.579	8.79
65)	T	Chlorobenzene	1.508	1.306	1.512	1.375	1.258	1.293	1.230	1.410	1.362	7.97
66)	T	Ethylbenzene	2.556	2.284	2.608	2.423	2.306	2.373	2.259	2.589	2.425	5.88
67)	T	m- & p-Xylenes	1.957	1.853	2.223	2.039	1.915	1.953	1.860	2.130	1.991	6.58
68)	T	Bromoform	0.414	0.405	0.536	0.491	0.478	0.534	0.521	0.616	0.499	13.83
69)	T	Styrene	1.313	1.179	1.573	1.478	1.407	1.466	1.393	1.607	1.427	9.68
70)	T	o-Xylene	2.042	1.851	2.212	2.063	1.968	1.985	1.892	2.178	2.024	6.27
71)	T	n-Nonane	1.764	1.764	2.169	2.058	1.928	1.865	1.689	1.793	1.879	8.75
72)	T	1,1,2,2-Tetrachlo	0.655	0.613	0.817	0.760	0.738	0.767	0.738	0.861	0.743	10.78
73)	S	Bromofluorobenzen	0.676	0.682	0.676	0.676	0.688	0.694	0.690	0.684	0.683	1.02
74)	T	Cumene	2.761	2.426	3.044	2.731	2.557	2.617	2.474	2.798	2.676	7.50
75)	T	alpha-Pinene	1.191	1.168	1.377	1.288	1.234	1.257	1.192	1.375	1.260	6.45
76)	T	n-Propylbenzene	2.978	2.815	3.431	3.183	3.015	3.053	2.893	3.264	3.079	6.59
77)	T	3-Ethyltoluene	2.335	2.290	2.790	2.571	2.406	2.519	2.339	2.657	2.488	7.11
78)	T	4-Ethyltoluene	2.493	2.328	2.747	2.587	2.408	2.425	2.354	2.664	2.501	6.06
79)	T	1,3,5-Trimethylbe	2.044	1.986	2.371	2.215	2.069	2.125	2.007	2.292	2.139	6.56
80)	T	alpha-Methylstyre	0.941	0.878	1.113	1.059	1.049	1.101	1.046	1.195	1.048	9.47
81)	T	2-Ethyltoluene	2.676	2.448	2.922	2.659	2.499	2.538	2.414	2.750	2.613	6.56
82)	T	1,2,4-Trimethylbe	2.120	1.978	2.486	2.340	2.142	2.212	2.077	2.370	2.216	7.68
83)	T	n-Decane	1.728	1.616	1.997	1.821	1.725	1.726	1.576	1.730	1.740	7.39
84)	T	Benzyl Chloride	1.106	1.308	1.772	1.742	1.804	1.979	1.917	2.219	1.731	20.84
85)	T	1,3-Dichlorobenze	1.124	1.020	1.232	1.170	1.064	1.113	1.056	1.220	1.125	6.88
86)	T	1,4-Dichlorobenze	1.011	1.087	1.296	1.184	1.124	1.180	1.122	1.289	1.161	8.39
87)	T	sec-Butylbenzene	2.643	2.680	3.187	2.935	2.751	2.834	2.661	2.994	2.836	6.76

(#) Out of Range ### Number of calibration levels exceeded format ###

Method : J:\MS13\METHODS\R13032310.M (RTE Integrator)
Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
Last Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

Calibration Files
0.1 =03231023.D 0.2 =03231024.D 0.5 =03231025.D 1.0 =03231026.D 5.0 =03231027.D
25 =03231028.D 50 =03231029.D 100 =03231030.D = =

