

REVISED ANNUAL MONITORING REPORT

Christian Ochsendorf Property
75909 Highway 4
Hector, MN
MPCA Site ID: LEAK00017482
WCEC Project: 12-9309-30

June 28, 2013

Prepared by:
West Central Environmental Consultants, Inc.
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Minnesota Pollution Control Agency

Monitoring Report Guidance Document 4-08

This form must be completed annually for Minnesota Pollution Control Agency (MPCA) review following the submittal of Guidance Document 4-06 *Investigation Report Form*. Under certain circumstances MPCA staff may request submittal of this form on an alternate schedule (e.g., quarterly, semi-annually).

All site monitoring results and additional work activities requested by the MPCA must be included and used to support the site management decision. Include any additional information that is important for making the site management decision. Refer to MPCA Guidance Document 1-01 *Petroleum Remediation Program General Policy* for the overall site investigation objectives and to other MPCA guidance documents for details on investigation methods. Do not revise or delete any text from this report form. Attach all applicable figures, tables, and appendices, and indicate those that have been updated during this reporting period. **All data provided must be cumulative.**

MPCA Site ID: Leak000 17482

Date: 06/28/13

Responsible Party Information

Name: Nancy Hennen-Blomme MPCA

Phone #: 507-476-4260

Mailing Address: 504 Fairgrounds Rd. Suite 200

City: Marshall

Zip Code: 56258

Alternate Contact (if any) for Responsible Party:

Phone #:

Leak Site Information

Leak Site Name: Christian Ochsendorf Property

Phone #:

Leak Site Address: 75090 Highway 4

City: Hector


Zip Code: 55342

County: Renville

Environmental Professional Information

By signing this document, I/we acknowledge that we are submitting this document on behalf of and as agents of the responsible person or volunteer for this leak site. I/we acknowledge that if information in this document is inaccurate or incomplete, it will delay the completion of remediation and may harm the environment and may result in a reduction in Petrofund reimbursement. In addition, I/we acknowledge on behalf of the responsible person or volunteer for this leak site that if this document is determined to contain a false material statement, representation, or certification, or if it omits material information, the responsible person or volunteer may be found to be in violation of Minn. Stat. § 115.075 (2007) or Minn. R. 7000.0300 (Duty of Candor), and that the responsible person or volunteer may be liable for civil penalties.

MPCA staff are instructed to reject unsigned reports and reports that have been altered.

<u>Name and Title of Report Author(s)</u>	<u>Signature</u>	<u>Date Signed</u>
<u>Seth Miller – Assistant Project Manager</u>		<u>6-28-13</u>
_____	_____	_____

<u>Name and Title of Report Reviewer(s)</u>	<u>Signature</u>	<u>Date Signed</u>
<u>Matt Johnson – Project Manager</u>		<u>6/28/13</u>
<u>Colin Lynch -- Environmental Technician</u>		<u>6/28/13</u>

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Section 1: Work Completed

1.1 Describe all site work completed since the *Investigation Report Form* or the last *Monitoring Report* was submitted. This should include both field and non-field related activities.

In September of 2012, West Central Environmental Consultants (WCEC) submitted a work plan to the MPCA to conduct the following investigative activities: advance borings through the basement floor in order to collect soil and groundwater samples; collect a sub-slab vapor intrusion sample; conduct a vapor survey of the main floor and basement; determine the status of the ventilation system installed during the emergency response phase; and submit the findings with the MPCA Monitoring Report form (Guidance Document 4-08). The work plan recommended advancing enough borings through the basement floor to determine the extent of contamination; the initial boring being in the “worst case” area and additional borings advanced further away to adequately define the extent. A photo-ionization detector (PID) was used to measure vapors from soil samples collected from the borings. These field samples were used to determine the number of borings and final depth of the borings. On 12/20/12, WCEC performed the field work outlined within the work plan.

The vapor survey was conducted first in order to get data representative of the existing ambient conditions within the residence. A PID was used to collect organic vapor measurements. The areas surveyed with the PID include within the entryway, in the bathroom, kitchen, and additional living spaces located on the main floor of the residence. No organic vapors were detected during this survey of the main floor. Vapor readings during the vapor survey of the basement were recorded in the main basement room, the electrical room, the former AST room, and the basement sump. No organic vapors were detected during the survey of the basement area.

Two hand auger borings were advanced (test holes TH2 and TH3) on 12/20/12 in an effort to determine the extent of contamination at this site. Procedures for hand auger borings are included as Appendix B. The hand auger advanced during the emergency phase is considered as test hole TH1. Test hole TH2, was advanced through the basement floor in the area of the former above ground storage tank (AST). A hand auger was used to advance the test hole to approximately 5 feet below the basement floor. WCEC collected soil during the advancement of this boring to perform head space analysis via MiniRae 2000 photo ionization detector (PID). Procedures regarding head space analysis are included as Appendix B. Samples were collected at 1 foot intervals for the head space analysis. No organic vapors were detected during this field screening process. The results of the headspace analysis can be found in Table 2 of this report. A section of 1 inch PVC screen was placed in the test hole in an attempt to collect a groundwater sample from the boring. No groundwater was collected within the test holes, so WCEC followed the sampling protocol outlined within the work plan in the event that groundwater could not be collected. Therefore, soil samples were analyzed for VOCs as well as DRO. Samples were submitted to Pace Analytical Services (Pace) of Minneapolis (# 027-053-137) for analysis. Test hole TH3 was advanced through the

basement floor in the area where a crack in the floor was documented during the emergency response phase of this project. During the activities on 12/20/12, the second test hole was completed in the same fashion as the first test hole (TH2), with samples once again being collected every 1 foot. Groundwater did not collect within this test hole either, so the soil samples collected were analyzed for DRO and VOCs as they were for test hole TH2.

During the emergency response, two 24 hour air samples were obtained from ambient air via laboratory supplied summa canisters and submitted for analysis. During this site visit WCEC advanced a vapor intrusion assessment (VIA) boring to a depth of 4 feet below slab. Flint sand was installed around the aluminum point screen and the top of the sand pack and was sealed from the surface using distilled water and bentonite. An air sample was drawn into an evacuated 6 liter summa canister for approximately 5 minutes. This air sample was analyzed by Pace for volatile organic compounds using the TO-15 method.

WCEC attempted to collect a water sample from the basement sump, which is located near the northwest corner of the basement. There was no water found within the sump, but it appeared that the residence may be experiencing plumbing issues related to the sump. The concrete around the sump had been broken up in what appeared to be an attempt to make adequate space to work on the plumbing associated with the sump. There was no detection of organic vapors when the sump and work area excavation were surveyed with the PID.

WCEC questioned the homeowners regarding the status of the blower fan that was part of the ventilation system installed during the emergency response phase of this investigation. The blower fan was not in the basement area when WCEC staff visited the site on 12/20/12. Prior to this site visit, the most recent site activities occurred in January 2009. The current homeowner has owned the residence for only the past 1 ½ years and does not remember seeing the ventilation fan when they purchased the home. The location of the blower fan is unknown.

On June 7 2013, WCEC was on site to collect a sub-slab soil gas sample in response to MPCA correspondence requesting said work. The sample was collected in accordance with MPCA Guidance Document 4-01a and MPCA Vapor Intrusion Technical Support Document. The sample was submitted to Pace Analytical for analysis via EPA method TO-15. The sample indicated the presence of several VOCs, but all were under both the Minnesota Department of Health's (MDH) health-risk values (HRL) and intrusion screening values (ISV) set by MPCA Guidance Document 4-01 with the exception of 1,2,4 – Trimethylbenzene. This compound was detected in the sample at 9.4 µg/m³, which exceeds the intrusions screening value of 7 µg/m³. However, since this compound was not detected in concentrations exceeding 10 times its ISV, it should present a relatively low risk and should not warrant additional investigation according to section 4.3.1 of the MPCA Vapor Intrusion Technical Support Document. Following the sample collection, the sub-slab sampling point was sealed.

- 1.2 If additional work requested in the most recent MPCA correspondence has not been completed, explain why.

All of the work outlined within the work plan for FY13 has been completed, as well as follow-up work requested in the most recent MPCA correspondence.

Section 2: Monitoring Results

2.1 Ground Water

Discuss the cumulative ground water monitoring results, water level measurements, and plume characteristics with respect to identified receptors.

No groundwater was encountered during the investigation activities in 2008/2009 or 2012.

2.2 Field-Detectable Vapors (photoionization detector, explosimeter, etc.)

Discuss the results of any additional follow-up field vapor monitoring. Include a description of each vapor monitoring location and an explanation of monitoring methods and instruments used. Interpret the cumulative results as related to the identified receptors.

During the emergency response phase, immediately following the release of fuel oil, PID readings ranging between 20-22 parts per million (ppm) were detected on the main floor of the residence. The report from the emergency response states that slightly higher PID detections were encountered in the basement area. However, on subsequent visits, occurring on 12/16/2008, 12/19/2008, and 1/6/2009, the report states that no significant PID readings were detected. PID results (0.7 to 1.2 ppm) from the 1/6/2009 visit can be found on Table 19.

During the field activities on 12/20/2012 a vapor survey of the basement and entire main floor was conducted. The main room of the basement, the electrical room, the former AST room, the crawl space, and the sump located on the north end of the basement were sampled during this vapor survey. No organic vapors were detected in these locations using the PID. The bathroom, back entryway, kitchen, living room, front entry, office, and additional living space located on the main floor of the residence were sampled during this vapor survey. Like the basement survey, no organic vapors were detected using the PID.

During the field activities on 6/7/2013 a vapor survey of the basement was conducted. The main room of the basement, the electrical room, the former AST room, the crawl space, and the sump located on the north end of the basement were sampled during this vapor survey. No organic vapors were detected in these locations using the PID.

No additional vapor surveys are planned at this time.

NOTE: If vapor concentrations exceed 10 percent of the lower explosive limit, exit the building and contact the local fire department immediately. Then contact the Minnesota Duty Officer (24 hours) at 651-649-5451 (metro and outside Minnesota) or 1-800-422-0798 (Greater Minnesota). TTY users call 651-297-5353 (V/TTY) or 1-800-627-3529 (V/TTY).

2.3 Vapor Intrusion (soil gas, sub-slab, indoor, ambient)

Discuss the results of any follow-up vapor intrusion assessment (VIA) activities including a description of each VIA sampling location and an interpretation of the results with respect to receptors.

During the emergency response phase of this project, two ambient VIA samples were collected in 6 liter summa canisters with 24 hour flow controllers. These canisters were placed in the main room of the basement and in the kitchen area on the main floor of the residence. The summa canister located in the basement was placed on the basement floor approximately 25 feet from the source area. The summa canister located in the kitchen area was placed on the counter. The summa canisters collected from the kitchen and basement returned detections of several compounds, however no detects of contamination were above the established ISVs, except for 1,2,4-Trimethylbenzene, which was found in concentrations of 15.2 and 12.4 ug/m³ (slightly above the ISV value of 1,2,4-TMB at 7 ug/m³). The results from the analysis of these summa canisters can be found in Table 20 of this report.

During the 12/20/2012 investigation activities, an additional VIA sample was collected beneath the basement slab of the former AST storage room (source). This sample was collected using an aluminum screen point attached to tubing. The point was installed at a depth approximately 4 feet below the basement slab. Flint sand was placed around the aluminum screen to provide a good sand pack. Bentonite was used on top of the flint sand to seal the VIA boring from the surface. A VIA sample was collected in a 6 liter summa canister for approximately 5 minutes. 1,2,4-Trimethylbenzene was detected at 22.8 ug/m³, slightly above the established ISVs (7 ug/m³), but well below 10X the ISVs (70 ug/ m³), from the summa canister sample collected at 4 ft below slab. No other detects were found to be above the established ISVs. The results from this additional VIA analysis can be found in Table 20 of this report.

2.4 Free Product

If free product is present, discuss what activities are being completed to measure and recover it. Describe the effectiveness of the recovery efforts and free product trends over the course of the investigation. Complete Table 14 and discuss the data compiled to date.

During the emergency response phase of this project, free LNAPL was recovered using Oil-Dri absorbents. The initial report stated that 5-10 gallons of fuel oil was released. It is unknown how many bags of floor dry was used during the recovery of the released fuel oil. The used Oil-Dri was disposed of at Veolia Rolling Hills Landfill in Buffalo, MN.

No free LNAPL was encountered during the additional investigation activities that took place on 12/20/12 and 6/7/2013. Table 14 was not completed as part of this report. There is no specific data from the emergency response phase and no free LNAPL was encountered during the additional investigation.

2.5 Other (e.g., surface water, contaminated surface soil, etc.)

Discuss the results of any additional monitoring or subsurface investigation conducted during this reporting period. Identify all monitoring locations on an attached site map by labeling each location. A description of sampling methods, including the instruments used, must be included in Section 6.

No other sampling was conducted as part of this investigation.

2.6 Site Conceptual Model

Discuss any changes to the overall site conceptual model that has altered the current site management decision based upon the information presented in this report.

No site conceptual model has been prepared during the emergency response phase of the project. This section will describe site conditions at the time of emergency response, site conditions currently at the site, and the changes between these investigation periods.

The primary source of contamination was an unused fuel oil tank. The fuel oil tank was approximately 220 gallons based upon measurements taken from the emergency response photographs. Approximately 5-10 gallons of fuel oil was spilled during the removal of the unused, but not empty, fuel oil tank. There are no other potential sources of contamination known to exist at this site.

Fuel oil was released from the steel tank on to the cement floor of the basement. The fuel oil flowed across the basement floor until being contained with floor dry. Once floor dry was applied to the spill area, the fuel was contained. Vapor contamination was present at this site, due to the presence of fuel oil. Upon clearing the basement floor of the fuel oil/floor dry mixture, it was noted that a crack in the basement floor existed in the area of the release. Some fuel oil was able to penetrate beneath the basement slab through the crack. The soil boring during the emergency response phase returned no significant PID readings during headspace analysis (no specific results were recorded), but analytical results returned detections of DRO in concentrations of approximately 1500 ppm in test hole TH1. This indicated soil contamination existed directly below the basement slab. Groundwater was not encountered during the advancement of the soil boring, so at the time of the emergency response, groundwater did not appear to be impacted by this release.

The spilled fuel oil was immediately cleaned up, removing the potential dermal or ingestion related health risks. Summa canisters were used to collect ambient air samples which were analyzed for TO-15 compounds. The analysis indicated that there were no ISV exceedences except for concentrations of 1, 2, 4-Trimethylbenzene (15.2 ug/m³ and 12.4 ug/m³) that were slightly above the established intrusion screening values (ISV for TMB is 7 ug/m³).

During the December 2012 investigation, no fuel oil was found above or below the cement slab in the source area of the residence. No organic vapors were detected during headspace analysis with a PID in the test holes. Since no organic vapors were detected by the PID in the "worst case" areas (near the fuel oil tank and at the crack in the floor), no further test holes were deemed necessary. Soil samples that were submitted for laboratory analysis had detections within the DRO range (61.2 ppm in test hole TH2 and 145 ppm in test hole TH3). No other VOCs were detected in either sample. An "organic" odor was described in the field, but not a petroleum odor. No groundwater was encountered during either phase of this investigation.

Petroleum vapors were discovered during the emergency response phase of this project and PID readings ranged from 20-22 ppm on the main floor of the residence. Detections of several compounds were discovered during the analysis of the two summa canisters that were used to collect ambient air samples over a 24 hour period. Several steps were taken to alleviate these conditions. During the emergency phase, the floor/wall was washed with a degreaser and sealed with a product similar to Kilz. An ozone/air purifying system was used to help eliminate any lingering odors/vapors. No petroleum vapors were noticed during the additional investigation phase of this project that was completed on 12/20/12. PID readings that were taken during the vapor survey all returned with a 0.0 ppm result. Laboratory analysis of an air sample collected 4 ft below the basement slab returned no detects of contamination above the established ISVs, except for 1,2,4-Trimethylbenzene, which was found at a concentration of 22.8 ug/m³ (ISV value of 1,2,4-TMB at 7 ug/m³). This is well below 10X ISV value and represents a relatively low risk.

The DRO concentrations of a soil sample collected just beneath the basement floor in test hole TH1 in December 2008 was 1,580 ppm, and no detect at 4 ft below the slab. Four years later, no fuel oil odors were noticed and there were no detection of organic vapors with the PID, but there was detection of DRO in test holes TH2 and TH3 at 5 ft below the basement floor. The native soils consist of clay rich till which inhibits the migration of any remaining contamination. No groundwater was encountered to a depth of 4 ft below the basement floor in 2008, or 5 ft below the basement floor in 2012. There is a sump pit in the basement, but no water has been observed during the emergency phase in 2008/2009, nor during the investigative phase in 2012. Static water elevation in the site well is 54 ft below surface, and the depth to the base of the casing in 239 ft below surface grade (bsg).

At the time of the additional investigation phase of this project, this house was serving as the primary residence for the current property owner. The house was purchased from the former owner approximately 1.5 years prior to this additional investigation.

Section 3: Site Management Decision

The site management decision should be based on the Program's objectives described in Guidance Document 1-01 *Petroleum Remediation Program General Policy*.

- 3.1 Recommendation for site:
- site closure
 - additional ground water monitoring
 - additional field-detectable vapor monitoring
 - additional soil or ground water investigation
 - additional soil gas/vapor intrusion investigation
 - corrective action

- 3.2 If closure is recommended, summarize significant investigative events and describe how the site-specific exposure pathways identified in the site conceptual model (SCM) have been adequately addressed.

WCEC recommends closure of this leak site.

The initial spill response activities removed the spilled fuel oil on the floors/walls of the basement. That, along with the blower and ozone/air purifying system, mitigated the vapors from the fuel oil on the walls/floor. DRO was detected within the top 1 foot of soil in the emergency response hand auger boring, which indicated some fuel penetrated through the floor, likely through the cracks.

During the additional investigation phase of this project, no LNAPL or fuel oil vapors were encountered, and no groundwater was encountered. There is a small amount of residual soil contamination beneath the basement floor. However, this remaining contamination is considered to be minor and not mobile. WCEC believes that the previously mentioned activities have remediated this release to the maximum extent practicable. Therefore, WCEC suggests that no further investigation or cleanup activities are necessary, and requests that this site be considered for closure.

- 3.3 If additional monitoring or subsurface investigation is recommended, provide details of all proposed activities (e.g., monitoring locations, sampling frequency, target analytes, additional monitoring wells, soil borings). Continue ground water monitoring and sampling in accordance with the previously-approved schedule until the MPCA responds to this report.

No vapors were detected by the PID and no fuel odors were noticed, but DRO was detected in the soil samples collected from test holes TH2 and TH3. The DRO concentrations (61.2 ppm and 145 ppm, respectively) are significantly lower than the DRO concentration (1,580 ppm) detected in test hole TH1 advanced in 2008. This suggests that the clay rich soils are minimizing the migration of any remaining contamination, and natural attenuation is occurring. The total amount spilled was fairly small in volume, and the amount that penetrated through the concrete floor was even smaller. Any remaining contamination should not create any further vapor issues nor create a risk to the site well.

- 3.4 If additional vapor intrusion investigation is recommended, provide details of proposed activities such as completing an indoor building survey, sub-slab vapor sampling, indoor air sampling, or locations for additional soil gas sampling.

Not applicable. Site closure is recommended.

- 3.5 If corrective action is recommended, provide a conceptual approach by completing Guidance Document 4-19 *Conceptual Corrective Action Design Worksheet* and include in Section 6. See Guidance Document 4-10 *Elements of the Corrective Action Design* for more information on the corrective action design process and other requirements. (Note: If a *Conceptual Corrective Action Design Worksheet* is submitted, MPCA staff will review this report at a higher-than-normal priority to determine if corrective action is required.)

Not applicable. Site closure is recommended.

Section 4: Figures

Attach the following figures in the order listed below. All figures must include a north arrow, scale, and legend. Approximate scales are not acceptable.