		Compound	0.1	0.2	0.5	1.0	5.0	25	50	100	Avg	%RSD
88)	T	4-Isopropyltoluen	2.428	2.561	3.044	2.744	2.597	2.662	2.500	2.796	2.666	7.32
89)	T	1,2,3-Trimethylbe	2.293	2.003	2.531	2.385	2.189	2.262	2.125	2.417	2.276	7.48
90)	T	1,2-Dichlorobenze	0.920	1.041	1.222	1.131	1.043	1.068	1.001	1.153	1.073	8.80
91)	T	d-Limonene	0.681	0.708	0.850	0.825	0.803	0.846	0.807	0.933	0.807	9.96
92)	T	1,2-Dibromo-3-Chl		0.217	0.335	0.330	0.344	0.385	0.377	0.444	0.347	20.03
93)	T	n-Undecane	1.583	1.547	2.028	1.883	1.840	1.856	1.690	1.831	1.782	9.12
94)	T	1,2,4-Trichlorobe	0.550	0.581	0.802	0.758	0.747	0.822	0.782	0.905	0.743	16.19
95)	T	Naphthalene	3.032	2.549	2.948	2.755	2.715	3.026	2.858	3.203	2.886	7.24
96)	T	n-Dodecane	1.896	1.751	2.237	2.155	2.116	2.192	1.992	2.145	2.060	8.11
97)	T	Hexachlorobutadie	0.541	0.471	0.560	0.534	0.502	0.533	0.512	0.594	0.531	7.04
98)	T	Cyclohexanone	1.069	1.060	1.416	1.303	1.267	1.282	1.204	1.349	1.244	10.17
99)	T	tert-Butylbenzene	1.971	2.004	2.331	2.194	2.035	2.053	1.934	2.206	2.091	6.58
100)	T	n-Butylbenzene	2.039	1.908	2.464	2.28	2.205	2.261	2.122	2.389	2.209	8.27

(#) Out of Range ### Number of calibration levels exceeded format ###

Evaluate Continuing Calibration Report

Data Path : J:\MS13\DATA\2010_03\31\
Data File : 03311001.D
Acq On : 31 Mar 2010 9:49
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-03051001/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 01 13:02:15 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-1-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	85	-0.03
2	T	Propene	2.408	3.082	-28.0	89	0.01
3	T	Dichlorodifluoromethane (CF	3.393	3.551	-4.7	93	0.00
4	T	Chloromethane	3.209	3.248	-1.2	91	0.01
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.385	1.437	-3.8	93	0.00
6	T	Vinyl Chloride	2.238	2.347	-4.9	93	0.00
7	T	1,3-Butadiene	2.139	2.324	-8.6	93	0.00
8	T	Bromomethane	0.995	0.998	-0.3	84	0.00
9	T	Chloroethane	1.180	1.280	-8.5	92	0.00
10	T	Ethanol	1.658	1.836	-10.7	98	-0.14
11	T	Acetonitrile	4.489	4.841	-7.8	95	-0.05
12	T	Acrolein	1.137	1.158	-1.8	94	-0.02
13	T	Acetone	1.481	1.577	-6.5	96	-0.06
14	T	Trichlorofluoromethane	3.239	3.426	-5.8	95	0.00
15	T	2-Propanol (Isopropanol)	5.891	5.626	4.5	98	-0.09
16	T	Acrylonitrile	2.865	3.115	-8.7	93	-0.04
17	T	1,1-Dichloroethene	1.093	1.204	-10.2	96	0.00
18	T	2-Methyl-2-Propanol (tert-B	4.966	5.528	-11.3	93	-0.07
19	T	Methylene Chloride	1.245	1.288	-3.5	96	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.101	3.412	-10.0	94	-0.02
21	T	Trichlorotrifluoroethane	1.116	1.187	-6.4	94	0.00
22	T	Carbon Disulfide	4.559	4.816	-5.6	94	0.00
23	T	trans-1,2-Dichloroethene	2.538	2.892	-13.9	95	-0.02
24	T	1,1-Dichloroethane	2.948	3.117	-5.7	93	-0.03
25	T	Methyl tert-Butyl Ether	4.498	4.808	-6.9	95	-0.02
26	T	Vinyl Acetate	0.213	0.225	-5.6	96	-0.05
27	T	2-Butanone (MEK)	0.806	0.912	-13.2	99	-0.03
28	T	cis-1,2-Dichloroethene	2.465	2.642	-7.2	92	-0.02
29	T	Diisopropyl Ether	1.027	1.150	-12.0	98	-0.02
30	T	Ethyl Acetate	0.593	0.674	-13.7	94	-0.03
31	T	n-Hexane	3.449	3.719	-7.8	95	-0.01
32	T	Chloroform	2.470	2.593	-5.0	94	-0.05
33	S	1,2-Dichloroethane-d4(SS1)	2.663	2.676	-0.5	85	-0.03
34	T	Tetrahydrofuran (THF)	0.944	0.881	6.7	90	-0.02
35	T	Ethyl tert-Butyl Ether	1.698	1.838	-8.2	95	-0.02
36	T	1,2-Dichloroethane	2.716	2.880	-6.0	93	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	86	-0.02
38	T	1,1,1-Trichloroethane	0.505	0.520	-3.0	93	-0.02

Data Path : J:\MS13\DATA\2010_03\31\
Data File : 03311001.D
Acq On : 31 Mar 2010 9:49
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-03051001/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 01 13:02:15 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-1-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
39	T	Isopropyl Acetate	0.206	0.224	-8.7	94	-0.03
40	T	1-Butanol	0.380	0.419	-10.3	89	-0.07
41	T	Benzene	1.013	1.045	-3.2	95	-0.02
42	T	Carbon Tetrachloride	0.456	0.478	-4.8	94	-0.02
43	T	Cyclohexane	0.380	0.399	-5.0	96	-0.02
44	T	tert-Amyl Methyl Ether	0.844	0.872	-3.3	94	-0.01
45	T	1,2-Dichloropropane	0.314	0.323	-2.9	94	-0.01
46	T	Bromodichloromethane	0.390	0.405	-3.8	92	-0.02
47	T	Trichloroethene	0.263	0.273	-3.8	96	-0.02
48	T	1,4-Dioxane	0.203	0.205	-1.0	87	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.759	1.833	-4.2	93	-0.02
50	T	Methyl Methacrylate	0.099	0.115	-16.2	94	-0.03
51	T	n-Heptane	0.258	0.282	-9.3	96	-0.02
52	T	cis-1,3-Dichloropropene	0.411	0.457	-11.2	95	0.00
53	T	4-Methyl-2-pentanone	0.351	0.373	-6.3	91	-0.02
54	T	trans-1,3-Dichloropropene	0.429	0.461	-7.5	96	-0.01
55	T	1,1,2-Trichloroethane	0.221	0.237	-7.2	94	-0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	87	0.00
57	S	Toluene-d8 (SS2)	2.065	2.037	1.4	87	0.00
58	T	Toluene	2.044	2.104	-2.9	96	-0.01
59	T	2-Hexanone	1.989	2.133	-7.2	87	-0.02
60	T	Dibromochloromethane	0.570	0.591	-3.7	96	-0.01
61	T	1,2-Dibromoethane	0.525	0.556	-5.9	93	-0.01
62	T	n-Butyl Acetate	2.280	2.399	-5.2	89	-0.01
63	T	n-Octane	0.723	0.742	-2.6	92	-0.01
64	T	Tetrachloroethene	0.579	0.585	-1.0	95	0.00
65	T	Chlorobenzene	1.362	1.374	-0.9	95	-0.01
66	T	Ethylbenzene	2.425	2.517	-3.8	95	-0.01
67	T	m- & p-Xylenes	1.991	2.070	-4.0	94	-0.02
68	T	Bromoform	0.499	0.530	-6.2	97	-0.01
69	T	Styrene	1.427	1.523	-6.7	94	-0.02
70	T	o-Xylene	2.024	2.105	-4.0	93	-0.01
71	T	n-Nonane	1.879	2.003	-6.6	90	0.00
72	T	1,1,2,2-Tetrachloroethane	0.743	0.786	-5.8	93	-0.02
73	S	Bromofluorobenzene (SS3)	0.683	0.681	0.3	86	0.00
74	T	Cumene	2.676	2.775	-3.7	94	-0.01
75	T	alpha-Pinene	1.260	1.317	-4.5	93	0.00
76	T	n-Propylbenzene	3.079	3.237	-5.1	93	-0.01