- Site Location Map using a U.S. Geological Survey 7.5 minute quadrangle map.
- One or more Site Maps showing:
 - Structures
 - Locations and depths of on-site buried utilities
 - All past and present petroleum storage tanks, piping, dispensers, and transfer areas
 - Extent of soil excavation
 - Boring and well locations (including any drinking water wells on site)
 - Horizontal extent of soil contamination
 - Extent of contaminated surface soil
 - Horizontal extent of ground water contamination
 - Horizontal extent of NAPL
 - Location of end points for all geologic cross sections
 - Potential pathways that lead to surface water features within ¼ mile of the site

Distinguish sequential elements of investigations by dates, symbols, etc. in the key.

- Updated ground water gradient contour maps using water level elevations from each monitoring event since the last report. Show all wells at the site, and differentiate wells constructed in different aquifers. Label ground water contours and elevations at each data point used for contouring.
- Hydrograph for all monitoring and recovery wells.
- Graph(s) showing contaminant concentrations over time for all monitoring and recovery wells.
- Potential Receptor Map (scale 1 inch = 50 to 100 feet), centered on the release area, showing property boundaries and roads, and potential receptors such as buildings, water wells, underground utilities (distinguish between water, storm sewer, and sanitary sewer), surface waters, ditches, and any other pertinent items within 500 feet of the release source.
- Vapor Survey Map showing utilities and buildings with basements and monitoring locations within 500 feet (if a survey was required). If the survey area has been expanded beyond 500 feet, adjust the map to encompass the entire surveyed area.
- Vapor Intrusion Assessment Map showing all vapor intrusion samples and receptors at and within the 100-foot preliminary assessment area. If the assessment area has been expanded beyond 100 feet, adjust the map to encompass the entire assessment area.

Section 5: Tables

Attach all tables from the *Investigation Report Form* and indicate those that have been updated during this reporting period by marking the check box below. **Tables must include all cumulative data.**

Updated Table Number and Name

- Table 1. Tank Information
- Table 2. Results of Soil Headspace Screening
- Table 3. Analytical Results of Soil Samples
- Table 4. Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived)
- Table 5. Contaminated Surface Soil Results
- Table 6. Water Level Measurements and Depths of Water Samples Collected from Borings
- Table 7. Analytical Results of Water Samples Collected from Borings
- Table 8. Other Contaminants Detected in Water Samples Collected from Borings (Petroleum or Non-petroleum Derived)
- Table 9. Monitoring Well Completion Information
- Table 10. Water Level Measurements in Wells
- Table 11. Analytical Results of Water Samples Collected from Wells
- Table 12. Other Contaminants Detected in Water Samples Collected from Wells (Petroleum or Non-petroleum Derived)
- Table 13. Natural Attenuation Parameters
- Table 14. Free Product Recovery
- Table 15. Properties Located within 500 feet of the Release Source
- Table 16. Water Supply Wells Located within 500 feet of the Release Source and Municipal or Industrial Wells within ½ mile
- Table 17. Surface Water Receptor Information
- Table 18. Utility Receptor Information
- Table 19. Vapor Survey Results
- Table 20. Results of Soil Gas Sampling for Vapor Intrusion Screening

**Table 1
Tank Information**

Tank #	Tank Material ¹	UST or AST	Capacity (gallons)	Contents (product type)	Year Installed	Tank Status ²	Tank Condition
1	Steel	AST	100	Fuel Oil	Unknown	Removed	NA

Notes:

**Table 2
Results of Soil Headspace Screening**

Depth (ft)	Soil Boring ID		
	TH1*	TH2	TH3
0		0.00	0.00
1		0.00	0.00
2		0.00	0.00
3		0.00	0.00
4		0.00	0.00
5		0.00	0.00
6			
7			
8			
EOB	4.0	5.0	5.0

Notes:

Results are in mg/kg (ppm)

* TH1 was completed as part of the emergency response phase. Spill response report stated that no significant PID detections were encountered. No specific values can be found. The spill report states that the boring was completed to 4 feet bsg.

TH2-TH3 were developed on 12/20/12 and completed to 5 feet below the basement floor.

Table 3
Analytical Results of Soil Samples

Boring ID	Sampled Depth (ft)	Date Sampled	Benzene	Toluene	Ethyl-	Xylenes	MTBE	GRO	DRO	Lab Type ²
					benzene					
HA-1 (TH1)	0-1	12/12/08	ND	ND	ND	ND	ND	NS	1580	Fixed
HA-1 (TH1)	4	12/12/08	ND	ND	ND	ND	ND	NS	ND	Fixed
TH2	5	12/20/12	ND	ND	ND	ND	ND	NS	61.2	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	NS	145	Fixed

Notes: "NS" indicates not sampled.
"ND" indicates no detection above the laboratory reporting limit.
Results reported in ppm (mg/kg).

Table 4
Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived)

Boring ID	Sampled Depth (ft)	Date Sampled	Acetone	Allyl chloride	Bromobenzene	Bromochloromethane	Bromodichloromethane	Bromoform	Bromomethane	Lab Type
			MEK	n-Butylbenzene	sec-Butylbenzene	tert-Butylbenzene	Carbon Tetrachloride	Chlorobenzene	Chloroethane	
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										

Boring ID	Sampled Depth (ft)	Date Sampled	Chloroform	Chloromethane	2-Chlorotoluene	4-chlorotoluene	1,2-dibromo-3-chloropropane	Dibromochloromethane	EDB	Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										
Boring ID	Sampled Depth (ft)	Date Sampled	Dibromomethane	1,2-dichlorobenzene	1,3-dichlorobenzene	1,4-dichlorobenzene	Dichlorodifluoromethane	1,1-dichloroethane	1,2-dichloroethane	Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										
Boring ID	Sampled Depth (ft)	Date Sampled	1,1-dichloroethene	cis-1,2-dichloroethene	trans-1,2-dichloroethene	dichlorofluoromethane	1,2-dichloropropane	1,3-dichloropropane	2,2-dichloropropane	Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										
Boring ID	Sampled Depth (ft)	Date Sampled	1,1-dichloropropane	cis-1,3-dichloropropene	trans-1,3-dichloropropene	diethyl ether	hexachloro-1,3-butadiene	isopropylbenzene	p-isopropyltoluene	Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										

Boring ID	Sampled Depth (ft)	Date Sampled	methylene chloride	4-methyl-2-pentanone	naphthalene	n-propylbenzene	styrene	1,1,1,2-tetrachloroethane	1,1,2,2-tetrachloroethane	Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										
Boring ID	Sampled Depth (ft)	Date Sampled	tetrachloroethene	tetrahydrofuran	1,2,3-TCB	1,2,4-TCB	1,1,1-TCE	1,1,2-TCE	trichloroethene	Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										
Boring ID	Sampled Depth (ft)	Date Sampled	trichlorofluoromethane	1,2,3-TCP	1,1,2-trichlorotrifluoroethane	1,2,4-TMB	1,3,5-TMB	vinyl chloride		Lab Type
TH2	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
TH3	5	12/20/12	ND	ND	ND	ND	ND	ND	ND	Fixed
HRL										

Notes: "ND" indicates no detection above the laboratory reporting limit.

**Table 5
Contaminated Surface Soil Results**

Not Applicable

**Table 6
Water Level Measurements and Depths of Water Samples Collected from Borings**

Not Applicable

**Table 7
Analytical Results of Water Samples Collected from Borings**

Not Applicable

**Table 8
Other Contaminants Detected in Water Samples
Collected from Borings (Petroleum or Non-petroleum Derived)**

Not Applicable

**Table 9
Monitoring Well Completion Information**

Not Applicable

Table 10
Water Level Measurements in Wells

Not Applicable

Table 11
Analytical Results of Water Samples Collected from Wells

Not Applicable

Table 12
Other Contaminants Detected in Water Samples
Collected from Wells (Petroleum or Non-petroleum Derived)

Not Applicable

Table 13
Natural Attenuation Parameters

Not Applicable

Table 14
Free Product Recovery

Not Applicable

Table 15
Properties Located within 500 feet of the Release Source

Prop ID ¹	Property Address	Distance From Site (ft)	Water Supply Well			Public Water Supply		Basement (Y/N)	Sump (Y/N)	Possible Petroleum Sources (Y/N)	Comments (including property use)
			Well Present (Y/N)	How Determined ²	Well Use ³	Utilized (Y/N)	Confirmed by City (Y/N)				
1	75090 Hwy 4	0	Yes	Visual	Residential	N	N	Y	Y	Removed	

¹ Property IDs should correspond to labeled properties in the Potential Receptor Map.

² For example, visual observation, personal contact, telephone, returned postcard, assumed (i.e., no postcard returned).

³ For example, domestic, industrial, municipal, livestock, lawn/gardening, irrigation.

Add additional rows as needed.

Notes:

Table 16
Water Supply Wells Located within 500 feet of the
Release Source and Municipal or Industrial Wells within ½ mile

Property ID ¹	MDH Unique Well Number	Ground Elevation	Total Depth (ft)	Base of Casing (ft)	Static Elevation	Aquifer	Use	Owner	Distance and Direction from Source (ft)
1	148770	1085	269	239	54	QBAA	Res.	Peris	0

¹ Property IDs should correspond to properties listed in Table 15 and labeled properties in the Potential Receptor Map if known or applicable.

Notes:

Table 17
Surface Water Receptor Information

Not Applicable

Table 18
Utility Receptor Information

Utility ID ¹	Description	Construction Material	Depth to Top of Structure	Diameter	Flow Direction (for liquids)	Year Installed	Backfill Material	Distance to Water Table
1	LP Yard Line	Copper	Unknown	¼ Inch	East	Unknown	Native	Unknown (12-18 inches bsg)
2	Electrical	Copper	Over head		NA	Unknown	NA	NA

¹ ID should correspond to an identified utility line on the Potential Receptor Map.
Notes: All utility information is base upon visual observations while on site.

Utility ID ¹	Name, title, and telephone number for public entity contacted to obtain information or other source of information

¹ IDs should correspond to the same IDs in the above table.
Notes:

Table 19
Vapor Survey Results

Location ID ¹	Description ²	Monitoring Date	PID Reading (ppm)	Percent of the LEL ³
1	Entry	01/06/09	0.8	0.0%
		12/20/12	0.0	0.0%
2	Bathroom	01/06/09	0.9	0.0%
		12/20/12	0.0	0.0%
3	Kitchen	01/06/09	0.8	0.0%
		12/20/12	0.0	0/0%
4	Living Room	01/06/09	0.7	0.0%
		12/20/12	0.0	0/0%
5	Front Entry	01/06/09	0.8	0.0%
		12/20/12	0.0	0/0%
6	Office	01/06/09	0.8	0.0%
		12/20/12	0.0	0/0%
7	Living Room #2	01/06/09	0.8	0.0%
		12/20/12	0.0	0/0%
8	Basement Main	01/06/09	0.9	0.0%
		12/20/12	0.0	0/0%
9	Basement Sump	01/06/09	0.8	0.0%
		12/20/12	0.0	0/0%
10	Electrical Room	01/06/09	1.2	0.0%
		12/20/12	0.0	0/0%
11	Former Tank Room	01/06/09	0.8	0.0%
		12/20/12	0/0	0/0%

¹ Location IDs must match labeled locations on the Vapor Survey Map.

² Provide a brief description of the monitoring point (e.g., sump, basement corner, sanitary sewer manhole, storm sewer basin, etc.).

³ LEL = Lower Explosive Limit.

Notes:

PID surveys were completed during the emergency response phase, but no records can be found.

Table 20
Results of Soil Gas Sampling for Vapor Intrusion Screening¹

Sample ID ²	VS-1		VS-2		VIA-1		Oschendorf-Sub1		Basis				
	1/6/2009		1/6/2009		12/20/2012		6/7/2013						
	Ambient		Ambient		5 Feet		4" (sub-slab)						
Date	Depth (feet)	PFD (ppm)	Report Limit	Result	Lab Note	Report Limit	Result	Lab Note	Report Limit	Result	Lab Note	Intrusion Screening Value ³	
													0.0
Acetone	44.4	0.64	45.0	n/a		18.7	18.50	CH, L1, SS	6.4	18.50		31,000	NC
Benzene	n/a	0.87	n/a	n/a		n/a	2.10		4.4	0.44		4.5	C
Bromodichloromethane	n/a	1.9	n/a	n/a		n/a	n/a		18.2	1.8		NA	C
Bromoform	n/a	2.8	n/a	n/a		n/a	n/a		28.1	2.8		9	C
Bromomethane (Methyl bromide)	n/a	1.1	n/a	n/a		n/a	n/a		10.6	1.1		5	NC
1,3-Butadiene	n/a	0.6	n/a	n/a		n/a	n/a		6	0.6		0.3	C
2-Butanone (Methyl ethyl ketone, MEK)	3.6	0.8	1.3	n/a		n/a	4.10		8	0.8		5,000	NC
Carbon disulfide	n/a	0.84	n/a	n/a		n/a	0.86		8.4	0.84		700	NC
Carbon tetrachloride	n/a	1.7	n/a	n/a		n/a	n/a		8.6	0.86		0.7	C
Chlorobenzene	n/a	1.3	n/a	n/a		n/a	n/a		12.6	1.3		50	NC
Chloroethane (Ethyl chloride)	n/a	0.72	n/a	n/a		n/a	n/a		7.2	0.72		10,000	NC
Chloroform	n/a	1.3	n/a	n/a		n/a	n/a		13.3	1.3		100	NC
Chloromethane (Methyl chloride)	0.9	0.56	0.9	n/a		n/a	n/a		5.6	0.56		90	NC
Cyclohexane	n/a	0.91	n/a	n/a		n/a	1.80		9.4	0.94		6,000	NC
Dibromochloromethane	n/a	2.3	n/a	n/a		n/a	n/a		23.2	2.3		NA	C
1,2-Dibromoethane (Ethylene dibromide)	n/a	2.1	n/a	n/a		n/a	n/a		20.9	2.1		0.02	NC
1,2-Dichlorobenzene	n/a	1.6	n/a	n/a		n/a	n/a		16.3	1.6		200	NC
1,3-Dichlorobenzene	n/a	1.6	n/a	n/a		n/a	n/a		16.3	1.6		NA	NC
1,4-Dichlorobenzene	n/a	1.6	n/a	n/a		n/a	17.90		16.3	1.6		60	NC
Dichlorodifluoromethane (Freon 12)	2.4	1.3	n/a	n/a		n/a	1.90		13.5	1.4		200	NC
1,1-Dichloroethane	n/a	1.1	n/a	n/a		n/a	n/a		11	1.1		500	NC
1,2-Dichloroethane	n/a	1.1	n/a	n/a		n/a	n/a		5.5	0.55		0.4	C
1,1,1-Dichloroethane (DCE)	n/a	1.1	n/a	n/a		n/a	n/a		10.9	1.1		200	NC
cis-1,2-Dichloroethane	n/a	1.1	n/a	n/a		n/a	n/a		10.9	1.1		NA	NC
trans-1,2-Dichloroethane	n/a	1.1	n/a	n/a		n/a	n/a		10.9	1.1		60	NC
1,2-Dichloropropane	n/a	1.3	n/a	n/a		n/a	n/a		12.6	1.3		4	NC
cis-1,3-Dichloropropene*	n/a	1.2	n/a	n/a		n/a	n/a		12.3	1.2		20	NC
trans-1,3-Dichloropropene*	n/a	1.2	n/a	n/a		n/a	n/a		12.3	1.2		20	NC
Dichlorotetrafluoroethane	n/a	1.9	n/a	n/a		n/a	n/a		19	1.9		NA	NC
Ethanol	1340.0	2.5	E, L1	994.0		60.4	n/a		5.1	0.51		15,000	NC
Ethyl acetate	n/a	0.98	n/a	n/a		n/a	n/a		9.8	0.98		3,000	NC
Ethylbenzene	2.5	1.2	2.0	n/a		n/a	3.80		11.8	1.2		1,000	NC
4-Ethyltoluene	3.7	3.4	n/a	n/a		n/a	5.30		13.4	1.3		NA	NC
n-Heptane	n/a	1.1	n/a	n/a		n/a	4.00		11.1	1.1		NA	NC
Hexachloro-1,3-butadiene	n/a	2.9	n/a	n/a		n/a	n/a		29.5	2.9		0.5	C
n-Hexane	7.7	0.96	8.9	n/a		n/a	2.80		9.6	0.96		2,000	NC
2-Hexanone	n/a	1.1	n/a	n/a		n/a	n/a		11.1	1.1		NA	NC
Methylene Chloride (Dichloromethane)	2.8	0.95	4.0	n/a		n/a	n/a		9.5	0.95		20	C
4-Methyl-2-pentanone (MIBK)	n/a	1.1	7.5	n/a		n/a	n/a		11.1	1.1		3,000	NC
Methyl-tert-butyl ether (MTBE)	n/a	0.98	n/a	n/a		n/a	n/a		9.8	0.98		3,000	NC

	n/a	3.6	E, IC	4.0	3.6	L1	n/a	14.3		n/a	1.4	9	NC
Naphthalene	n/a	3.6	E, IC	4.0	3.6	L1	n/a	14.3		n/a	1.4	9	NC
2-Propanol (Isopropyl alcohol)	558.0	3.4	E, IC	556.0	3.4	E, IC	n/a	6.7		n/a	0.67	7,000	NC
Propylene (Methylethylene)	n/a	0.47		n/a	0.47		n/a	4.7		n/a	0.47	3,000	NC
Styrene	n/a	1.2		n/a	1.2		n/a	11.7		4.90	1.2	1,000	NC
1,1,2,2-Tetrachloroethane	n/a	1.9		n/a	1.9		n/a	9.4		n/a	0.94	0.2	C
Tetrachloroethylene (PCE)	n/a	1.9		n/a	1.9		n/a	9.2		n/a	n/a	20	C
Tetrahydrofuran	n/a	0.8		n/a	0.8		n/a	8		n/a	0.8	NA	NC
Toluene (Methylbenzene)	4.6	1		6.5	1		17.3	10.3		18.50	1	5,000	NC
1,2,4-Trichlorobenzene	n/a	1.3		n/a	1.3		n/a	20.2		n/a	2.1	4	NC
1,1,1-Trichloroethane (Methyl chloroform)	n/a	1.5		n/a	1.5		n/a	14.9		n/a	1.5	5,000	NC
1,1,2-Trichloroethane	n/a	1.5		n/a	1.5		n/a	7.4		n/a	0.74	0.6	C
Trichloroethylene (TCE)	n/a	1.5		n/a	1.5		n/a	7.4		n/a	0.74	3	C
Trichlorofluoromethane (Freon 11)	n/a	1.5		n/a	1.5		n/a	15.3		n/a	1.5	700	NC
1,1,2-Trichlorotrifluoroethane (CFC-113)	n/a	2.1		n/a	2.1		n/a	21.4		n/a	2.1	30,000	NC
1,2,4-Trimethylbenzene	15.2	3.4		12.4	3.4		22.8	13.4		9.40	1.3	7	NC
1,3,5-Trimethylbenzene	4.5	3.4		3.6	3.4		n/a	13.4		2.70	1.3	6	NC
Vinyl acetate	n/a	0.95		n/a	0.95		n/a	9.6		n/a	0.96	200	NC
Vinyl chloride	n/a	0.7		n/a	0.7		n/a	3.5		n/a	0.35	1	C
m&p-Xylene**	9.3	2.4		7.4	2.4		n/a	23.6		13.30	2.4	100	NC
o-Xylene**	4.6	1.2		3.8	1.2		n/a	11.8		5.10	1.2	100	NC

¹ Report results in µg/m³.

² Sample IDs should correspond to labeled locations on the Vapor Intrusion Assessment Map.

³ The Intrusion Screening Values can be found in Guidance Document 4-01a Vapor Intrusion Assessments Performed during Site Investigations.

Notes:

Basis: C = based on carcinogenicity; NC = based on noncancer health effects

D6 = The relative percent difference between sample and sample duplicate exceeded lab control limits

E = Analyte concentration exceeded the calibration range. Result is estimated.

IC = The initial calibration for this compound was outside of method control limits. The result is estimated

L3 = Analyte recovery in the laboratory control sample exceeded QC limits. Analyte presence below reporting limits in associated samples. Results unaffected by high bias

L1 = Analyte recovery in the laboratory control sample was above QC limits. Results may be biased high.

CH = The continuing calibration for this compound is outside Pace acceptance limits. The results may be biased high.

SS = This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimate.

Section 6: Appendices

Attach all required or applicable appendices in the following order. Indicate those appendices that are included in this report by marking the check box. The appendix section of the report contains sufficient information to document all activities completed since the last report. All reproduced data must be legible. Reports missing required documentation are subject to rejection.

- Appendix A* Copies of most recent laboratory analytical reports for Soil, Soil Gas/Sub-slab Vapor/Indoor Air/Ambient Air, and Ground Water samples, including a copy of the Chain of Custody. Include laboratory QA/QC data, Chromatograms, and MDH laboratory certification number.
- Appendix B* Methodologies and Procedures, Including Field Screening of Soil, Other Field Analyses, Soil Boring, Soil Sampling, Soil Gas/Sub-Slab/Indoor air/Ambient Air Sampling, Well Installation, and Water Sampling.
- Appendix C* Geologic Logs of Additional Soil Borings and Wells Installed. Include Well Construction Diagrams and Copies of the Minnesota Department of Health Well Record for new wells.
- Appendix D* Field or sampling data sheets (sampling forms, field crew notes, etc.).
- Appendix E* Guidance Document 1-03a *Spatial Data Reporting Form* (if not previously submitted or new site features need to be reported).
- Appendix F* Guidance Document 2-05 *Release Information Worksheet* (if not previously submitted).
- Appendix G* Guidance Document 4-19 *Conceptual Corrective Action Design Worksheet*.

Web pages and phone numbers

MPCA staff	http://www.pca.state.mn.us/pca/staff/index.cfm
MPCA toll free	1-800-657-3864
Petroleum Remediation Program web page	http://www.pca.state.mn.us/programs/lust_p.html
MPCA Info. Request	http://www.pca.state.mn.us/about/inforequest.html
MPCA VIC program	http://www.pca.state.mn.us/cleanup/vic.html
MPCA Petroleum Brownfields Program	http://www.pca.state.mn.us/programs/vpic_p.html
MPCA SRS guidance documents	http://www.pca.state.mn.us/cleanup/riskbasedoc.html http://www.pca.state.mn.us/cleanup/riskbasedoc.html#surfacewaterpathway
MDH HRLs	http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html
MDH DW hotline	1-800-818-9318
Petrofund Web Page	http://www.state.mn.us/cgi-bin/portal/mn/jsp/content.do?id=-536881377&agency=Commerce
Petrofund Phone	651-215-1775 or 1-800-638-0418
State Duty Officer	651-649-5451 or 1-800-422-0798

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FIGURE 1

Site Location Map

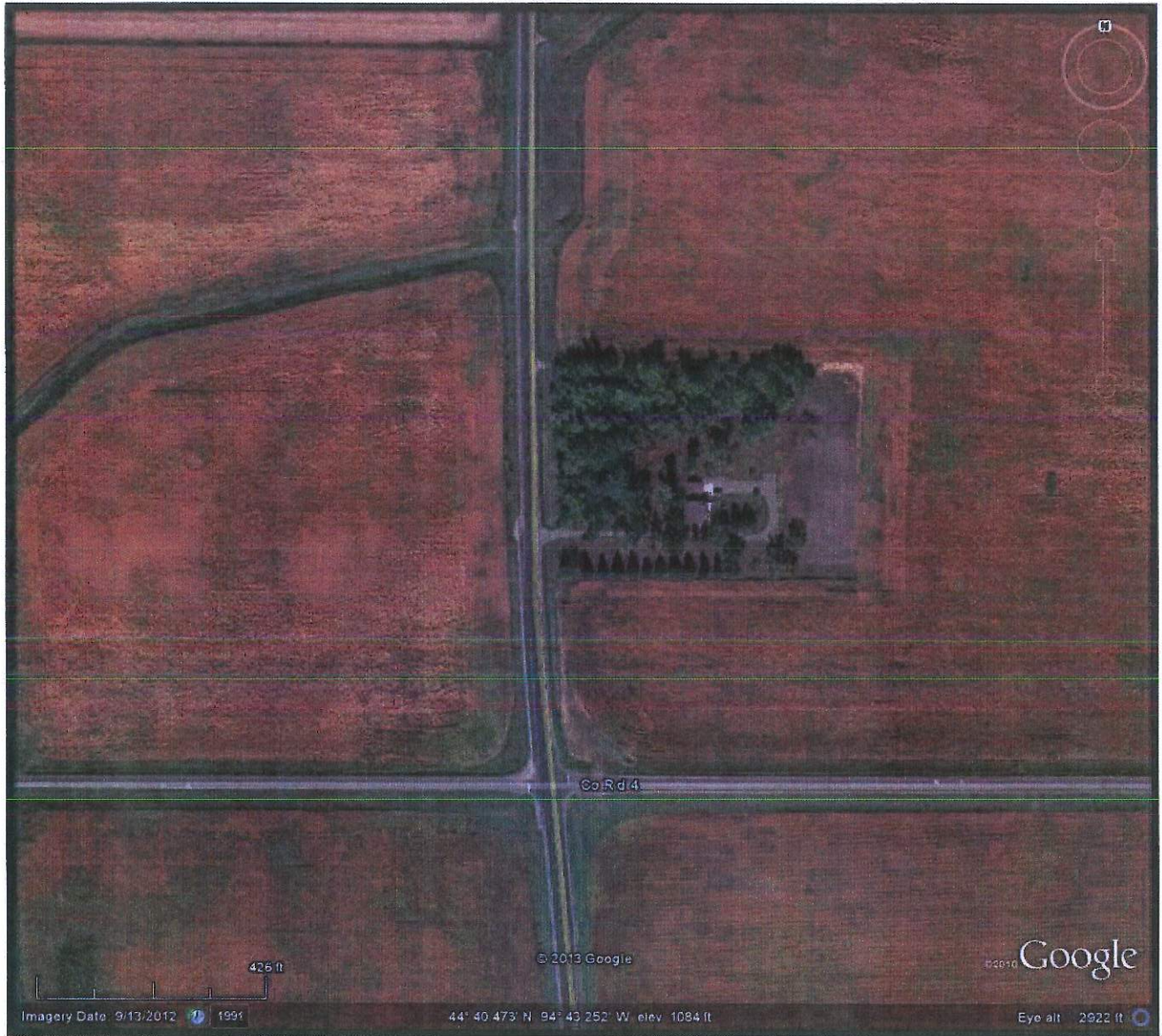


FIGURE 2

Detailed Site Map

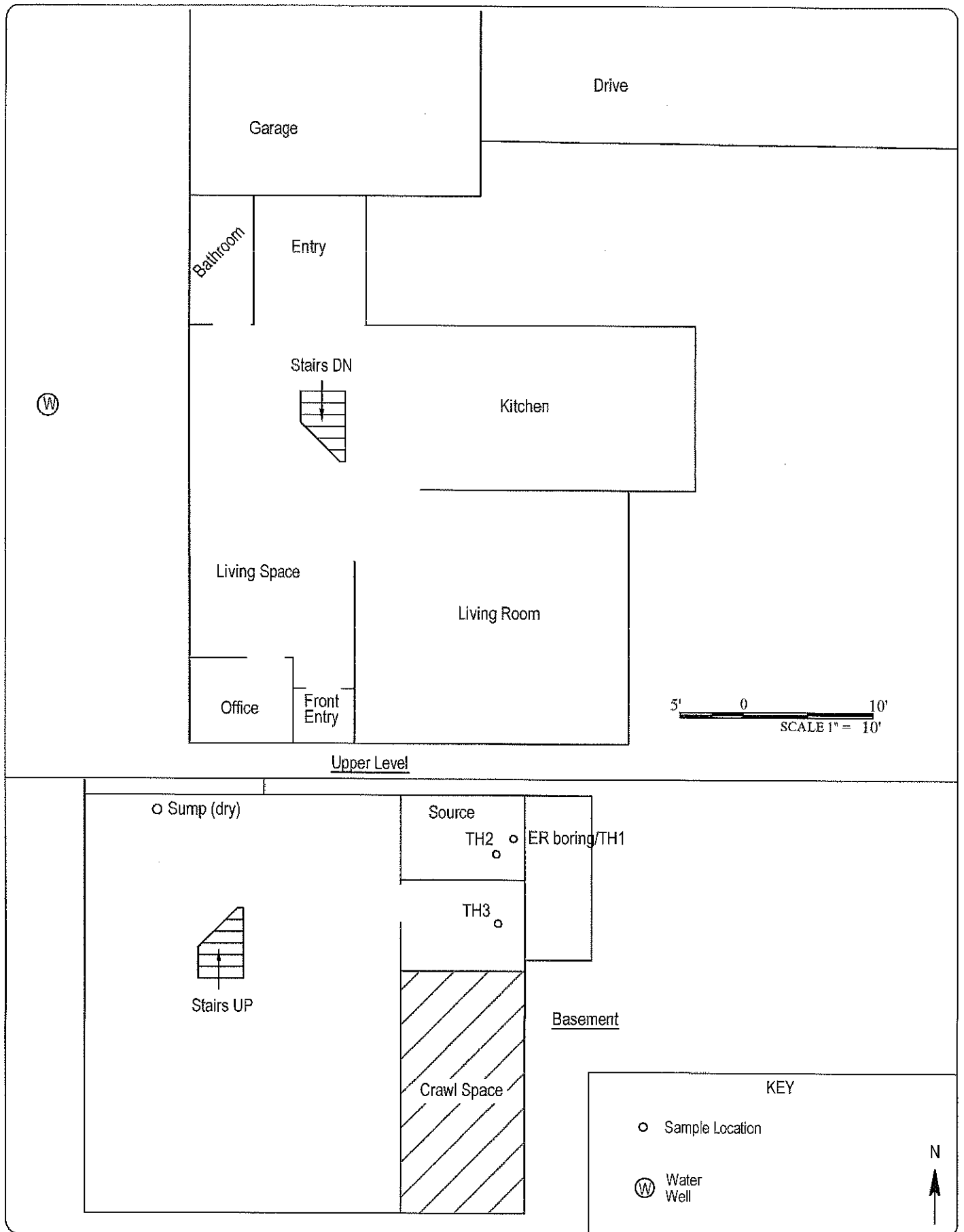


FIGURE 3

Groundwater Contour Maps

Not Applicable

FIGURE 4

Hydrograph(s)