Data Path : J:\MS13\DATA\2010_03\31\
Data File : 03311001.D
Acq On : 31 Mar 2010 9:49
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-03051001/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 01 13:02:15 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC
4-1-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
77	T	3-Ethyltoluene	2.488	2.556	-2.7	92	-0.01
78	T	4-Ethyltoluene	2.501	2.623	-4.9	95	-0.01
79	T	1,3,5-Trimethylbenzene	2.139	2.235	-4.5	94	-0.01
80	T	alpha-Methylstyrene	1.048	1.134	-8.2	94	-0.01
81	T	2-Ethyltoluene	2.613	2.682	-2.6	93	-0.02
82	T	1,2,4-Trimethylbenzene	2.216	2.322	-4.8	94	-0.01
83	T	n-Decane	1.740	1.833	-5.3	92	-0.02
84	T	Benzyl Chloride	1.731	1.963	-13.4	95	-0.02
85	T	1,3-Dichlorobenzene	1.125	1.150	-2.2	94	-0.01
86	T	1,4-Dichlorobenzene	1.161	1.216	-4.7	94	-0.01
87	T	sec-Butylbenzene	2.836	2.975	-4.9	94	-0.01
88	T	4-Isopropyltoluene (p-Cymen	2.666	2.808	-5.3	94	-0.01
89	T	1,2,3-Trimethylbenzene	2.276	2.367	-4.0	94	-0.01
90	T	1,2-Dichlorobenzene	1.073	1.131	-5.4	94	-0.01
91	T	d-Limonene	0.807	0.872	-8.1	94	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.347	0.370	-6.6	94	0.00
93	T	n-Undecane	1.782	1.945	-9.1	92	0.00
94	T	1,2,4-Trichlorobenzene	0.743	0.796	-7.1	93	-0.01
95	T	Naphthalene	2.886	2.973	-3.0	95	0.00
96	T	n-Dodecane	2.060	2.251	-9.3	93	0.00
97	T	Hexachlorobutadiene	0.531	0.529	0.4	92	0.00
98	T	Cyclohexanone	1.244	1.031	17.1	71	-0.02
99	T	tert-Butylbenzene	2.091	2.208	-5.6	94	-0.01
100	T	n-Butylbenzene	2.209	2.341	-6.0	92	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : J:\MS13\DATA\2010_04\02\
Data File : 04021004.D
Acq On : 2 Apr 2010 10:58
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-04011006/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 02 11:57:02 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-2-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	103	-0.03
2	T	Propene	2.408	3.028	-25.7	105	0.00
3	T	Dichlorodifluoromethane (CF	3.393	3.618	-6.6	114	0.00
4	T	Chloromethane	3.209	3.156	1.7	107	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.385	1.408	-1.7	109	0.00
6	T	Vinyl Chloride	2.238	2.255	-0.8	108	0.00
7	T	1,3-Butadiene	2.139	2.136	0.1	103	0.00
8	T	Bromomethane	0.995	1.067	-7.2	107	0.00
9	T	Chloroethane	1.180	1.250	-5.9	108	0.00
10	T	Ethanol	1.658	1.780	-7.4	114	-0.13
11	T	Acetonitrile	4.489	4.821	-7.4	113	-0.05
12	T	Acrolein	1.137	1.058	6.9	104	-0.02
13	T	Acetone	1.481	1.510	-2.0	111	-0.06
14	T	Trichlorofluoromethane	3.239	3.515	-8.5	117	-0.01
15	T	2-Propanol (Isopropanol)	5.891	5.490	6.8	115	-0.09
16	T	Acrylonitrile	2.865	3.107	-8.4	111	-0.05
17	T	1,1-Dichloroethene	1.093	1.167	-6.8	112	-0.01
18	T	2-Methyl-2-Propanol (tert-B	4.966	5.419	-9.1	110	-0.08
19	T	Methylene Chloride	1.245	1.249	-0.3	112	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.101	3.317	-7.0	110	-0.02
21	T	Trichlorotrifluoroethane	1.116	1.205	-8.0	114	-0.01
22	T	Carbon Disulfide	4.559	4.688	-2.8	110	0.00
23	T	trans-1,2-Dichloroethene	2.538	2.821	-11.2	112	-0.03
24	T	1,1-Dichloroethane	2.948	3.067	-4.0	110	-0.03
25	T	Methyl tert-Butyl Ether	4.498	4.687	-4.2	111	-0.02
26	T	Vinyl Acetate	0.213	0.203	4.7	104	-0.05
27	T	2-Butanone (MEK)	0.806	0.826	-2.5	108	-0.03
28	T	cis-1,2-Dichloroethene	2.465	2.649	-7.5	111	-0.03
29	T	Diisopropyl Ether	1.027	1.123	-9.3	115	-0.02
30	T	Ethyl Acetate	0.593	0.637	-7.4	106	-0.03
31	T	n-Hexane	3.449	3.652	-5.9	112	-0.01
32	T	Chloroform	2.470	2.566	-3.9	112	-0.05
33	S	1,2-Dichloroethane-d4(SS1)	2.663	2.829	-6.2	108	-0.03
34	T	Tetrahydrofuran (THF)	0.944	0.845	10.5	104	-0.02
35	T	Ethyl tert-Butyl Ether	1.698	1.767	-4.1	110	-0.02
36	T	1,2-Dichloroethane	2.716	2.945	-8.4	115	-0.02
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	103	-0.02
38	T	1,1,1-Trichloroethane	0.505	0.539	-6.7	115	-0.02