Not applicable

FIGURE 5

Potential Receptor and Well Receptor Map

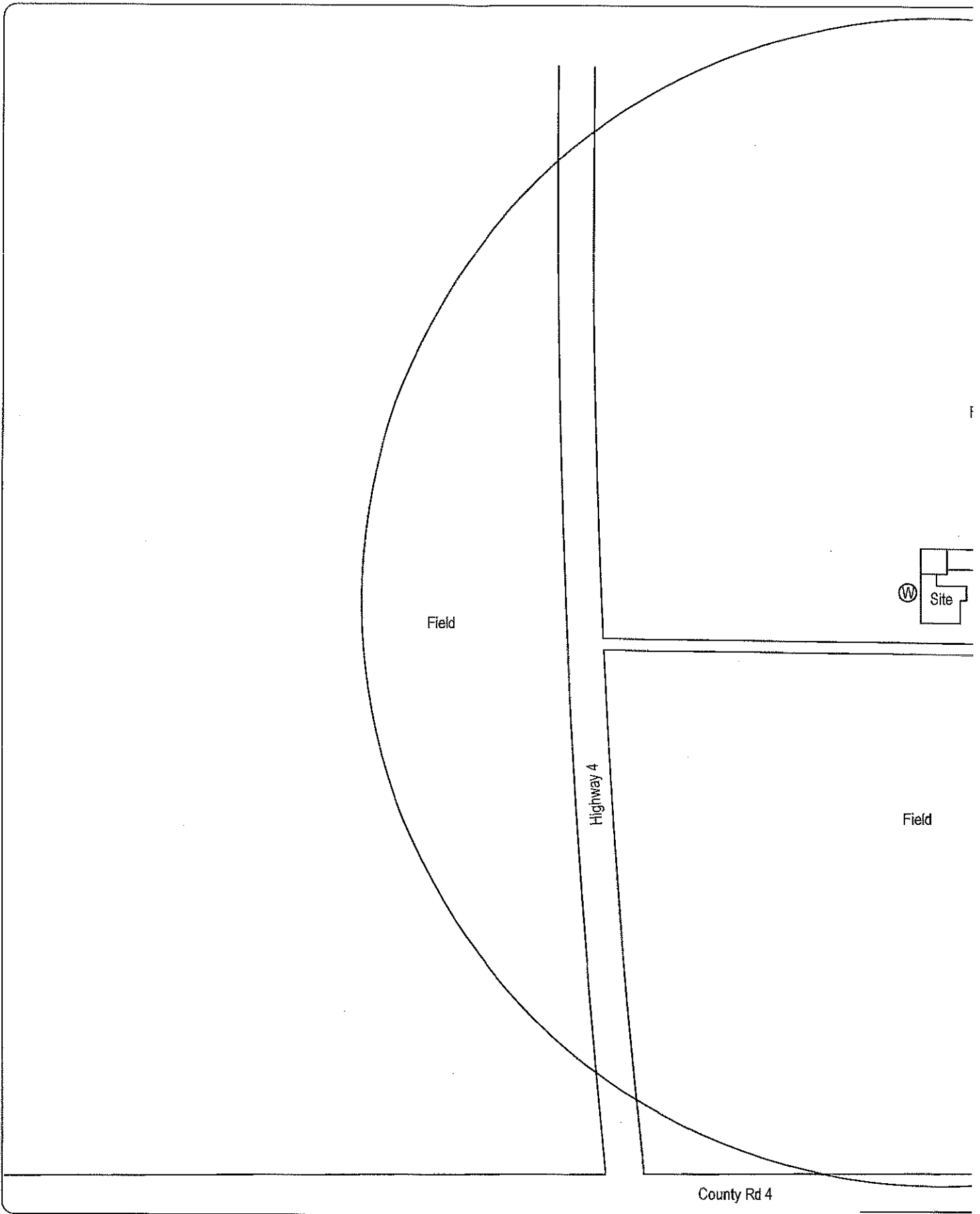


FIGURE 6

Vapor Survey Map

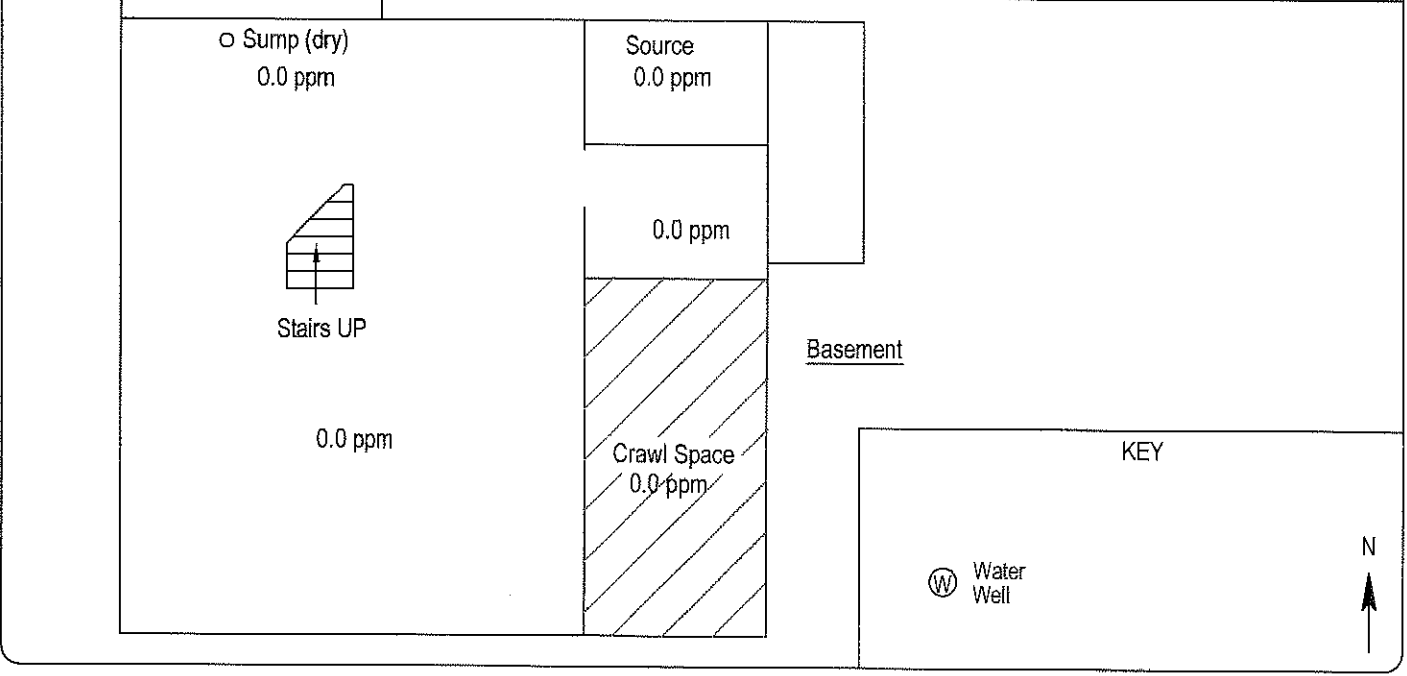
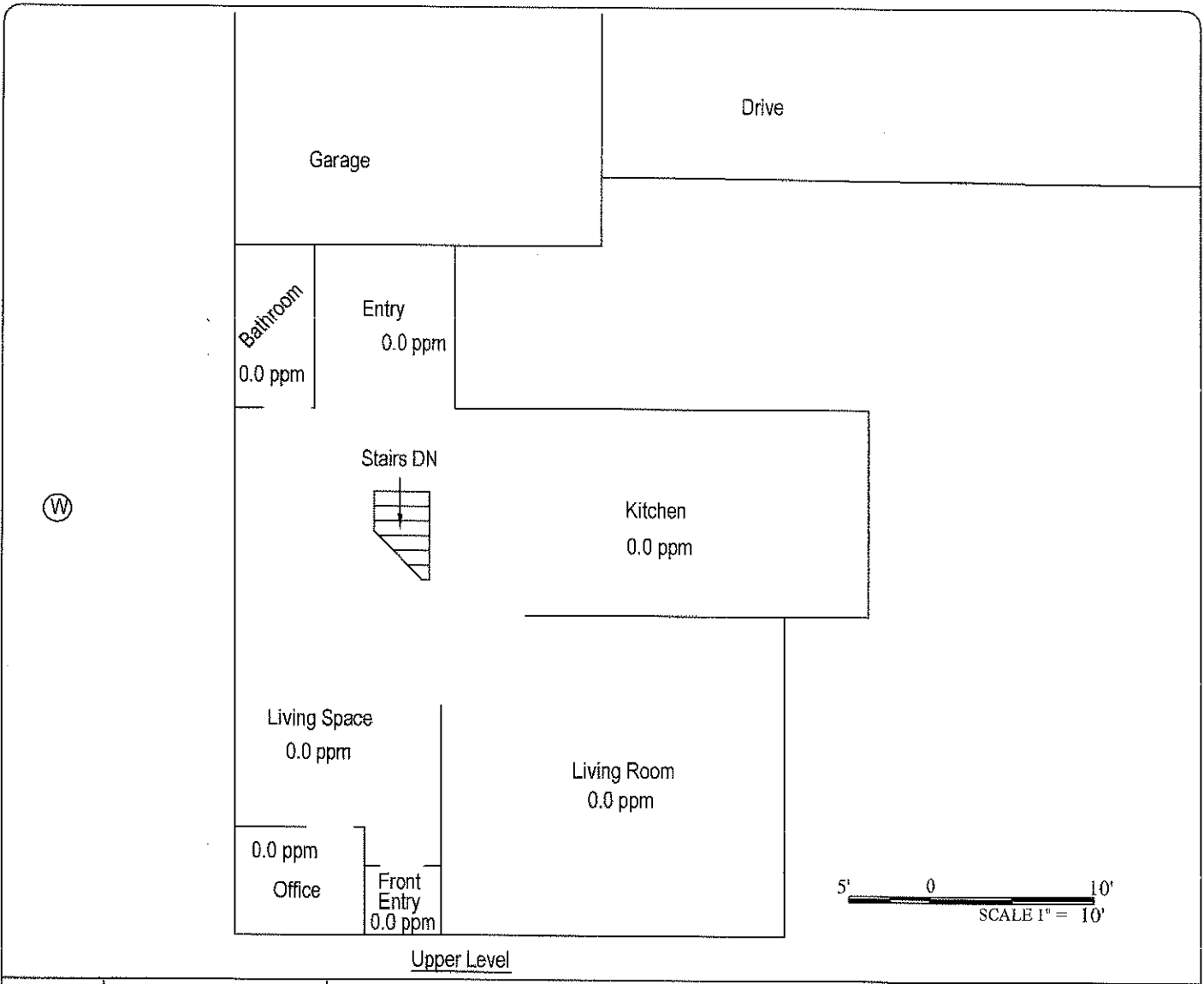
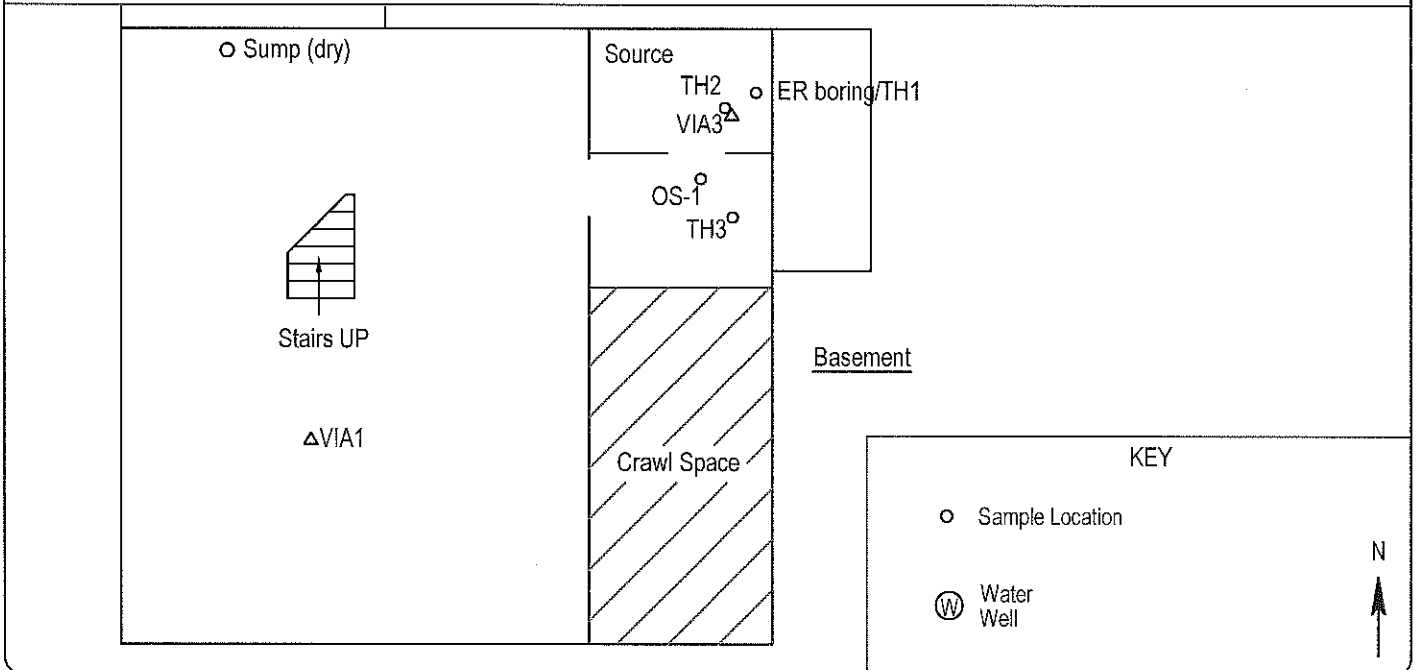
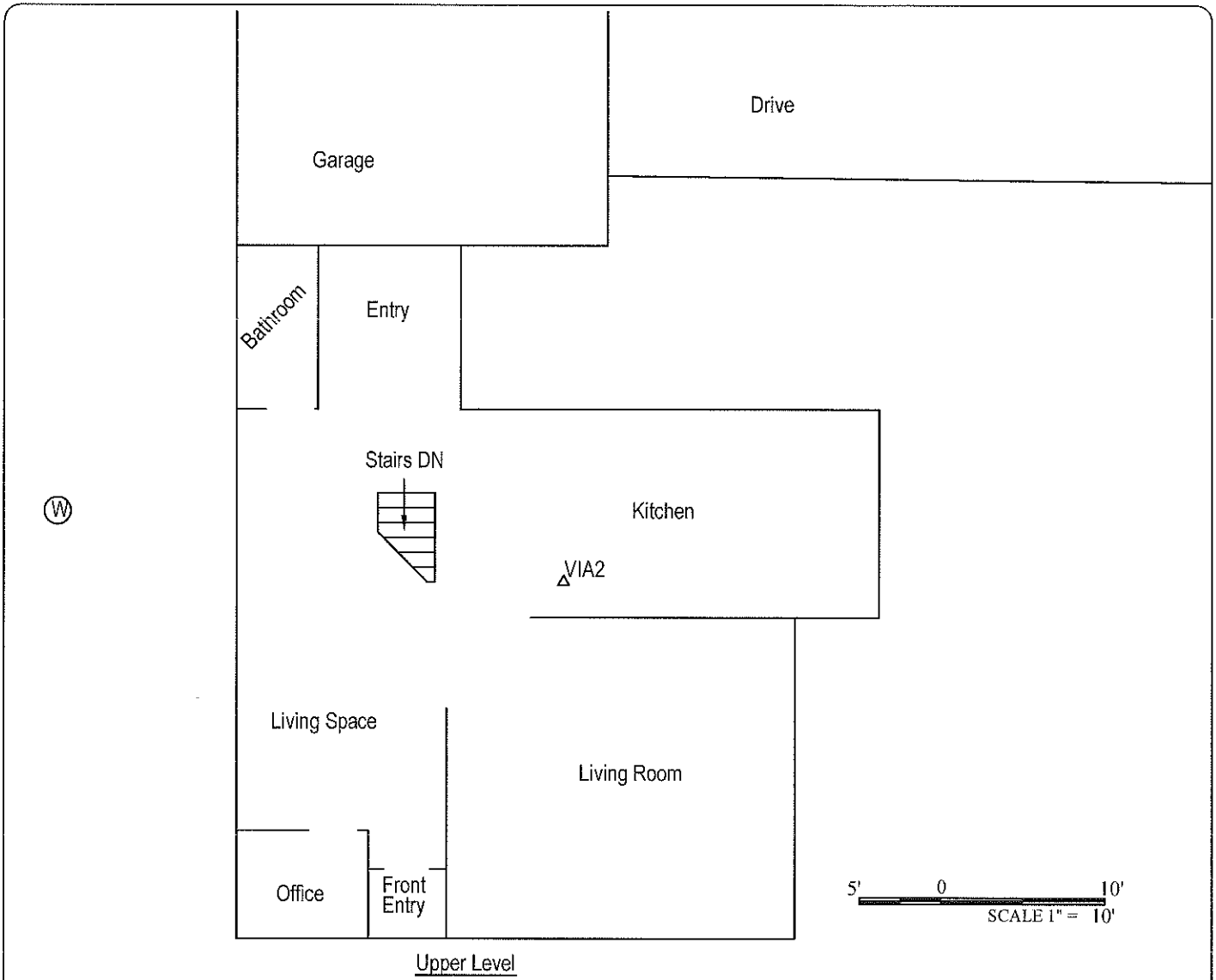


FIGURE 7

Vapor Intrusion Assessment Map



APPENDIX A

Laboratory Analytical Reports

June 26, 2013

Mr. Matt Johnson
West Central Env. Consultants
14 Green River Road
Morris, MN 56267

RE: Project: 9309 Ochsendorf
Pace Project No.: 10231752

Dear Mr. Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on June 11, 2013. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,



Diane J. Anderson

diane.anderson@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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CERTIFICATIONS

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
EPA Region 8 Certification #: Pace
Florida/NELAP Certification #: E87605
Georgia Certification #: 959
Hawaii Certification #Pace
Idaho Certification #: MN00064
Illinois Certification #: 200011
Kansas Certification #: E-10167
Louisiana Certification #: 03086
Louisiana Certification #: LA080009
Maine Certification #: 2007029
Maryland Certification #: 322
Michigan DEQ Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace

Montana Certification #: MT CERT0092
Nevada Certification #: MN_00064
Nebraska Certification #: Pace
New Jersey Certification #: MN-002
New York Certification #: 11647
North Carolina Certification #: 530
North Dakota Certification #: R-036
North Dakota Certification #: R-036A
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Tennessee Certification #: 02818
Texas Certification #: T104704192
Utah Certification #: MN00064
Virginia/DCLS Certification #: 002521
Virginia/VELAP Certification #: 460163
Washington Certification #: C754
West Virginia Certification #: 382
Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10231752001	Ochsendorf-Sub1-6/7/13	Air	06/07/13 12:55	06/11/13 12:55

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10231752001	Ochsendorf-Sub1-6/7/13	TO-15	DR1	61

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Method: TO-15
Description: TO15 MSV AIR
Client: WCEC
Date: June 26, 2013

General Information:

1 sample was analyzed for TO-15. All samples were received in acceptable condition with any exceptions noted below.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Sample Comments:

K3: The Total Hydrocarbon (THC) pattern is evenly distributed throughout the chromatogram (before and after toluene).

- Ochsendorf-Sub1-6/7/13 (Lab ID: 10231752001)

Sample was originally analyzed within the recommended holding time of 14 days per MPCA Guidance Document 4-01a. Due to QC failures, the samples was re-analyzed and reported outside of the 14 day hold time, within the EPA method TO-15 recommended holding time of 30 days.

- Ochsendorf-Sub1-6/7/13 (Lab ID: 10231752001)

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Sample: Ochsendorf-Sub1-6/7/13 Lab ID: 10231752001 Collected: 06/07/13 12:55 Received: 06/11/13 12:55 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	18.5	ug/m3	0.64	1.34		06/23/13 13:23	67-64-1	
Benzene	2.1	ug/m3	0.44	1.34		06/23/13 13:23	71-43-2	
Benzyl chloride	ND	ug/m3	1.4	1.34		06/23/13 13:23	100-44-7	
Bromodichloromethane	ND	ug/m3	1.8	1.34		06/23/13 13:23	75-27-4	
Bromoform	ND	ug/m3	2.8	1.34		06/23/13 13:23	75-25-2	
Bromomethane	ND	ug/m3	1.1	1.34		06/23/13 13:23	74-83-9	
1,3-Butadiene	ND	ug/m3	0.60	1.34		06/23/13 13:23	106-99-0	
2-Butanone (MEK)	4.1	ug/m3	0.80	1.34		06/23/13 13:23	78-93-3	
Carbon disulfide	0.86	ug/m3	0.84	1.34		06/23/13 13:23	75-15-0	
Carbon tetrachloride	ND	ug/m3	0.86	1.34		06/23/13 13:23	56-23-5	
Chlorobenzene	ND	ug/m3	1.3	1.34		06/23/13 13:23	108-90-7	
Chloroethane	ND	ug/m3	0.72	1.34		06/23/13 13:23	75-00-3	
Chloroform	ND	ug/m3	1.3	1.34		06/23/13 13:23	67-66-3	
Chloromethane	ND	ug/m3	0.56	1.34		06/23/13 13:23	74-87-3	
Cyclohexane	1.8	ug/m3	0.94	1.34		06/23/13 13:23	110-82-7	
Dibromochloromethane	ND	ug/m3	2.3	1.34		06/23/13 13:23	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	2.1	1.34		06/23/13 13:23	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	1.6	1.34		06/23/13 13:23	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	1.6	1.34		06/23/13 13:23	541-73-1	
1,4-Dichlorobenzene	17.9	ug/m3	1.6	1.34		06/23/13 13:23	106-46-7	
Dichlorodifluoromethane	1.9	ug/m3	1.4	1.34		06/23/13 13:23	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.1	1.34		06/23/13 13:23	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.55	1.34		06/23/13 13:23	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.1	1.34		06/23/13 13:23	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.1	1.34		06/23/13 13:23	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.1	1.34		06/23/13 13:23	156-60-5	
1,2-Dichloropropane	ND	ug/m3	1.3	1.34		06/23/13 13:23	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.2	1.34		06/23/13 13:23	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.2	1.34		06/23/13 13:23	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	1.9	1.34		06/23/13 13:23	76-14-2	
Ethanol	ND	ug/m3	0.51	1.34		06/23/13 13:23	64-17-5	
Ethyl acetate	ND	ug/m3	0.98	1.34		06/23/13 13:23	141-78-6	
Ethylbenzene	3.8	ug/m3	1.2	1.34		06/23/13 13:23	100-41-4	
4-Ethyltoluene	5.3	ug/m3	1.3	1.34		06/23/13 13:23	622-96-8	
n-Heptane	4.0	ug/m3	1.1	1.34		06/23/13 13:23	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	2.9	1.34		06/23/13 13:23	87-68-3	
n-Hexane	2.8	ug/m3	0.96	1.34		06/23/13 13:23	110-54-3	
2-Hexanone	ND	ug/m3	1.1	1.34		06/23/13 13:23	591-78-6	
Methylene Chloride	ND	ug/m3	0.95	1.34		06/23/13 13:23	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/m3	1.1	1.34		06/23/13 13:23	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	0.98	1.34		06/23/13 13:23	1634-04-4	
Naphthalene	ND	ug/m3	1.4	1.34		06/23/13 13:23	91-20-3	
2-Propanol	ND	ug/m3	0.67	1.34		06/23/13 13:23	67-63-0	
Propylene	ND	ug/m3	0.47	1.34		06/23/13 13:23	115-07-1	
Styrene	4.9	ug/m3	1.2	1.34		06/23/13 13:23	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	0.94	1.34		06/23/13 13:23	79-34-5	
Tetrachloroethene	ND	ug/m3	0.92	1.34		06/23/13 13:23	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Sample: Ochsendorf-Sub1-6/7/13 Lab ID: 10231752001 Collected: 06/07/13 12:55 Received: 06/11/13 12:55 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Tetrahydrofuran	ND	ug/m3	0.80	1.34		06/23/13 13:23	109-99-9	
Toluene	18.5	ug/m3	1.0	1.34		06/23/13 13:23	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	2.0	1.34		06/23/13 13:23	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	1.5	1.34		06/23/13 13:23	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	0.74	1.34		06/23/13 13:23	79-00-5	
Trichloroethene	ND	ug/m3	0.74	1.34		06/23/13 13:23	79-01-6	
Trichlorofluoromethane	ND	ug/m3	1.5	1.34		06/23/13 13:23	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	2.1	1.34		06/23/13 13:23	76-13-1	
1,2,4-Trimethylbenzene	9.4	ug/m3	1.3	1.34		06/23/13 13:23	95-63-6	
1,3,5-Trimethylbenzene	2.7	ug/m3	1.3	1.34		06/23/13 13:23	108-67-8	
Vinyl acetate	ND	ug/m3	0.96	1.34		06/23/13 13:23	108-05-4	
Vinyl chloride	ND	ug/m3	0.35	1.34		06/23/13 13:23	75-01-4	
m&p-Xylene	13.3	ug/m3	2.4	1.34		06/23/13 13:23	179601-23-1	
o-Xylene	5.1	ug/m3	1.2	1.34		06/23/13 13:23	95-47-6	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Ochsendorf

Pace Project No.: 10231752

QC Batch: AIR/17635

Analysis Method: TO-15

QC Batch Method: TO-15

Analysis Description: TO15 MSV AIR Low Level

Associated Lab Samples: 10231752001

METHOD BLANK: 1463658

Matrix: Air

Associated Lab Samples: 10231752001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	1.1	06/23/13 10:41	
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.70	06/23/13 10:41	
1,1,2-Trichloroethane	ug/m3	ND	0.55	06/23/13 10:41	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	1.6	06/23/13 10:41	
1,1-Dichloroethane	ug/m3	ND	0.82	06/23/13 10:41	
1,1-Dichloroethene	ug/m3	ND	0.81	06/23/13 10:41	
1,2,4-Trichlorobenzene	ug/m3	ND	1.5	06/23/13 10:41	
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	06/23/13 10:41	
1,2-Dibromoethane (EDB)	ug/m3	ND	1.6	06/23/13 10:41	
1,2-Dichlorobenzene	ug/m3	ND	1.2	06/23/13 10:41	
1,2-Dichloroethane	ug/m3	ND	0.41	06/23/13 10:41	
1,2-Dichloropropane	ug/m3	ND	0.94	06/23/13 10:41	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	06/23/13 10:41	
1,3-Butadiene	ug/m3	ND	0.45	06/23/13 10:41	
1,3-Dichlorobenzene	ug/m3	ND	1.2	06/23/13 10:41	
1,4-Dichlorobenzene	ug/m3	ND	1.2	06/23/13 10:41	
2-Butanone (MEK)	ug/m3	ND	0.60	06/23/13 10:41	
2-Hexanone	ug/m3	ND	0.83	06/23/13 10:41	
2-Propanol	ug/m3	ND	0.50	06/23/13 10:41	
4-Ethyltoluene	ug/m3	ND	1.0	06/23/13 10:41	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	0.83	06/23/13 10:41	
Acetone	ug/m3	ND	0.48	06/23/13 10:41	
Benzene	ug/m3	ND	0.32	06/23/13 10:41	
Benzyl chloride	ug/m3	ND	1.0	06/23/13 10:41	
Bromodichloromethane	ug/m3	ND	1.4	06/23/13 10:41	
Bromoform	ug/m3	ND	2.1	06/23/13 10:41	
Bromomethane	ug/m3	ND	0.79	06/23/13 10:41	
Carbon disulfide	ug/m3	ND	0.63	06/23/13 10:41	
Carbon tetrachloride	ug/m3	ND	0.64	06/23/13 10:41	
Chlorobenzene	ug/m3	ND	0.94	06/23/13 10:41	
Chloroethane	ug/m3	ND	0.54	06/23/13 10:41	
Chloroform	ug/m3	ND	0.99	06/23/13 10:41	
Chloromethane	ug/m3	ND	0.42	06/23/13 10:41	
cis-1,2-Dichloroethene	ug/m3	ND	0.81	06/23/13 10:41	
cis-1,3-Dichloropropene	ug/m3	ND	0.92	06/23/13 10:41	
Cyclohexane	ug/m3	ND	0.70	06/23/13 10:41	
Dibromochloromethane	ug/m3	ND	1.7	06/23/13 10:41	
Dichlorodifluoromethane	ug/m3	ND	1.0	06/23/13 10:41	
Dichlorotetrafluoroethane	ug/m3	ND	1.4	06/23/13 10:41	
Ethanol	ug/m3	ND	0.38	06/23/13 10:41	
Ethyl acetate	ug/m3	ND	0.73	06/23/13 10:41	
Ethylbenzene	ug/m3	ND	0.88	06/23/13 10:41	
Hexachloro-1,3-butadiene	ug/m3	ND	2.2	06/23/13 10:41	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Ochsendorf
Pace Project No.: 10231752

METHOD BLANK: 1463658 Matrix: Air

Associated Lab Samples: 10231752001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/m3	ND	1.8	06/23/13 10:41	
Methyl-tert-butyl ether	ug/m3	ND	0.73	06/23/13 10:41	
Methylene Chloride	ug/m3	ND	0.71	06/23/13 10:41	
n-Heptane	ug/m3	ND	0.83	06/23/13 10:41	
n-Hexane	ug/m3	ND	0.72	06/23/13 10:41	
Naphthalene	ug/m3	ND	1.1	06/23/13 10:41	
o-Xylene	ug/m3	ND	0.88	06/23/13 10:41	
Propylene	ug/m3	ND	0.35	06/23/13 10:41	
Styrene	ug/m3	ND	0.87	06/23/13 10:41	
Tetrachloroethene	ug/m3	ND	0.69	06/23/13 10:41	
Tetrahydrofuran	ug/m3	ND	0.60	06/23/13 10:41	
Toluene	ug/m3	ND	0.77	06/23/13 10:41	
trans-1,2-Dichloroethene	ug/m3	ND	0.81	06/23/13 10:41	
trans-1,3-Dichloropropene	ug/m3	ND	0.92	06/23/13 10:41	
Trichloroethene	ug/m3	ND	0.55	06/23/13 10:41	
Trichlorofluoromethane	ug/m3	ND	1.1	06/23/13 10:41	
Vinyl acetate	ug/m3	ND	0.72	06/23/13 10:41	
Vinyl chloride	ug/m3	ND	0.26	06/23/13 10:41	