Data Path : J:\MS13\DATA\2010_04\02\
Data File : 04021004.D
Acq On : 2 Apr 2010 10:58
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-04011006/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 02 11:57:02 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-2-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
39	T	Isopropyl Acetate	0.206	0.212	-2.9	106	-0.03
40	T	1-Butanol	0.380	0.398	-4.7	102	-0.07
41	T	Benzene	1.013	1.019	-0.6	111	-0.02
42	T	Carbon Tetrachloride	0.456	0.486	-6.6	114	-0.02
43	T	Cyclohexane	0.380	0.388	-2.1	111	-0.02
44	T	tert-Amyl Methyl Ether	0.844	0.840	0.5	108	-0.02
45	T	1,2-Dichloropropane	0.314	0.311	1.0	108	-0.02
46	T	Bromodichloromethane	0.390	0.409	-4.9	112	-0.02
47	T	Trichloroethene	0.263	0.265	-0.8	111	-0.02
48	T	1,4-Dioxane	0.203	0.207	-2.0	105	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.759	1.815	-3.2	110	-0.02
50	T	Methyl Methacrylate	0.099	0.109	-10.1	106	-0.03
51	T	n-Heptane	0.258	0.270	-4.7	110	-0.02
52	T	cis-1,3-Dichloropropene	0.411	0.445	-8.3	110	-0.01
53	T	4-Methyl-2-pentanone	0.351	0.364	-3.7	106	-0.02
54	T	trans-1,3-Dichloropropene	0.429	0.449	-4.7	112	-0.01
55	T	1,1,2-Trichloroethane	0.221	0.229	-3.6	108	-0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	98	0.00
57	S	Toluene-d8 (SS2)	2.065	2.131	-3.2	102	-0.01
58	T	Toluene	2.044	2.194	-7.3	112	-0.01
59	T	2-Hexanone	1.989	2.296	-15.4	105	-0.02
60	T	Dibromochloromethane	0.570	0.630	-10.5	115	-0.01
61	T	1,2-Dibromoethane	0.525	0.593	-13.0	112	-0.01
62	T	n-Butyl Acetate	2.280	2.546	-11.7	106	-0.02
63	T	n-Octane	0.723	0.784	-8.4	108	-0.01
64	T	Tetrachloroethene	0.579	0.615	-6.2	111	-0.01
65	T	Chlorobenzene	1.362	1.447	-6.2	112	-0.01
66	T	Ethylbenzene	2.425	2.624	-8.2	111	-0.01
67	T	m- & p-Xylenes	1.991	2.189	-9.9	111	-0.02
68	T	Bromoform	0.499	0.569	-14.0	116	-0.02
69	T	Styrene	1.427	1.584	-11.0	110	-0.02
70	T	o-Xylene	2.024	2.211	-9.2	110	-0.02
71	T	n-Nonane	1.879	2.200	-17.1	111	-0.01
72	T	1,1,2,2-Tetrachloroethane	0.743	0.821	-10.5	109	-0.02
73	S	Bromofluorobenzene (SS3)	0.683	0.654	4.2	93	0.00
74	T	Cumene	2.676	2.934	-9.6	112	-0.01
75	T	alpha-Pinene	1.260	1.390	-10.3	110	0.00
76	T	n-Propylbenzene	3.079	3.425	-11.2	111	-0.01

Data Path : J:\MS13\DATA\2010_04\02\
Data File : 04021004.D
Acq On : 2 Apr 2010 10:58
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-04011006/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 02 11:57:02 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-2-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
77	T	3-Ethyltoluene	2.488	2.780	-11.7	113	-0.02
78	T	4-Ethyltoluene	2.501	2.750	-10.0	111	-0.01
79	T	1,3,5-Trimethylbenzene	2.139	2.404	-12.4	113	-0.01
80	T	alpha-Methylstyrene	1.048	1.184	-13.0	110	-0.02
81	T	2-Ethyltoluene	2.613	2.865	-9.6	112	-0.02
82	T	1,2,4-Trimethylbenzene	2.216	2.482	-12.0	113	-0.02
83	T	n-Decane	1.740	1.969	-13.2	111	-0.02
84	T	Benzyl Chloride	1.731	2.057	-18.8	111	-0.02
85	T	1,3-Dichlorobenzene	1.125	1.214	-7.9	111	-0.01
86	T	1,4-Dichlorobenzene	1.161	1.289	-11.0	112	-0.01
87	T	sec-Butylbenzene	2.836	3.147	-11.0	112	-0.01
88	T	4-Isopropyltoluene (p-Cymen	2.666	3.016	-13.1	113	-0.01
89	T	1,2,3-Trimethylbenzene	2.276	2.556	-12.3	114	-0.02
90	T	1,2-Dichlorobenzene	1.073	1.194	-11.3	112	-0.01
91	T	d-Limonene	0.807	0.897	-11.2	109	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.347	0.398	-14.7	113	0.00
93	T	n-Undecane	1.782	2.085	-17.0	111	-0.01
94	T	1,2,4-Trichlorobenzene	0.743	0.851	-14.5	111	-0.01
95	T	Naphthalene	2.886	3.124	-8.2	112	-0.01
96	T	n-Dodecane	2.060	2.375	-15.3	109	0.00
97	T	Hexachlorobutadiene	0.531	0.584	-10.0	114	0.00
98	T	Cyclohexanone	1.244	0.987	20.7	76	-0.02
99	T	tert-Butylbenzene	2.091	2.333	-11.6	112	-0.02
100	T	n-Butylbenzene	2.209	2.497	-13.0	110	-0.01