LABORATORY CONTROL SAMPLE: 1463659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	56.5	102	69-131	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	59.1	85	66-135	
1,1,2-Trichloroethane	ug/m3	55.5	49.3	89	68-132	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	59.8	77	65-130	
1,1-Dichloroethane	ug/m3	41.2	32.6	79	66-131	
1,1-Dichloroethene	ug/m3	40.3	31.6	78	64-136	
1,2,4-Trichlorobenzene	ug/m3	75.5	70.8	94	30-150	
1,2,4-Trimethylbenzene	ug/m3	50	46.6	93	71-135	
1,2-Dibromoethane (EDB)	ug/m3	78.1	82.4	105	72-132	
1,2-Dichlorobenzene	ug/m3	61.2	67.0	110	68-148	
1,2-Dichloroethane	ug/m3	41.2	39.9	97	66-136	
1,2-Dichloropropane	ug/m3	47	43.1	92	68-133	
1,3,5-Trimethylbenzene	ug/m3	50	54.2	108	69-136	
1,3-Butadiene	ug/m3	22.5	16.6	74	69-134	
1,3-Dichlorobenzene	ug/m3	61.2	67.2	110	70-134	
1,4-Dichlorobenzene	ug/m3	61.2	57.4	94	66-134	
2-Butanone (MEK)	ug/m3	30	25.5	85	69-141	
2-Hexanone	ug/m3	41.7	47.3	113	74-132	
2-Propanol	ug/m3	25	25.3	101	64-139	
4-Ethyltoluene	ug/m3	50	47.1	94	71-134	
4-Methyl-2-pentanone (MIBK)	ug/m3	41.7	43.6	105	74-131	
Acetone	ug/m3	24.2	17.0	70	62-142	
Benzene	ug/m3	32.5	30.9	95	72-136	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Ochsendorf
Pace Project No.: 10231752

LABORATORY CONTROL SAMPLE: 1463659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzyl chloride	ug/m3	52.5	55.8	106	70-134	
Bromodichloromethane	ug/m3	68.2	61.4	90	69-135	
Bromoform	ug/m3	105	98.4	94	72-133	
Bromomethane	ug/m3	39.5	29.1	74	65-125	
Carbon disulfide	ug/m3	31.7	23.3	74	68-127	
Carbon tetrachloride	ug/m3	64	70.0	109	64-133	
Chlorobenzene	ug/m3	46.8	45.6	97	65-135	
Chloroethane	ug/m3	26.8	19.5	73	63-129	
Chloroform	ug/m3	49.7	43.7	88	66-129	
Chloromethane	ug/m3	21	16.7	80	57-135	
cis-1,2-Dichloroethene	ug/m3	40.3	37.1	92	73-135	
cis-1,3-Dichloropropene	ug/m3	46.2	39.8	86	75-137	
Cyclohexane	ug/m3	35	39.8	114	73-139	
Dibromochloromethane	ug/m3	86.6	91.7	106	73-130	
Dichlorodifluoromethane	ug/m3	50.3	40.9	81	64-131	
Dichlorotetrafluoroethane	ug/m3	71.1	52.2	73	64-131	
Ethanol	ug/m3	19.2	19.2	100	62-134	
Ethyl acetate	ug/m3	36.6	42.1	115	73-136	
Ethylbenzene	ug/m3	44.2	52.1	118	74-136	
Hexachloro-1,3-butadiene	ug/m3	108	103	95	30-150	
m&p-Xylene	ug/m3	44.2	49.2	111	72-135	
Methyl-tert-butyl ether	ug/m3	36.7	37.5	102	71-134	
Methylene Chloride	ug/m3	35.3	32.3	91	59-140	
n-Heptane	ug/m3	41.7	48.6	117	73-136	
n-Hexane	ug/m3	35.8	30.5	85	67-136	
Naphthalene	ug/m3	53.3	49.4	93	30-150	
o-Xylene	ug/m3	44.2	48.3	109	74-135	
Propylene	ug/m3	17.5	17.3	99	66-138	
Styrene	ug/m3	43.3	39.6	91	73-135	
Tetrachloroethene	ug/m3	69	71.9	104	66-135	
Tetrahydrofuran	ug/m3	30	33.9	113	73-130	
Toluene	ug/m3	38.3	37.6	98	71-134	
trans-1,2-Dichloroethene	ug/m3	40.3	32.1	80	68-129	
trans-1,3-Dichloropropene	ug/m3	46.2	40.9	89	75-129	
Trichloroethene	ug/m3	54.6	58.2	106	68-134	
Trichlorofluoromethane	ug/m3	57.1	42.7	75	61-134	
Vinyl acetate	ug/m3	35.8	36.3	101	70-139	
Vinyl chloride	ug/m3	26	18.8	72	64-134	

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 9309 Ochsendorf

Pace Project No.: 10231752

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 10231752001

- [1] The Total Hydrocarbon (THC) pattern is evenly distributed throughout the chromatogram (before and after toluene).
- [2] Sample was originally analyzed within the recommended holding time of 14 days per MPCA Guidance Document 4-01a. Due to QC failures, the samples was re-analyzed and reported outside of the 14 day hold time, within the EPA method TO-15 recommended holding time of 30 days.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 9309 Ochsendorf
Pace Project No.: 10231752

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10231752001	Ochsendorf-Sub1-6/7/13	TO-15	AIR/17635		

REPORT OF LABORATORY ANALYSIS



AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10231752

Section A Required Client Information: Company: <u>WCEC</u> Address: <u>14 Green River Road, Moms MN, 56267</u> Email To: <u>johnsonm@wcec.com</u> Phone: <u>326-567-2031</u> Fax: <u>326-567-2034</u> Requested Due Date/TAT: _____		Section B Required Project Information: Report To: <u>Matt Johnson</u> Copy To: <u>clynch@wcec.com</u> Purchase Order No.: _____ Project Name: <u>Ochsendorf</u> Project Number: <u>9309</u>		Section C Invoice Information: Attention: <u>Diane Estenson</u> Company Name: <u>WCEC</u> Address: <u>14 Green River Road</u> Pace Quote Reference: _____ Pace Project Manager/Sales Rep: _____ Pace Profile #: _____	
Section D Required Client Information AIR SAMPLE ID Sample IDs MUST BE UNIQUE		Valid Media Codes MEDIA CODE Tedlar Bag TB 1 Liter Summa Can 1LC 6 Liter Summa Can 6LC Low Volume Puff LVP High Volume Puff HVP Other PM10			

11662

Page: 1 of 1

Program

UST Superfund Emissions Clean Air Act
 Voluntary Clean Up Dry Clean RCRA Other

Location of Sampling by State: MN
 Reporting Units: mg/m³
 PPMV PMW Other

Report Level: II. ___ III. ___ IV. ___ Other ___

ITEM #	Media Code	PID Reading (Client only)	COLLECTED		Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Method:	Pace Lab ID
			DATE	TIME						
1	6LC04	6/7/13	12:07	12:55	027	0	005086	329	PM10	001
2									3C - Fixed Gas (%)	
3									TO-3M (Methane)	
4									TO-4 (PCBS)	
5									TO-13 (PAH)	
6									TO-14	
7									TO-15	
8									TO-15 Short List	
9										
10										
11										
12										

REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS					
<u>Charlotte Mollen</u>	<u>6/10/13</u>	<u>11:30</u>	<u>Charlotte Mollen</u>	<u>6/13</u>	<u>11:00</u>	Received on Ice	Y/N	Custody Sealed Cooler	Y/N	Samples Intact	Y/N
			<u>John Johnson</u>	<u>6/13</u>	<u>12:55</u>		Y/N		Y/N		Y/N

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: Colin Lynch
 SIGNATURE of SAMPLER: Colin Lynch (DATE Signed (MM/DD/YY)) 6/7/13

ORIGINAL

WCEC
ENVIRONMENTAL CONSULTANTS

SHIPPING PAPERS

DATE: 6/10/13

FROM: West Central Environmental Consultants
14 Green River Road
Morris, MN 56267-0594

PHONE: 320-589-2039

TO: PACE ANALYTICAL SERVICES, INC.
1700 ELM STREET SE
SUITE 200
MINNEAPOLIS, MN 55414

PHONE: 612-607-6323

NOTE: CONTENTS ARE TEMPERATURE AND TIME SENSITIVE. IF COOLER IS COMPROMIZED, PLEASE SHIP TO PACE LISTED ABOVE.

SP00873203000477

SHIPPER UPC: SPEE DEE

9309

Air Sample Condition Upon Receipt

Client Name: WCEC

Project #:

WO#: 10231752



Courier: Fed Ex UPS USPS Client Commercial Pace Other: Spec Del

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No

Optional: Proj. Due Date: Proj. Name:

Packing Material: Bubble Wrap Bubble Bags Foam None Other: _____

Temp. (TO17 and TO13 samples only) (°C): 0000 Corrected Temp (°C): _____
Temp should be above freezing to 6°C Correction Factor: _____

Thermom. Used: B88A912167504 80512447 72337080
Date & Initials of Person Examining Contents: 8/6/11/13

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10. <u>FC11</u>
Media: <u>1 can 1 remnant for FC</u>		11. <u>as above</u>
Sample Labels Match COC?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
<u>Ochsendorf</u>	<u>Pace 0050</u>		<u>FC0488</u>		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____

Date/Time: _____

Comments/Resolution: _____

Project Manager Review:

DAI

Date: 6/11/13

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

Pace Analytical Services, Inc.

TENTATIVELY IDENTIFIED COMPOUNDS

Client Name:
 Lab Smp Id: 10231752001
 Operator : DR1
 Sample Location:
 Sample Matrix: AIR
 Analysis Type: VOA
 Inj Date: 23-JUN-2013 13:23

Client SDG: 062313.b
 Sample Date:
 Sample Point:
 Date Received:
 Level: LOW

Number TICs found: 10

CONCENTRATION UNITS:
 (ug/L or ug/KG) ppbv

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	2.887	40.0	J
2.	Unknown	3.241	0.938	J
3.	Unknown	8.580	1.54	J
4. 541-05-9	Cyclotrisiloxane, hexamethy	8.849	3.07	NJ
5. 7785-70-8	1R-.alpha.-Pinene	11.797	1.23	NJ
6. 556-67-2	Cyclotetrasiloxane, octamet	12.623	2.22	NJ
7. 138-86-3	Limonene	13.840	1.25	NJ
8.	Unknown	14.305	1.69	J
9. 1758-88-9	Benzene, 2-ethyl-1,4-dimeth	14.394	1.30	NJ
10. 1758-88-9	Benzene, 2-ethyl-1,4-dimeth	14.974	2.71	NJ

Pace Analytical Services, Inc.

TO15 Analysis (UNIX)

Data file : \\192.168.10.12\chem\10airD.i\062313.b\17411.d
 Lab Smp Id: 10231752001
 Inj Date : 23-JUN-2013 13:23
 Operator : DR1 Inst ID: 10airD.i
 Smp Info :
 Misc Info : 17635
 Comment : Volatile Organic COMPOUNDS in Air
 Method : \\192.168.10.12\chem\10airD.i\062313.b\TO15_172-13.m
 Meth Date : 24-Jun-2013 06:46 creindl Quant Type: ISTD
 Cal Date : 21-JUN-2013 20:15 Cal File: 17209.d
 Als bottle: 11
 Dil Factor: 1.34000
 Integrator: HP RTE Compound Sublist: all.sub
 Target Version: 4.14

Concentration Formula: Amt * DF * Uf * CpndVariable

Name	Value	Description
DF	1.340	Dilution Factor
Uf	1.000	ng unit correction factor
Cpnd Variable		Local Compound Variable

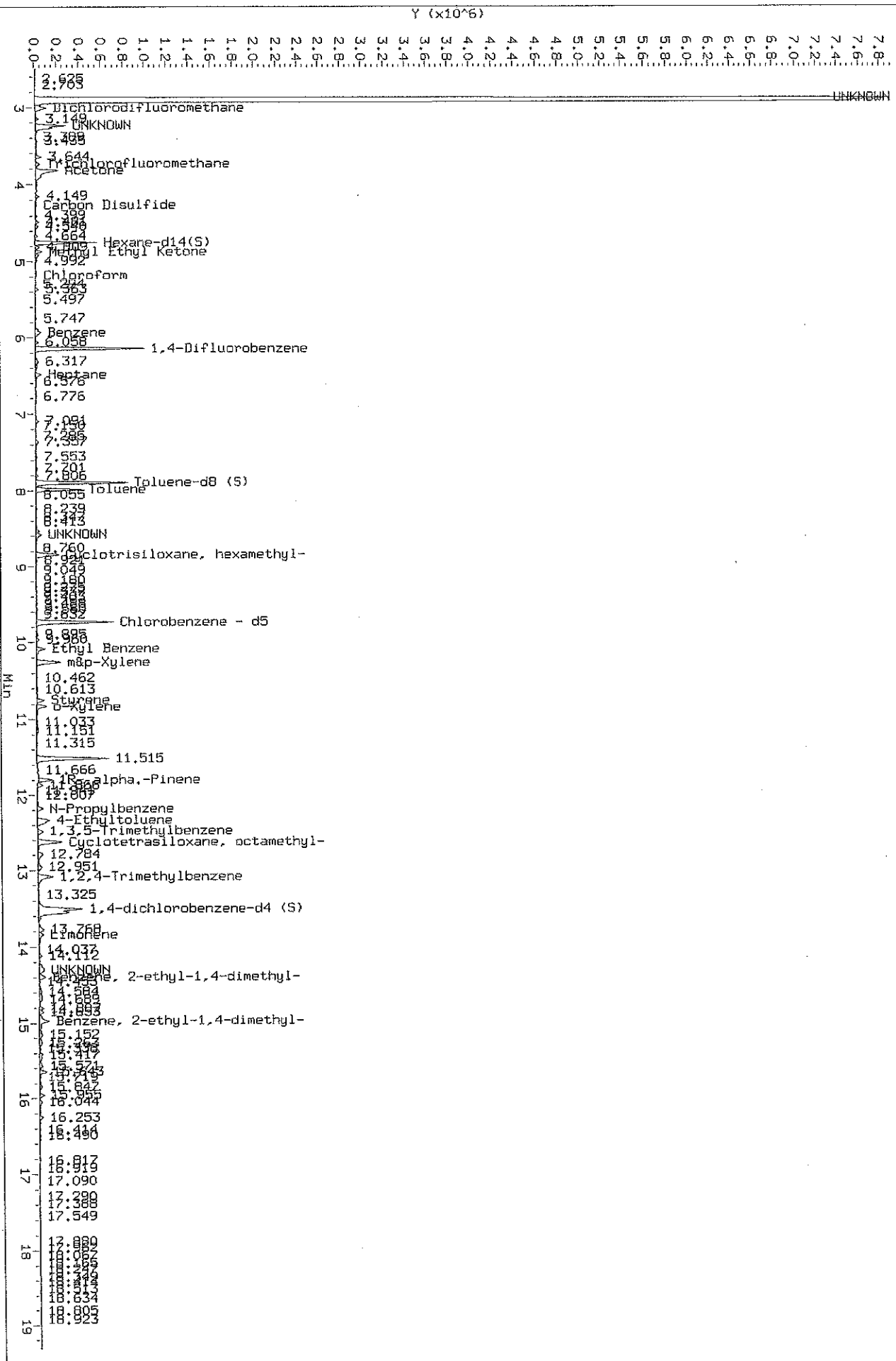
COMPOUND	RT	AREA	AMOUNT
2 Dichlorodifluoromethane	3.035	264334	0.284
49 Toluene	7.983	775351	3.612
64 N-Propylbenzene	12.167	155601	0.588
66 1,3,5-Trimethylbenzene	12.485	135284	0.399
\$ 70 1,4-dichlorobenzene-d4	13.509	1755108	9.764

RT	AREA	CONCENTRATIONS		QUAL	QUANT		CPND #
		ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
Unknown							
2.887	27788382	29.8370709	40.0	0		0	2
Unknown							
3.241	651602	0.69964129	0.938	0		0	2
Unknown							
8.580	246512	1.14852833	1.54	0		0	49

RT	CONCENTRATIONS			QUAL	QUANT		CPMD #
	AREA	ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
====	====	=====	=====	====	=====	=====	=====
Cyclotrisiloxane, hexamethyl-					CAS #: 541-05-9		
8.849	492229	2.29335436	3.07	90	NIST05.L	73123	49
1R-.alpha.-Pinene					CAS #: 7785-70-8		
11.797	242151	0.91509168	1.23	94	NIST05.L	15188	64
Cyclotetrasiloxane, octamethyl-					CAS #: 556-67-2		
12.623	560532	1.65305398	2.22	87	NIST05.L	122480	66
Limonene					CAS #: 138-86-3		
13.840	167550	0.93209733	1.25	70	NIST05.L	15154	70
Unknown					CAS #:		
14.305	226827	1.26185947	1.69	0		0	70
Benzene, 2-ethyl-1,4-dimethyl-					CAS #: 1758-88-9		
14.394	174775	0.97228847	1.30	87	NIST05.L	14405	70
Benzene, 2-ethyl-1,4-dimethyl-					CAS #: 1758-88-9		
14.974	363721	2.02341911	2.71	76	NIST05.L	14389	70

Data File: \\192.168.10.12\chem\10air\d.1\062313.bn17411.d
 Injection Date: 23-JUN-2013 13:23
 Instrument: 10airD.1
 Client Sample ID:

HP ChemStation MS 17411.d: 2.490 to 19.316 Min





Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 03, 2013

Mr. Matt Johnson
West Central Env. Consultants
P.O. Box 594
Morris, MN 56267

RE: Project: 9309 Ostendorf
Pace Project No.: 10216355

Dear Mr. Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 27, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Diane J. Anderson

diane.anderson@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 9309 Ostendorf
Pace Project No.: 10216355

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 9309 Ostendorf
Pace Project No.: 10216355

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10216355001	TH2 9309 Soil -01	Solid	12/20/12 11:00	12/27/12 11:20
10216355002	TH3 9309 Soil -02	Solid	12/20/12 11:30	12/27/12 11:20

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SAMPLE ANALYTE COUNT

Project: 9309 Ostendorf
Pace Project No.: 10216355

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10216355001	TH2 9309 Soil -01	WI MOD DRO	JLR	2
		ASTM D2974	JDL	1
		EPA 8260	CNC	71
10216355002	TH3 9309 Soil -02	WI MOD DRO	JLR	2
		ASTM D2974	JDL	1
		EPA 8260	CNC	71

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 9309 Ostendorf
 Pace Project No.: 10216355