(#) = Out of Range SPCC's out = 0 CCC's out = 0

Evaluate Continuing Calibration Report

Data Path : J:\MS13\DATA\2010_04\05\
Data File : 04051001.D
Acq On : 5 Apr 2010 10:33
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-04011006/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 05 12:23:02 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-7-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
1	IR	Bromochloromethane (IS1)	1.000	1.000	0.0	127	-0.03
2	T	Propene	2.408	2.573	-6.9	110	0.00
3	T	Dichlorodifluoromethane (CF	3.393	3.298	2.8	128	0.00
4	T	Chloromethane	3.209	3.484	-8.6	146	0.00
5	T	1,2-Dichloro-1,1,2,2-tetraf	1.385	1.542	-11.3	148	0.00
6	T	Vinyl Chloride	2.238	2.591	-15.8	153	0.00
7	T	1,3-Butadiene	2.139	2.506	-17.2	149	0.00
8	T	Bromomethane	0.995	1.127	-13.3	140	0.00
9	T	Chloroethane	1.180	1.296	-9.8	138	0.00
10	T	Ethanol	1.658	1.683	-1.5	134	-0.14
11	T	Acetonitrile	4.489	4.332	3.5	126	-0.05
12	T	Acrolein	1.137	1.096	3.6	133	-0.03
13	T	Acetone	1.481	1.488	-0.5	135	-0.06
14	T	Trichlorofluoromethane	3.239	3.265	-0.8	135	0.00
15	T	2-Propanol (Isopropanol)	5.891	5.211	11.5	135	-0.10
16	T	Acrylonitrile	2.865	2.876	-0.4	128	-0.05
17	T	1,1-Dichloroethene	1.093	1.169	-7.0	139	-0.01
18	T	2-Methyl-2-Propanol (tert-B	4.966	5.210	-4.9	130	-0.08
19	T	Methylene Chloride	1.245	1.259	-1.1	139	-0.03
20	T	3-Chloro-1-propene (Allyl C	3.101	3.085	0.5	126	-0.03
21	T	Trichlorotrifluoroethane	1.116	1.161	-4.0	136	-0.01
22	T	Carbon Disulfide	4.559	4.668	-2.4	135	-0.01
23	T	trans-1,2-Dichloroethene	2.538	2.666	-5.0	130	-0.03
24	T	1,1-Dichloroethane	2.948	2.936	0.4	130	-0.03
25	T	Methyl tert-Butyl Ether	4.498	4.570	-1.6	134	-0.02
26	T	Vinyl Acetate	0.213	0.218	-2.3	139	-0.05
27	T	2-Butanone (MEK)	0.806	0.863	-7.1	139	-0.03
28	T	cis-1,2-Dichloroethene	2.465	2.496	-1.3	129	-0.03
29	T	Diisopropyl Ether	1.027	1.106	-7.7	140	-0.02
30	T	Ethyl Acetate	0.593	0.619	-4.4	128	-0.03
31	T	n-Hexane	3.449	3.321	3.7	126	-0.01
32	T	Chloroform	2.470	2.475	-0.2	134	-0.05
33	S	1,2-Dichloroethane-d4(SS1)	2.663	2.562	3.8	121	-0.03
34	T	Tetrahydrofuran (THF)	0.944	0.898	4.9	137	-0.02
35	T	Ethyl tert-Butyl Ether	1.698	1.779	-4.8	137	-0.02
36	T	1,2-Dichloroethane	2.716	2.618	3.6	126	-0.03
37	IR	1,4-Difluorobenzene (IS2)	1.000	1.000	0.0	127	-0.02
38	T	1,1,1-Trichloroethane	0.505	0.488	3.4	128	-0.02

Data Path : J:\MS13\DATA\2010_04\05\
Data File : 04051001.D
Acq On : 5 Apr 2010 10:33
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-04011006/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 05 12:23:02 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-7-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
39	T	Isopropyl Acetate	0.206	0.209	-1.5	129	-0.03
40	T	1-Butanol	0.380	0.387	-1.8	122	-0.07
41	T	Benzene	1.013	1.005	0.8	134	-0.02
42	T	Carbon Tetrachloride	0.456	0.441	3.3	127	-0.02
43	T	Cyclohexane	0.380	0.378	0.5	133	-0.02
44	T	tert-Amyl Methyl Ether	0.844	0.837	0.8	133	-0.02
45	T	1,2-Dichloropropane	0.314	0.305	2.9	131	-0.02
46	T	Bromodichloromethane	0.390	0.393	-0.8	132	-0.02
47	T	Trichloroethene	0.263	0.261	0.8	135	-0.02
48	T	1,4-Dioxane	0.203	0.205	-1.0	128	-0.02
49	T	2,2,4-Trimethylpentane (Iso	1.759	1.675	4.8	125	-0.02
50	T	Methyl Methacrylate	0.099	0.112	-13.1	134	-0.03
51	T	n-Heptane	0.258	0.268	-3.9	134	-0.02
52	T	cis-1,3-Dichloropropene	0.411	0.444	-8.0	135	-0.01
53	T	4-Methyl-2-pentanone	0.351	0.342	2.6	123	-0.02
54	T	trans-1,3-Dichloropropene	0.429	0.442	-3.0	136	-0.01
55	T	1,1,2-Trichloroethane	0.221	0.230	-4.1	134	-0.02
56	IR	Chlorobenzene-d5 (IS3)	1.000	1.000	0.0	120	0.00
57	S	Toluene-d8 (SS2)	2.065	2.137	-3.5	125	0.00
58	T	Toluene	2.044	2.126	-4.0	134	-0.01
59	T	2-Hexanone	1.989	1.957	1.6	110	-0.02
60	T	Dibromochloromethane	0.570	0.604	-6.0	135	-0.01
61	T	1,2-Dibromoethane	0.525	0.577	-9.9	133	-0.01
62	T	n-Butyl Acetate	2.280	2.211	3.0	113	-0.01
63	T	n-Octane	0.723	0.729	-0.8	124	-0.01
64	T	Tetrachloroethene	0.579	0.597	-3.1	133	-0.01
65	T	Chlorobenzene	1.362	1.390	-2.1	132	-0.01
66	T	Ethylbenzene	2.425	2.558	-5.5	133	-0.01
67	T	m- & p-Xylenes	1.991	2.096	-5.3	131	-0.02
68	T	Bromoform	0.499	0.541	-8.4	135	-0.01
69	T	Styrene	1.427	1.539	-7.8	131	-0.02
70	T	o-Xylene	2.024	2.138	-5.6	130	-0.02
71	T	n-Nonane	1.879	1.877	0.1	117	0.00
72	T	1,1,2,2-Tetrachloroethane	0.743	0.806	-8.5	131	-0.02
73	S	Bromofluorobenzene (SS3)	0.683	0.649	5.0	113	0.00
74	T	Cumene	2.676	2.810	-5.0	132	-0.01
75	T	alpha-Pinene	1.260	1.335	-6.0	130	0.00
76	T	n-Propylbenzene	3.079	3.274	-6.3	130	-0.01