Sample: TH2 9309 Soil -01 Lab ID: 10216355001 Collected: 12/20/12 11:00 Received: 12/27/12 11:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO						
Diesel Range Organics	61.2	mg/kg	12.1	1	12/28/12 12:56	12/30/12 22:37		D5
Surrogates								
n-Triacontane (S)	69	%	50-150	1	12/28/12 12:56	12/30/12 22:37		
Dry Weight		Analytical Method: ASTM D2974						
Percent Moisture	17.1	%	0.10	1		12/28/12 00:00		
8260 MSV 5030 Med Level		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B						
Acetone	ND	ug/kg	1500	1	12/28/12 08:42	12/28/12 14:19	67-64-1	
Allyl chloride	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	107-05-1	
Benzene	ND	ug/kg	23.9	1	12/28/12 08:42	12/28/12 14:19	71-43-2	
Bromobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	108-86-1	
Bromochloromethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	74-97-5	
Bromodichloromethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	75-27-4	
Bromoform	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	75-25-2	
Bromomethane	ND	ug/kg	599	1	12/28/12 08:42	12/28/12 14:19	74-83-9	
2-Butanone (MEK)	ND	ug/kg	599	1	12/28/12 08:42	12/28/12 14:19	78-93-3	
n-Butylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	104-51-8	
sec-Butylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	135-98-8	
tert-Butylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	98-06-6	
Carbon tetrachloride	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	56-23-5	
Chlorobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	108-90-7	
Chloroethane	ND	ug/kg	599	1	12/28/12 08:42	12/28/12 14:19	75-00-3	
Chloroform	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	67-66-3	
Chloromethane	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	74-87-3	
2-Chlorotoluene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	95-49-8	
4-Chlorotoluene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	96-12-8	
Dibromochloromethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	106-93-4	
Dibromomethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	75-71-8	
1,1-Dichloroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	75-34-3	L2
1,2-Dichloroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	107-06-2	
1,1-Dichloroethene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	156-60-5	
Dichlorofluoromethane	ND	ug/kg	599	1	12/28/12 08:42	12/28/12 14:19	75-43-4	
1,2-Dichloropropane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	78-87-5	
1,3-Dichloropropane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	142-28-9	
2,2-Dichloropropane	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	594-20-7	
1,1-Dichloropropene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	10061-01-5	

Date: 01/03/2013 10:31 AM

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 9309 Ostendorf
 Pace Project No.: 10216355

Sample: TH2 9309 Soil -01 Lab ID: 10216355001 Collected: 12/20/12 11:00 Received: 12/27/12 11:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5030 Med Level		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B						
trans-1,3-Dichloropropene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	60-29-7	
Ethylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	299	1	12/28/12 08:42	12/28/12 14:19	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	98-82-8	
p-Isopropyltoluene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	99-87-6	
Methylene Chloride	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	599	1	12/28/12 08:42	12/28/12 14:19	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	1634-04-4	
Naphthalene	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	91-20-3	
n-Propylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	103-65-1	
Styrene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	79-34-5	
Tetrachloroethene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	127-18-4	
Tetrahydrofuran	ND	ug/kg	2390	1	12/28/12 08:42	12/28/12 14:19	109-99-9	
Toluene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	79-00-5	
Trichloroethene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	79-01-6	
Trichlorofluoromethane	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	239	1	12/28/12 08:42	12/28/12 14:19	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	59.9	1	12/28/12 08:42	12/28/12 14:19	108-67-8	
Vinyl chloride	ND	ug/kg	23.9	1	12/28/12 08:42	12/28/12 14:19	75-01-4	
Xylene (Total)	ND	ug/kg	180	1	12/28/12 08:42	12/28/12 14:19	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	99 %		55-127	1	12/28/12 08:42	12/28/12 14:19	1868-53-7	
1,2-Dichloroethane-d4 (S)	95 %		49-125	1	12/28/12 08:42	12/28/12 14:19	17060-07-0	
Toluene-d8 (S)	92 %		56-131	1	12/28/12 08:42	12/28/12 14:19	2037-26-5	
4-Bromofluorobenzene (S)	100 %		53-128	1	12/28/12 08:42	12/28/12 14:19	460-00-4	



ANALYTICAL RESULTS

Project: 9309 Ostendorf
 Pace Project No.: 10216355

Sample: TH3 9309 Soil -02 Lab ID: 10216355002 Collected: 12/20/12 11:30 Received: 12/27/12 11:20 Matrix: Solid
 Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO						
Diesel Range Organics	145 mg/kg		12.1	1	12/28/12 12:56	12/30/12 23:06		D5
<i>Surrogates</i>								
n-Triacontane (S)	72 %		50-150	1	12/28/12 12:56	12/30/12 23:06		
Dry Weight		Analytical Method: ASTM D2974						
Percent Moisture	17.5 %		0.10	1		12/28/12 00:00		
8260 MSV 5030 Med Level		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B						
Acetone	ND ug/kg		1570	1	12/28/12 08:42	12/28/12 14:35	67-64-1	
Allyl chloride	ND ug/kg		250	1	12/28/12 08:42	12/28/12 14:35	107-05-1	
Benzene	ND ug/kg		25.0	1	12/28/12 08:42	12/28/12 14:35	71-43-2	
Bromobenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	108-86-1	
Bromochloromethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	74-97-5	
Bromodichloromethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	75-27-4	
Bromoform	ND ug/kg		250	1	12/28/12 08:42	12/28/12 14:35	75-25-2	
Bromomethane	ND ug/kg		626	1	12/28/12 08:42	12/28/12 14:35	74-83-9	
2-Butanone (MEK)	ND ug/kg		626	1	12/28/12 08:42	12/28/12 14:35	78-93-3	
n-Butylbenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	104-51-8	
sec-Butylbenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	135-98-8	
tert-Butylbenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	98-06-6	
Carbon tetrachloride	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	56-23-5	
Chlorobenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	108-90-7	
Chloroethane	ND ug/kg		626	1	12/28/12 08:42	12/28/12 14:35	75-00-3	
Chloroform	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	67-66-3	
Chloromethane	ND ug/kg		250	1	12/28/12 08:42	12/28/12 14:35	74-87-3	
2-Chlorotoluene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	95-49-8	
4-Chlorotoluene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/kg		250	1	12/28/12 08:42	12/28/12 14:35	96-12-8	
Dibromochloromethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	106-93-4	
Dibromomethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	74-95-3	
1,2-Dichlorobenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	95-50-1	
1,3-Dichlorobenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	541-73-1	
1,4-Dichlorobenzene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	106-46-7	
Dichlorodifluoromethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	75-71-8	
1,1-Dichloroethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	75-34-3	L2
1,2-Dichloroethane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	107-06-2	
1,1-Dichloroethene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	75-35-4	
cis-1,2-Dichloroethene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	156-59-2	
trans-1,2-Dichloroethene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	156-60-5	
Dichlorofluoromethane	ND ug/kg		626	1	12/28/12 08:42	12/28/12 14:35	75-43-4	
1,2-Dichloropropane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	78-87-5	
1,3-Dichloropropane	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	142-28-9	
2,2-Dichloropropane	ND ug/kg		250	1	12/28/12 08:42	12/28/12 14:35	594-20-7	
1,1-Dichloropropene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	563-58-6	
cis-1,3-Dichloropropene	ND ug/kg		62.6	1	12/28/12 08:42	12/28/12 14:35	10061-01-5	

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ANALYTICAL RESULTS

Project: 9309 Ostendorf
 Pace Project No.: 10216355

Sample: TH3 9309 Soil -02 Lab ID: 10216355002 Collected: 12/20/12 11:30 Received: 12/27/12 11:20 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 MSV 5030 Med Level		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B						
trans-1,3-Dichloropropene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	250	1	12/28/12 08:42	12/28/12 14:35	60-29-7	
Ethylbenzene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	313	1	12/28/12 08:42	12/28/12 14:35	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	98-82-8	
p-Isopropyltoluene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	99-87-6	
Methylene Chloride	ND	ug/kg	250	1	12/28/12 08:42	12/28/12 14:35	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	626	1	12/28/12 08:42	12/28/12 14:35	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	1634-04-4	
Naphthalene	ND	ug/kg	250	1	12/28/12 08:42	12/28/12 14:35	91-20-3	
n-Propylbenzene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	103-65-1	
Styrene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	79-34-5	
Tetrachloroethene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	127-18-4	
Tetrahydrofuran	ND	ug/kg	2500	1	12/28/12 08:42	12/28/12 14:35	109-99-9	
Toluene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	79-00-5	
Trichloroethene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	79-01-6	
Trichlorofluoromethane	ND	ug/kg	250	1	12/28/12 08:42	12/28/12 14:35	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	250	1	12/28/12 08:42	12/28/12 14:35	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	62.6	1	12/28/12 08:42	12/28/12 14:35	108-67-8	
Vinyl chloride	ND	ug/kg	25.0	1	12/28/12 08:42	12/28/12 14:35	75-01-4	
Xylene (Total)	ND	ug/kg	188	1	12/28/12 08:42	12/28/12 14:35	1330-20-7	
Surrogates								
Dibromofluoromethane (S)	98 %		55-127	1	12/28/12 08:42	12/28/12 14:35	1868-53-7	
1,2-Dichloroethane-d4 (S)	92 %		49-125	1	12/28/12 08:42	12/28/12 14:35	17060-07-0	
Toluene-d8 (S)	93 %		56-131	1	12/28/12 08:42	12/28/12 14:35	2037-26-5	
4-Bromofluorobenzene (S)	99 %		53-128	1	12/28/12 08:42	12/28/12 14:35	460-00-4	



QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

QC Batch: MPRP/37066 Analysis Method: ASTM D2974
 QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
 Associated Lab Samples: 10216355001, 10216355002

SAMPLE DUPLICATE: 1357726

Parameter	Units	10216351005 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	23.9	24.0	.5	30	

SAMPLE DUPLICATE: 1357798

Parameter	Units	10216401006 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10	10	.01	30	



QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

QC Batch: MSV/22558 Analysis Method: EPA 8260
 QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5030 Med Level
 Associated Lab Samples: 10216355001, 10216355002

METHOD BLANK: 1357772 Matrix: Solid
 Associated Lab Samples: 10216355001, 10216355002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,1,1-Trichloroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,1,2,2-Tetrachloroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,1,2-Trichloroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,1-Dichloroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,1-Dichloroethene	ug/kg	ND	50.0	12/28/12 12:55	
1,1-Dichloropropene	ug/kg	ND	50.0	12/28/12 12:55	
1,2,3-Trichlorobenzene	ug/kg	ND	50.0	12/28/12 12:55	
1,2,3-Trichloropropane	ug/kg	ND	200	12/28/12 12:55	
1,2,4-Trichlorobenzene	ug/kg	ND	50.0	12/28/12 12:55	
1,2,4-Trimethylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
1,2-Dibromo-3-chloropropane	ug/kg	ND	200	12/28/12 12:55	
1,2-Dibromoethane (EDB)	ug/kg	ND	50.0	12/28/12 12:55	
1,2-Dichlorobenzene	ug/kg	ND	50.0	12/28/12 12:55	
1,2-Dichloroethane	ug/kg	ND	50.0	12/28/12 12:55	
1,2-Dichloropropane	ug/kg	ND	50.0	12/28/12 12:55	
1,3,5-Trimethylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
1,3-Dichlorobenzene	ug/kg	ND	50.0	12/28/12 12:55	
1,3-Dichloropropane	ug/kg	ND	50.0	12/28/12 12:55	
1,4-Dichlorobenzene	ug/kg	ND	50.0	12/28/12 12:55	
2,2-Dichloropropane	ug/kg	ND	200	12/28/12 12:55	
2-Butanone (MEK)	ug/kg	ND	500	12/28/12 12:55	
2-Chlorotoluene	ug/kg	ND	50.0	12/28/12 12:55	
4-Chlorotoluene	ug/kg	ND	50.0	12/28/12 12:55	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	500	12/28/12 12:55	
Acetone	ug/kg	ND	1250	12/28/12 12:55	
Allyl chloride	ug/kg	ND	200	12/28/12 12:55	
Benzene	ug/kg	ND	20.0	12/28/12 12:55	
Bromobenzene	ug/kg	ND	50.0	12/28/12 12:55	
Bromochloromethane	ug/kg	ND	50.0	12/28/12 12:55	
Bromodichloromethane	ug/kg	ND	50.0	12/28/12 12:55	
Bromoform	ug/kg	ND	200	12/28/12 12:55	
Bromomethane	ug/kg	ND	500	12/28/12 12:55	
Carbon tetrachloride	ug/kg	ND	50.0	12/28/12 12:55	
Chlorobenzene	ug/kg	ND	50.0	12/28/12 12:55	
Chloroethane	ug/kg	ND	500	12/28/12 12:55	
Chloroform	ug/kg	ND	50.0	12/28/12 12:55	
Chloromethane	ug/kg	ND	200	12/28/12 12:55	
cis-1,2-Dichloroethene	ug/kg	ND	50.0	12/28/12 12:55	
cis-1,3-Dichloropropene	ug/kg	ND	50.0	12/28/12 12:55	
Dibromochloromethane	ug/kg	ND	50.0	12/28/12 12:55	
Dibromomethane	ug/kg	ND	50.0	12/28/12 12:55	

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QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

METHOD BLANK: 1357772 Matrix: Solid

Associated Lab Samples: 10216355001, 10216355002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/kg	ND	50.0	12/28/12 12:55	
Dichlorofluoromethane	ug/kg	ND	500	12/28/12 12:55	
Diethyl ether (Ethyl ether)	ug/kg	ND	200	12/28/12 12:55	
Ethylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
Hexachloro-1,3-butadiene	ug/kg	ND	250	12/28/12 12:55	
Isopropylbenzene (Cumene)	ug/kg	ND	50.0	12/28/12 12:55	
Methyl-tert-butyl ether	ug/kg	ND	50.0	12/28/12 12:55	
Methylene Chloride	ug/kg	ND	200	12/28/12 12:55	
n-Butylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
n-Propylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
Naphthalene	ug/kg	ND	200	12/28/12 12:55	
p-Isopropyltoluene	ug/kg	ND	50.0	12/28/12 12:55	
sec-Butylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
Styrene	ug/kg	ND	50.0	12/28/12 12:55	
tert-Butylbenzene	ug/kg	ND	50.0	12/28/12 12:55	
Tetrachloroethene	ug/kg	ND	50.0	12/28/12 12:55	
Tetrahydrofuran	ug/kg	ND	2000	12/28/12 12:55	
Toluene	ug/kg	ND	50.0	12/28/12 12:55	
trans-1,2-Dichloroethene	ug/kg	ND	50.0	12/28/12 12:55	
trans-1,3-Dichloropropene	ug/kg	ND	50.0	12/28/12 12:55	
Trichloroethene	ug/kg	ND	50.0	12/28/12 12:55	
Trichlorofluoromethane	ug/kg	ND	200	12/28/12 12:55	
Vinyl chloride	ug/kg	ND	20.0	12/28/12 12:55	
Xylene (Total)	ug/kg	ND	150	12/28/12 12:55	
1,2-Dichloroethane-d4 (S)	%	92	49-125	12/28/12 12:55	
4-Bromofluorobenzene (S)	%	101	53-128	12/28/12 12:55	
Dibromofluoromethane (S)	%	98	55-127	12/28/12 12:55	
Toluene-d8 (S)	%	93	56-131	12/28/12 12:55	

LABORATORY CONTROL SAMPLE: 1357773

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1000	764	76	72-125	
1,1,1-Trichloroethane	ug/kg	1000	706	71	68-134	
1,1,2,2-Tetrachloroethane	ug/kg	1000	785	79	74-125	
1,1,2-Trichloroethane	ug/kg	1000	768	77	75-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	1000	855	85	44-150	
1,1-Dichloroethane	ug/kg	1000	641	64	74-125	L0
1,1-Dichloroethene	ug/kg	1000	794	79	64-133	
1,1-Dichloropropene	ug/kg	1000	726	73	70-134	
1,2,3-Trichlorobenzene	ug/kg	1000	852	85	70-125	
1,2,3-Trichloropropane	ug/kg	1000	856	86	71-125	
1,2,4-Trichlorobenzene	ug/kg	1000	828	83	69-125	
1,2,4-Trimethylbenzene	ug/kg	1000	754	75	75-129	
1,2-Dibromo-3-chloropropane	ug/kg	1000	798	80	62-127	

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QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

LABORATORY CONTROL SAMPLE: 1357773

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dibromoethane (EDB)	ug/kg	1000	824	82	73-125	
1,2-Dichlorobenzene	ug/kg	1000	812	81	75-125	
1,2-Dichloroethane	ug/kg	1000	777	78	70-131	
1,2-Dichloropropane	ug/kg	1000	748	75	75-125	
1,3,5-Trimethylbenzene	ug/kg	1000	743	74	74-130	
1,3-Dichlorobenzene	ug/kg	1000	804	80	75-125	
1,3-Dichloropropane	ug/kg	1000	773	77	75-125	
1,4-Dichlorobenzene	ug/kg	1000	799	80	75-125	
2,2-Dichloropropane	ug/kg	1000	697	70	46-144	
2-Butanone (MEK)	ug/kg	1000	781	78	41-150	
2-Chlorotoluene	ug/kg	1000	761	76	75-127	
4-Chlorotoluene	ug/kg	1000	766	77	75-127	
4-Methyl-2-pentanone (MIBK)	ug/kg	1000	794	79	67-127	
Acetone	ug/kg	2500	2140	86	30-150	
Allyl chloride	ug/kg	1000	720	72	68-139	
Benzene	ug/kg	1000	738	74	74-126	
Bromobenzene	ug/kg	1000	808	81	75-125	
Bromochloromethane	ug/kg	1000	838	84	75-128	
Bromodichloromethane	ug/kg	1000	779	78	69-130	
Bromoform	ug/kg	1000	808	81	64-124	
Bromomethane	ug/kg	1000	873	87	54-139	
Carbon tetrachloride	ug/kg	1000	804	80	64-139	
Chlorobenzene	ug/kg	1000	780	78	75-125	
Chloroethane	ug/kg	1000	749	75	45-146	
Chloroform	ug/kg	1000	758	76	73-129	
Chloromethane	ug/kg	1000	728	73	55-125	
cis-1,2-Dichloroethene	ug/kg	1000	811	81	75-126	
cis-1,3-Dichloropropene	ug/kg	1000	775	78	70-130	
Dibromochloromethane	ug/kg	1000	789	79	69-125	
Dibromomethane	ug/kg	1000	840	84	73-125	
Dichlorodifluoromethane	ug/kg	1000	766	77	30-137	
Dichlorofluoromethane	ug/kg	1000	695	69	30-150	
Diethyl ether (Ethyl ether)	ug/kg	1000	807	81	68-131	
Ethylbenzene	ug/kg	1000	735	74	74-127	
Hexachloro-1,3-butadiene	ug/kg	500	426	85	59-130	
Isopropylbenzene (Cumene)	ug/kg	1000	766	77	72-131	
Methyl-tert-butyl ether	ug/kg	1000	807	81	65-132	
Methylene Chloride	ug/kg	1000	833	83	30-150	
n-Butylbenzene	ug/kg	1000	732	73	66-134	
n-Propylbenzene	ug/kg	1000	757	76	74-131	
Naphthalene	ug/kg	1000	863	86	66-130	
p-Isopropyltoluene	ug/kg	1000	750	75	65-134	
sec-Butylbenzene	ug/kg	1000	785	79	69-133	
Styrene	ug/kg	1000	785	78	75-125	
tert-Butylbenzene	ug/kg	1000	770	77	72-129	
Tetrachloroethene	ug/kg	1000	739	74	68-131	
Tetrahydrofuran	ug/kg	10000	8390	84	67-131	
Toluene	ug/kg	1000	754	75	75-125	

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QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

LABORATORY CONTROL SAMPLE: 1357773

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,2-Dichloroethene	ug/kg	1000	755	75	74-129	
trans-1,3-Dichloropropene	ug/kg	1000	766	77	72-128	
Trichloroethene	ug/kg	1000	783	78	72-125	
Trichlorofluoromethane	ug/kg	1000	866	87	41-150	
Vinyl chloride	ug/kg	1000	756	76	54-128	
Xylene (Total)	ug/kg	3000	2290	76	75-126	
1,2-Dichloroethane-d4 (S)	%			93	49-125	
4-Bromofluorobenzene (S)	%			99	53-128	
Dibromofluoromethane (S)	%			99	55-127	
Toluene-d8 (S)	%			94	56-131	

MATRIX SPIKE SAMPLE: 1357774

Parameter	Units	10216401002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	1120	982	87	66-135	
1,1,1-Trichloroethane	ug/kg	ND	1120	922	82	65-150	
1,1,2,2-Tetrachloroethane	ug/kg	ND	1120	1050	93	61-140	
1,1,2-Trichloroethane	ug/kg	ND	1120	2510	222	69-132	M1
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	1120	1150	102	60-150	
1,1-Dichloroethane	ug/kg	ND	1120	843	75	64-143	
1,1-Dichloroethene	ug/kg	ND	1120	1010	89	59-150	
1,1-Dichloropropene	ug/kg	ND	1120	955	85	63-150	
1,2,3-Trichlorobenzene	ug/kg	ND	1120	1010	89	67-137	
1,2,3-Trichloropropane	ug/kg	ND	1120	979	87	64-135	
1,2,4-Trichlorobenzene	ug/kg	ND	1120	1040	92	68-134	
1,2,4-Trimethylbenzene	ug/kg	718	1120	1540	73	60-150	
1,2-Dibromo-3-chloropropane	ug/kg	ND	1120	900	80	62-133	
1,2-Dibromoethane (EDB)	ug/kg	ND	1120	996	88	65-136	
1,2-Dichlorobenzene	ug/kg	ND	1120	1020	91	66-138	
1,2-Dichloroethane	ug/kg	ND	1120	952	84	59-141	
1,2-Dichloropropane	ug/kg	ND	1120	952	84	64-141	
1,3,5-Trimethylbenzene	ug/kg	292	1120	1210	82	65-147	
1,3-Dichlorobenzene	ug/kg	ND	1120	1030	91	67-138	
1,3-Dichloropropane	ug/kg	ND	1120	958	85	64-138	
1,4-Dichlorobenzene	ug/kg	ND	1120	1010	90	66-136	
2,2-Dichloropropane	ug/kg	ND	1120	874	77	39-150	
2-Butanone (MEK)	ug/kg	ND	1120	1770	156	39-150	M1
2-Chlorotoluene	ug/kg	ND	1120	1000	89	70-141	
4-Chlorotoluene	ug/kg	ND	1120	984	87	70-139	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	1120	1950	173	63-139	M1
Acetone	ug/kg	ND	2830	2630	93	30-150	
Allyl chloride	ug/kg	ND	1120	913	81	60-150	
Benzene	ug/kg	40.0	1120	979	83	62-144	
Bromobenzene	ug/kg	ND	1120	1040	92	67-140	
Bromochloromethane	ug/kg	ND	1120	1040	92	69-139	
Bromodichloromethane	ug/kg	ND	1120	929	82	64-138	
Bromoform	ug/kg	ND	1120	952	84	60-134	

Date: 01/03/2013 10:31 AM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Ostendorf
Pace Project No.: 10216355

MATRIX SPIKE SAMPLE: 1357774		10216401002	Spike	MS	MS	% Rec	Qualifiers
Parameter	Units	Result	Conc.	Result	% Rec	Limits	
Bromomethane	ug/kg	ND	1120	981	85	52-150	
Carbon tetrachloride	ug/kg	ND	1120	1040	92	67-150	
Chlorobenzene	ug/kg	ND	1120	1020	90	65-139	
Chloroethane	ug/kg	ND	1120	876	78	35-150	
Chloroform	ug/kg	ND	1120	976	86	61-143	
Chloromethane	ug/kg	ND	1120	815	71	44-136	
cis-1,2-Dichloroethene	ug/kg	ND	1120	1030	91	68-140	
cis-1,3-Dichloropropene	ug/kg	ND	1120	967	86	60-143	
Dibromochloromethane	ug/kg	ND	1120	983	87	64-134	
Dibromomethane	ug/kg	ND	1120	1010	89	65-135	
Dichlorodifluoromethane	ug/kg	ND	1120	860	76	30-150	
Dichlorofluoromethane	ug/kg	ND	1120	859	76	30-150	
Diethyl ether (Ethyl ether)	ug/kg	ND	1120	979	87	58-146	
Ethylbenzene	ug/kg	161	1120	1090	83	65-146	
Hexachloro-1,3-butadiene	ug/kg	ND	564	573	102	60-150	
Isopropylbenzene (Cumene)	ug/kg	109	1120	1090	87	73-143	
Methyl-tert-butyl ether	ug/kg	ND	1120	992	88	57-145	
Methylene Chloride	ug/kg	ND	1120	1000	86	30-150	
n-Butylbenzene	ug/kg	87.8	1120	1060	86	65-150	
n-Propylbenzene	ug/kg	170	1120	1130	85	69-147	
Naphthalene	ug/kg	ND	1120	1070	86	60-142	
p-Isopropyltoluene	ug/kg	103	1120	1120	90	65-149	
sec-Butylbenzene	ug/kg	56.5	1120	1070	89	72-144	
Styrene	ug/kg	ND	1120	1010	89	69-138	
tert-Butylbenzene	ug/kg	ND	1120	1030	90	68-144	
Tetrachloroethene	ug/kg	ND	1120	985	87	66-147	
Tetrahydrofuran	ug/kg	ND	11200	9570	85	59-142	
Toluene	ug/kg	ND	1120	997	86	59-145	
trans-1,2-Dichloroethene	ug/kg	ND	1120	953	84	63-148	
trans-1,3-Dichloropropene	ug/kg	ND	1120	939	83	59-144	
Trichloroethene	ug/kg	ND	1120	996	88	69-141	
Trichlorofluoromethane	ug/kg	ND	1120	1020	91	44-150	
Vinyl chloride	ug/kg	ND	1120	851	75	51-144	
Xylene (Total)	ug/kg	251	3380	3180	86	65-146	
1,2-Dichloroethane-d4 (S)	%				94	49-125	
4-Bromofluorobenzene (S)	%				101	53-128	
Dibromofluoromethane (S)	%				97	55-127	
Toluene-d8 (S)	%				94	56-131	

SAMPLE DUPLICATE: 1357775

Parameter	Units	10216401003	Dup	RPD	Max	Qualifiers
		Result	Result		RPD	
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	ND		30	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

SAMPLE DUPLICATE: 1357775

Parameter	Units	10216401003 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	2240	2170	3	30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	749	727	3	30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	ND		30	
Allyl chloride	ug/kg	ND	ND		30	
Benzene	ug/kg	ND	5.8J		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Dichlorofluoromethane	ug/kg	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	531	494	7	30	
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	287	282	2	30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	239	239	.1	30	
n-Propylbenzene	ug/kg	483	466	4	30	

Date: 01/03/2013 10:31 AM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

SAMPLE DUPLICATE: 1357775

Parameter	Units	10216401003 Result	Dup Result	RPD	Max RPD	Qualifiers
Naphthalene	ug/kg	ND	182J		30	
p-Isopropyltoluene	ug/kg	266	258	3	30	
sec-Butylbenzene	ug/kg	145	145	.06	30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	14.4J		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Tetrahydrofuran	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	18.7J		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	605	562	7	30	
1,2-Dichloroethane-d4 (S)	%	89	91	4		
4-Bromofluorobenzene (S)	%	105	104	.7		
Dibromofluoromethane (S)	%	95	96	3		
Toluene-d8 (S)	%	96	95	.3		



QUALITY CONTROL DATA

Project: 9309 Ostendorf
 Pace Project No.: 10216355

QC Batch: OEXT/20605 Analysis Method: WI MOD DRO
 QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
 Associated Lab Samples: 10216355001, 10216355002

METHOD BLANK: 1358068 Matrix: Solid
 Associated Lab Samples: 10216355001, 10216355002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	12/30/12 22:08	
n-Triacontane (S)	%	76	50-150	12/30/12 22:08	

LABORATORY CONTROL SAMPLE & LCSD: 1358069 1358070

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	64.2	67.9	80	85	70-120	6	20	
n-Triacontane (S)	%				82	82	50-150			



QUALIFIERS

Project: 9309 Ostendorf
Pace Project No.: 10216355

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

- D5 The sample was re-weighed into a new container because the sample weight in the original container exceeded the method specifications.
- L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
- L2 Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
- M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.



QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 9309 Ostendorf
Pace Project No.: 10216355

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10216355001	TH2 9309 Soil -01	WI MOD DRO	OEXT/20605	WI MOD DRO	GCSV/10660
10216355002	TH3 9309 Soil -02	WI MOD DRO	OEXT/20605	WI MOD DRO	GCSV/10660
10216355001	TH2 9309 Soil -01	ASTM D2974	MPRP/37066		
10216355002	TH3 9309 Soil -02	ASTM D2974	MPRP/37066		
10216355001	TH2 9309 Soil -01	EPA 5035/5030B	MSV/22558	EPA 8260	MSV/22559
10216355002	TH3 9309 Soil -02	EPA 5035/5030B	MSV/22558	EPA 8260	MSV/22559

Pace Analytical Services, Inc.

WI Dept of Nat. Resources- WIDRO

Data file : \\192.168.10.12\chem\10gcs5.i\123012dro.b\364F0067.D
 Lab Smp Id: 10216355001
 Inj Date : 30-DEC-2012 22:37
 Operator : JLR Inst ID: 10gcs5.i
 Smp Info : 10216355001
 Misc Info : 10660
 Comment : C10-C28 DRO
 Method : \\192.168.10.12\chem\10gcs5.i\123012dro.b\WDRO5-121612.m
 Meth Date : 02-Jan-2013 13:22 jlrjes Quant Type: ESTD
 Cal Date : 16-DEC-2012 15:02 Cal File: 351F0015.D
 Als bottle: 20
 Dil Factor: 1.00000
 Integrator: HP Genie Compound Sublist: all.sub
 Target Version: 4.14
 Processing Host: 10MNJRWKS

Concentration Formula: Amt * DF * Uf * Vt / (Ws * Vi * (100-M) / 100) * CpndVariable

Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Correction factor
Vt	1.000	Volume of final extract (mL)
Ws	25.000	Weight of sample extracted (g)
Vi	1.000	Volume injected (uL)
M	0.00000	% Moisture
Cpnd Variable		Local Compound Variable

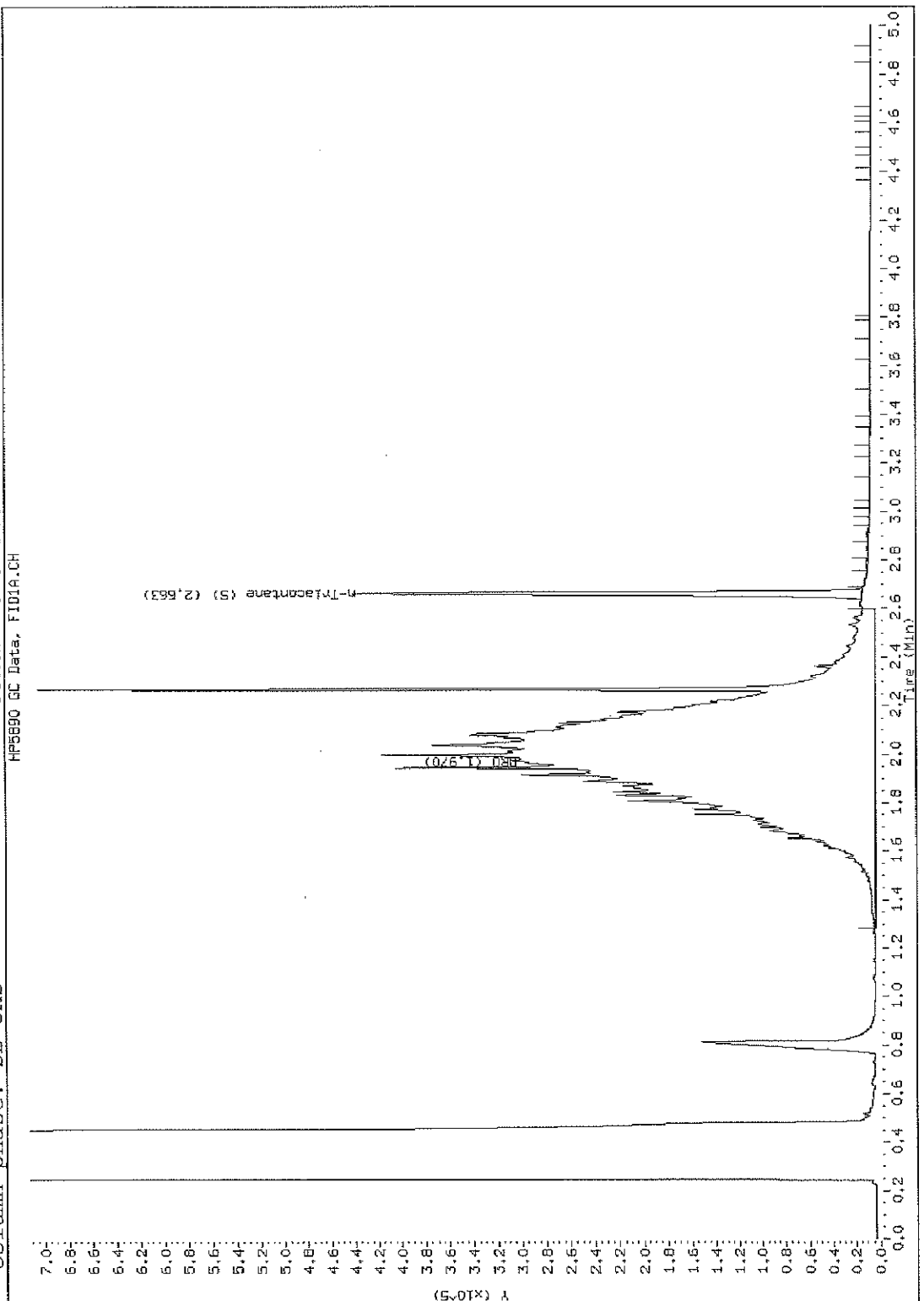
Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/mL)	FINAL (mg/kg)
s 2 DRO	1.350-2.590			173905205	1268.99	50.8
\$ 5 n-Triacontane (S)	2.662	2.644	0.018	8587398	85.6858	3.43 (ARM)

QC Flag Legend

- a - Target compound detected but, quantitated amount
Below Limit Of Quantitation (BLOQ).
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

Data File: \\192.168.10.12\chem\10gcs5.i\123012dro.b\364F0067.D
Report Date: 01/02/2013
Sample ID: 10216355001
Client ID:
Sample Information: 10216355001
Purge Volume: DB-5MS
Column phase: DB-5MS

Instrument: 10gcs5.i
Operator: JLR
Column diameter: 0.25



Face Analytical Services, Inc.

WI Dept of Nat. Resources- WIDRO

Data file : \\192.168.10.12\chem\10gcs5.i\123012dro.b\364F0071.D
 Lab Smp Id: 10216355002
 Inj Date : 30-DEC-2012 23:06
 Operator : JLR Inst ID: 10gcs5.i
 Smp Info : 10216355002
 Misc Info : 10660
 Comment : C10-C28 DRO
 Method : \\192.168.10.12\chem\10gcs5.i\123012dro.b\WDRO5-121612.m
 Meth Date : 02-Jan-2013 13:22 jlries Quant Type: ESTD
 Cal Date : 16-DEC-2012 15:02 Cal File: 351F0015.D
 Als bottle: 24
 Dil Factor: 1.00000
 Integrator: HP Genie Compound Sublist: all.sub
 Target Version: 4.14
 Processing Host: 10MNJRWKS

Concentration Formula: Amt * DF * Uf * Vt / (Ws * Vi * (100-M) / 100) * CpndVariable

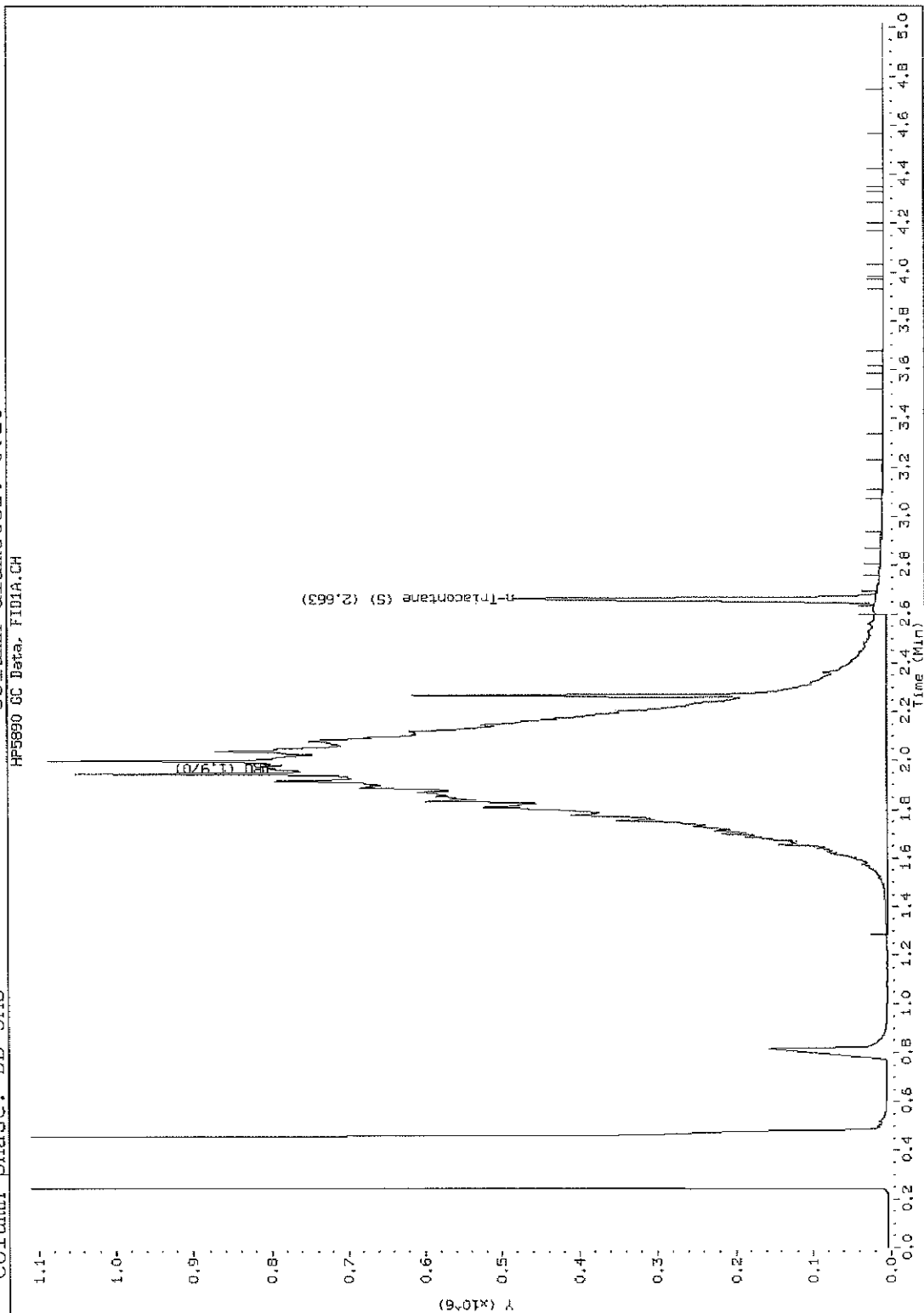
Name	Value	Description
DF	1.000	Dilution Factor
Uf	1.000	Correction factor
Vt	1.000	Volume of final extract (mL)
Ws	25.000	Weight of sample extracted (g)
Vi	1.000	Volume injected (uL)
M	0.00000	% Moisture
Cpnd Variable		Local Compound Variable

Compounds	RT	EXP RT	DLT RT	RESPONSE	CONCENTRATIONS	
					ON-COLUMN (ug/mL)	FINAL (mg/kg)
S 2 DRO	1.350-2.590			407942156	2982.94	119
S 5 n-Triacontane (S)	2.662	2.644	0.018	9042666	90.2174	3.61 (aRM)

QC Flag Legend

- a - Target compound detected but, quantitated amount Below Limit Of Quantitation(BLOQ).
- R - Spike/Surrogate failed recovery limits.
- M - Compound response manually integrated.