Evaluate Continuing Calibration Report

Data Path : J:\MS13\DATA\2010_04\05\
Data File : 04051001.D
Acq On : 5 Apr 2010 10:33
Operator : CC
Sample : 5ng TO-15 CCV STD
Misc : S20-04011006/S20-03241004
ALS Vial : 12 Sample Multiplier: 1

Quant Time: Apr 05 12:23:02 2010
Quant Method : J:\MS13\METHODS\R13032310.M
Quant Title : EPA TO-15 per SOP VOA-TO15 (CASS TO-15/GC-MS)
QLast Update : Wed Mar 24 10:25:57 2010
Response via : Initial Calibration

CC 4-7-10

Min. RRF : 0.000 Min. Rel. Area : 50% Max. R.T. Dev 0.33min
Max. RRF Dev : 30% Max. Rel. Area : 200%

		Compound	AvgRF	CCRF	%Dev	Area%	Dev(min)
77	T	3-Ethyltoluene	2.488	2.611	-4.9	130	-0.01
78	T	4-Ethyltoluene	2.501	2.655	-6.2	132	-0.01
79	T	1,3,5-Trimethylbenzene	2.139	2.275	-6.4	132	-0.01
80	T	alpha-Methylstyrene	1.048	1.143	-9.1	130	-0.01
81	T	2-Ethyltoluene	2.613	2.726	-4.3	131	-0.02
82	T	1,2,4-Trimethylbenzene	2.216	2.348	-6.0	131	-0.01
83	T	n-Decane	1.740	1.749	-0.5	121	-0.01
84	T	Benzyl Chloride	1.731	1.957	-13.1	130	-0.02
85	T	1,3-Dichlorobenzene	1.125	1.159	-3.0	130	-0.01
86	T	1,4-Dichlorobenzene	1.161	1.210	-4.2	129	-0.01
87	T	sec-Butylbenzene	2.836	3.005	-6.0	131	-0.01
88	T	4-Isopropyltoluene (p-Cymen	2.666	2.869	-7.6	132	-0.01
89	T	1,2,3-Trimethylbenzene	2.276	2.388	-4.9	131	-0.01
90	T	1,2-Dichlorobenzene	1.073	1.130	-5.3	130	-0.01
91	T	d-Limonene	0.807	0.868	-7.6	129	-0.01
92	T	1,2-Dibromo-3-Chloropropane	0.347	0.385	-11.0	134	0.00
93	T	n-Undecane	1.782	1.889	-6.0	123	0.00
94	T	1,2,4-Trichlorobenzene	0.743	0.800	-7.7	128	0.00
95	T	Naphthalene	2.886	2.945	-2.0	130	0.00
96	T	n-Dodecane	2.060	2.131	-3.4	121	0.00
97	T	Hexachlorobutadiene	0.531	0.543	-2.3	130	0.00
98	T	Cyclohexanone	1.244	0.735	40.9#	70	-0.02
99	T	tert-Butylbenzene	2.091	2.216	-6.0	130	-0.02
100	T	n-Butylbenzene	2.209	2.334	-5.7	127	0.00

(#) = Out of Range SPCC's out = 0 CCC's out = 0

92