Data File: \\192.168.10.12\chem\10gcs5.i\123012dro.b\364F0071.D
Report Date: 01/02/2013
Sample ID: 10216355002
Client ID:
Sample Information: 10216355002
Purge Volume:
Column phase: DB-5MS
Instrument: 10gcs5.i
Operator: JLR
Column diameter: 0.25
HP5890 GC Data, FID1A.CH



The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 10216355 of

Section A
Required Client Information:
Company: WLEC
Address: 14 Green Knoll
Morris, MN
Email To: Johnson@wlec.com
Phone: _____ Fax: _____
Requested Due Date/TAT: _____

Section B
Required Project Information:
Report To: Matt Johnson
Copy To: _____
Purchase Order No.: _____
Project Name: 9304 Oshtemo
Project Number: _____

Section C
Invoice Information:
Attention: Shelley Green
Company Name: _____
Address: _____
Pace Office Reference: _____
Pace Project Manager: _____
Pace Profile #: _____

REGULATORY AGENCY
 NPDES GROUND WATER DRINKING WATER
 UST RCRA OTHER _____

Site Location: _____
STATE: _____

ITEM #	Matrix Codes MATRIX / CODE Drinking Water DW Water WT Waste Water WW Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other OT	SAMPLE TYPE (G-RAB C-COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H ₂ SO ₄ HNO ₃ HCl NaOH Na ₂ S ₂ O ₈ Methanol Other	Analysis Test Y/N	Requested Analysis Filtered (Y/N)	Residual Chlorine (Y/N)	Pace Project / Lab I.D. <u>001</u> <u>002</u>
			COMPOSITE START	COMPOSITE END/GRAB							
		MATRIX CODE (see valid codes to left)	DATE	TIME	DATE	TIME					
1		SL	12-20-07	11:00							
2		SL	12-20-07	11:30							
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											

ADDITIONAL COMMENTS
CK# 17482
Kandis Sayre
12/20 11:00
12/20 11:30
Shelley Green
12/20 11:00
12/20 11:30
0.88

RELINQUISHED BY / AFFILIATION
Kandis Sayre
12/20 11:00
12/20 11:30

ACCEPTED BY / AFFILIATION
Shelley Green
12/20 11:00
12/20 11:30

TEMP IN °C
0.88

Received on
12/20/07

Temp in °C
0.88

Custody Sealed Cooler (Y/N)
N

Samples Intact (Y/N)
N

DATE SIGNED (MM/DD/YYYY)
12-20-07

PRINT NAME OF SAMPLER:
Shelley Green

SIGNATURE OF SAMPLER:
[Signature]

SAMPLER NAME AND SIGNATURE
[Signature]

ORIGINAL

Sample Condition Upon Receipt

Client Name: WCBL

Project #:

WO#: **10216355**



Courier: FedEx UPS USPS Client
 Commercial Pace Other: _____

Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No Seals Intact? Yes No Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags None Other: _____ Temp Blank? Yes No

Thermometer Used: B88A912167504 80512447 Type of Ice: Wet Blue None Samples on ice, cooling process has begun

Cooler Temp Read (°C): 0.7 Cooler Temp Corrected (°C): 0.8 Biological Tissue Frozen? Yes No
 Temp should be above freezing to 6°C Date and Initials of Person Examining Contents: 12/27/12 SL

Comments:

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>SL</u>		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO ₃ <input type="checkbox"/> H ₂ SO ₄ <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sample # _____ Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	14.
Trip Blank Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? Yes No

Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____

Project Manager Review: DM

Date: 12/27/12

Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)



Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

January 10, 2013

Mr. Matt Johnson
West Central Env. Consultants
14 Green River Road
Morris, MN 56267

RE: Project: 9309 Oschendorf
Pace Project No.: 10216400

Dear Mr. Johnson:

Enclosed are the analytical results for sample(s) received by the laboratory on December 27, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Diane J. Anderson

diane.anderson@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 9309 Oschendorf
Pace Project No.: 10216400

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: Pace

Florida/NELAP Certification #: E87605

Georgia Certification #: 959

Hawaii Certification #Pace

Idaho Certification #: MN00064

Illinois Certification #: 200011

Kansas Certification #: E-10167

Louisiana Certification #: 03086

Louisiana Certification #: LA080009

Maine Certification #: 2007029

Maryland Certification #: 322

Michigan DEQ Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT CERT0092

Nevada Certification #: MN_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

New York Certification #: 11647

North Carolina Certification #: 530

North Dakota Certification #: R-036

North Dakota Certification #: R-036A

Ohio VAP Certification #: CL101

Oklahoma Certification #: 9507

Oregon Certification #: MN200001

Oregon Certification #: MN300001

Pennsylvania Certification #: 68-00563

Puerto Rico Certification

Tennessee Certification #: 02818

Texas Certification #: T104704192

Utah Certification #: MN00064

Virginia/DCLS Certification #: 002521

Virginia/VELAP Certification #: 460163

Washington Certification #: C754

West Virginia Certification #: 382

Wisconsin Certification #: 999407970

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Minneapolis, MN 55414
(612)607-1700

SAMPLE SUMMARY

Project: 9309 Oschendorf
Pace Project No.: 10216400

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10216400001	VIAI-9309-Air-01	Air	12/20/12 11:15	12/27/12 11:20

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Minneapolis, MN 55414
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SAMPLE ANALYTE COUNT

Project: 9309 Oschendorf
Pace Project No.: 10216400

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10216400001	VIAI-9309-Air-01	TO-15	CJR	61

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ANALYTICAL RESULTS

Project: 9309 Oschendorf

Pace Project No.: 10216400

Sample: VIAI-9309-Air-01 Lab ID: 10216400001 Collected: 12/20/12 11:15 Received: 12/27/12 11:20 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	18.7	ug/m3	6.4	13.4		01/04/13 23:28	67-64-1	CH,L1, SS
Benzene	ND	ug/m3	4.4	13.4		01/04/13 23:28	71-43-2	
Benzyl chloride	ND	ug/m3	14.1	13.4		01/04/13 23:28	100-44-7	
Bromodichloromethane	ND	ug/m3	18.2	13.4		01/04/13 23:28	75-27-4	
Bromoform	ND	ug/m3	28.1	13.4		01/04/13 23:28	75-25-2	
Bromomethane	ND	ug/m3	10.6	13.4		01/04/13 23:28	74-83-9	
1,3-Butadiene	ND	ug/m3	6.0	13.4		01/04/13 23:28	106-99-0	
2-Butanone (MEK)	ND	ug/m3	8.0	13.4		01/04/13 23:28	78-93-3	
Carbon disulfide	ND	ug/m3	8.4	13.4		01/04/13 23:28	75-15-0	
Carbon tetrachloride	ND	ug/m3	8.6	13.4		01/04/13 23:28	56-23-5	
Chlorobenzene	ND	ug/m3	12.6	13.4		01/04/13 23:28	108-90-7	
Chloroethane	ND	ug/m3	7.2	13.4		01/04/13 23:28	75-00-3	
Chloroform	ND	ug/m3	13.3	13.4		01/04/13 23:28	67-66-3	
Chloromethane	ND	ug/m3	5.6	13.4		01/04/13 23:28	74-87-3	
Cyclohexane	ND	ug/m3	9.4	13.4		01/04/13 23:28	110-82-7	
Dibromochloromethane	ND	ug/m3	23.2	13.4		01/04/13 23:28	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	20.9	13.4		01/04/13 23:28	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	16.3	13.4		01/04/13 23:28	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	16.3	13.4		01/04/13 23:28	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	16.3	13.4		01/04/13 23:28	106-46-7	
Dichlorodifluoromethane	ND	ug/m3	13.5	13.4		01/04/13 23:28	75-71-8	
1,1-Dichloroethane	ND	ug/m3	11.0	13.4		01/04/13 23:28	75-34-3	
1,2-Dichloroethane	ND	ug/m3	5.5	13.4		01/04/13 23:28	107-06-2	
1,1-Dichloroethene	ND	ug/m3	10.9	13.4		01/04/13 23:28	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	10.9	13.4		01/04/13 23:28	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	10.9	13.4		01/04/13 23:28	156-60-5	
1,2-Dichloropropane	ND	ug/m3	12.6	13.4		01/04/13 23:28	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	12.3	13.4		01/04/13 23:28	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	12.3	13.4		01/04/13 23:28	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	19.0	13.4		01/04/13 23:28	76-14-2	
Ethanol	60.4	ug/m3	5.1	13.4		01/04/13 23:28	64-17-5	
Ethyl acetate	ND	ug/m3	9.8	13.4		01/04/13 23:28	141-78-6	
Ethylbenzene	ND	ug/m3	11.8	13.4		01/04/13 23:28	100-41-4	
4-Ethyltoluene	ND	ug/m3	13.4	13.4		01/04/13 23:28	622-96-8	
n-Heptane	ND	ug/m3	11.1	13.4		01/04/13 23:28	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	29.5	13.4		01/04/13 23:28	87-68-3	
n-Hexane	ND	ug/m3	9.6	13.4		01/04/13 23:28	110-54-3	
2-Hexanone	ND	ug/m3	11.1	13.4		01/04/13 23:28	591-78-6	
Methylene Chloride	ND	ug/m3	9.5	13.4		01/04/13 23:28	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/m3	11.1	13.4		01/04/13 23:28	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	9.8	13.4		01/04/13 23:28	1634-04-4	
Naphthalene	ND	ug/m3	14.3	13.4		01/04/13 23:28	91-20-3	
2-Propanol	ND	ug/m3	6.7	13.4		01/04/13 23:28	67-63-0	
Propylene	ND	ug/m3	4.7	13.4		01/04/13 23:28	115-07-1	
Styrene	ND	ug/m3	11.7	13.4		01/04/13 23:28	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	9.4	13.4		01/04/13 23:28	79-34-5	

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REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 9309 Oschendorf
 Pace Project No.: 10216400

Sample: VIAI-9309-Air-01 Lab ID: 10216400001 Collected: 12/20/12 11:15 Received: 12/27/12 11:20 Matrix: Air

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Tetrachloroethene	ND	ug/m3	9.2	13.4		01/04/13 23:28	127-18-4	
Tetrahydrofuran	ND	ug/m3	8.0	13.4		01/04/13 23:28	109-99-9	
Toluene	17.3	ug/m3	10.3	13.4		01/04/13 23:28	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	20.2	13.4		01/04/13 23:28	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	14.9	13.4		01/04/13 23:28	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	7.4	13.4		01/04/13 23:28	79-00-5	
Trichloroethene	ND	ug/m3	7.4	13.4		01/04/13 23:28	79-01-6	
Trichlorofluoromethane	ND	ug/m3	15.3	13.4		01/04/13 23:28	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	21.4	13.4		01/04/13 23:28	76-13-1	
1,2,4-Trimethylbenzene	22.8	ug/m3	13.4	13.4		01/04/13 23:28	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	13.4	13.4		01/04/13 23:28	108-67-8	
Vinyl acetate	ND	ug/m3	9.6	13.4		01/04/13 23:28	108-05-4	
Vinyl chloride	ND	ug/m3	3.5	13.4		01/04/13 23:28	75-01-4	
m&p-Xylene	ND	ug/m3	23.6	13.4		01/04/13 23:28	179601-23-1	
o-Xylene	ND	ug/m3	11.8	13.4		01/04/13 23:28	95-47-6	



QUALITY CONTROL DATA

Project: 9309 Oschendorf
 Pace Project No.: 10216400

QC Batch: AIR/16522 Analysis Method: TO-15
 QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
 Associated Lab Samples: 10216400001

METHOD BLANK: 1359520 Matrix: Air
 Associated Lab Samples: 10216400001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	1.1	01/04/13 14:08	
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.70	01/04/13 14:08	
1,1,2-Trichloroethane	ug/m3	ND	0.55	01/04/13 14:08	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	1.6	01/04/13 14:08	
1,1-Dichloroethane	ug/m3	ND	0.82	01/04/13 14:08	
1,1-Dichloroethene	ug/m3	ND	0.81	01/04/13 14:08	
1,2,4-Trichlorobenzene	ug/m3	ND	1.5	01/04/13 14:08	
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	01/04/13 14:08	
1,2-Dibromoethane (EDB)	ug/m3	ND	1.6	01/04/13 14:08	
1,2-Dichlorobenzene	ug/m3	ND	1.2	01/04/13 14:08	
1,2-Dichloroethane	ug/m3	ND	0.41	01/04/13 14:08	
1,2-Dichloropropane	ug/m3	ND	0.94	01/04/13 14:08	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	01/04/13 14:08	
1,3-Butadiene	ug/m3	ND	0.45	01/04/13 14:08	
1,3-Dichlorobenzene	ug/m3	ND	1.2	01/04/13 14:08	
1,4-Dichlorobenzene	ug/m3	ND	1.2	01/04/13 14:08	
2-Butanone (MEK)	ug/m3	ND	0.60	01/04/13 14:08	
2-Hexanone	ug/m3	ND	0.83	01/04/13 14:08	
2-Propanol	ug/m3	ND	0.50	01/04/13 14:08	
4-Ethyltoluene	ug/m3	ND	1.0	01/04/13 14:08	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	0.83	01/04/13 14:08	
Acetone	ug/m3	ND	0.48	01/04/13 14:08	
Benzene	ug/m3	ND	0.32	01/04/13 14:08	
Benzyl chloride	ug/m3	ND	1.0	01/04/13 14:08	
Bromodichloromethane	ug/m3	ND	1.4	01/04/13 14:08	
Bromoform	ug/m3	ND	2.1	01/04/13 14:08	
Bromomethane	ug/m3	ND	0.79	01/04/13 14:08	
Carbon disulfide	ug/m3	ND	0.63	01/04/13 14:08	
Carbon tetrachloride	ug/m3	ND	0.64	01/04/13 14:08	
Chlorobenzene	ug/m3	ND	0.94	01/04/13 14:08	
Chloroethane	ug/m3	ND	0.54	01/04/13 14:08	
Chloroform	ug/m3	ND	0.99	01/04/13 14:08	
Chloromethane	ug/m3	ND	0.42	01/04/13 14:08	
cis-1,2-Dichloroethene	ug/m3	ND	0.81	01/04/13 14:08	
cis-1,3-Dichloropropene	ug/m3	ND	0.92	01/04/13 14:08	
Cyclohexane	ug/m3	ND	0.70	01/04/13 14:08	
Dibromochloromethane	ug/m3	ND	1.7	01/04/13 14:08	
Dichlorodifluoromethane	ug/m3	ND	1.0	01/04/13 14:08	
Dichlorotetrafluoroethane	ug/m3	ND	1.4	01/04/13 14:08	
Ethanol	ug/m3	ND	0.38	01/04/13 14:08	
Ethyl acetate	ug/m3	ND	0.73	01/04/13 14:08	
Ethylbenzene	ug/m3	ND	0.88	01/04/13 14:08	
Hexachloro-1,3-butadiene	ug/m3	ND	2.2	01/04/13 14:08	

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REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Oschendorf
 Pace Project No.: 10216400

METHOD BLANK: 1359520 Matrix: Air
 Associated Lab Samples: 10216400001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/m3	ND	1.8	01/04/13 14:08	
Methyl-tert-butyl ether	ug/m3	ND	0.73	01/04/13 14:08	
Methylene Chloride	ug/m3	ND	0.71	01/04/13 14:08	
n-Heptane	ug/m3	ND	0.83	01/04/13 14:08	
n-Hexane	ug/m3	ND	0.72	01/04/13 14:08	
Naphthalene	ug/m3	ND	1.1	01/04/13 14:08	
o-Xylene	ug/m3	ND	0.88	01/04/13 14:08	
Propylene	ug/m3	ND	0.35	01/04/13 14:08	
Styrene	ug/m3	ND	0.87	01/04/13 14:08	
Tetrachloroethene	ug/m3	ND	0.69	01/04/13 14:08	
Tetrahydrofuran	ug/m3	ND	0.60	01/04/13 14:08	
Toluene	ug/m3	ND	0.77	01/04/13 14:08	
trans-1,2-Dichloroethene	ug/m3	ND	0.81	01/04/13 14:08	
trans-1,3-Dichloropropene	ug/m3	ND	0.92	01/04/13 14:08	
Trichloroethene	ug/m3	ND	0.55	01/04/13 14:08	
Trichlorofluoromethane	ug/m3	ND	1.1	01/04/13 14:08	
Vinyl acetate	ug/m3	ND	0.72	01/04/13 14:08	
Vinyl chloride	ug/m3	ND	0.26	01/04/13 14:08	

LABORATORY CONTROL SAMPLE: 1359521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	54.2	98	69-131	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	73.6	105	66-135	
1,1,2-Trichloroethane	ug/m3	55.5	61.8	111	68-132	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	70.5	90	65-130	
1,1-Dichloroethane	ug/m3	41.2	47.1	114	66-131	
1,1-Dichloroethene	ug/m3	40.3	47.7	118	64-136	
1,2,4-Trichlorobenzene	ug/m3	75.5	98.8	131	30-150	CH,SS
1,2,4-Trimethylbenzene	ug/m3	50	47.8	96	71-135	
1,2-Dibromoethane (EDB)	ug/m3	78.1	75.9	97	72-132	
1,2-Dichlorobenzene	ug/m3	61.2	63.6	104	68-148	
1,2-Dichloroethane	ug/m3	41.2	45.8	111	66-136	
1,2-Dichloropropane	ug/m3	47	50.0	106	68-133	
1,3,5-Trimethylbenzene	ug/m3	50	49.5	99	69-136	
1,3-Butadiene	ug/m3	22.5	18.8	83	69-134	
1,3-Dichlorobenzene	ug/m3	61.2	65.5	107	70-134	
1,4-Dichlorobenzene	ug/m3	61.2	62.7	103	66-134	
2-Butanone (MEK)	ug/m3	30	48.4	161	69-141	CH,L1,SS
2-Hexanone	ug/m3	41.7	50.3	121	74-132	
2-Propanol	ug/m3	25	32.3	129	64-139	
4-Ethyltoluene	ug/m3	50	55.2	110	71-134	
4-Methyl-2-pentanone (MIBK)	ug/m3	41.7	51.9	125	74-131	
Acetone	ug/m3	24.2	38.1	158	62-142	CH,L1,SS
Benzene	ug/m3	32.5	31.3	96	72-136	

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QUALITY CONTROL DATA

Project: 9309 Oschendorf
 Pace Project No.: 10216400

LABORATORY CONTROL SAMPLE: 1359521

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzyl chloride	ug/m3	52.5	63.0	120	70-134	
Bromodichloromethane	ug/m3	68.2	77.8	114	69-135	
Bromoform	ug/m3	105	109	104	72-133	
Bromomethane	ug/m3	39.5	28.2	71	65-125	
Carbon disulfide	ug/m3	31.7	30.3	96	68-127	
Carbon tetrachloride	ug/m3	64	75.1	117	64-133	
Chlorobenzene	ug/m3	46.8	44.2	94	65-135	
Chloroethane	ug/m3	26.8	23.7	88	63-129	
Chloroform	ug/m3	49.7	48.1	97	66-129	
Chloromethane	ug/m3	21	19.6	93	57-135	
cis-1,2-Dichloroethene	ug/m3	40.3	36.5	91	73-135	
cis-1,3-Dichloropropene	ug/m3	46.2	52.6	114	75-137	
Cyclohexane	ug/m3	35	38.6	110	73-139	
Dibromochloromethane	ug/m3	86.6	89.6	103	73-130	
Dichlorodifluoromethane	ug/m3	50.3	50.4	100	64-131	
Dichlorotetrafluoroethane	ug/m3	71.1	59.3	83	64-131	
Ethanol	ug/m3	19.2	19.7	103	62-134	
Ethyl acetate	ug/m3	36.6	44.2	121	73-136	
Ethylbenzene	ug/m3	44.2	42.4	96	74-136	
Hexachloro-1,3-butadiene	ug/m3	108	159	146	30-150	CH,SS
m&p-Xylene	ug/m3	44.2	42.1	95	72-135	
Methyl-tert-butyl ether	ug/m3	36.7	34.0	93	71-134	
Methylene Chloride	ug/m3	35.3	39.5	112	59-140	
n-Heptane	ug/m3	41.7	48.3	116	73-136	
n-Hexane	ug/m3	35.8	56.3	157	67-136	CH,L1
Naphthalene	ug/m3	53.3	75.2	141	30-150	CH,SS
o-Xylene	ug/m3	44.2	43.6	99	74-135	
Propylene	ug/m3	17.5	17.9	102	66-138	
Styrene	ug/m3	43.3	49.1	113	73-135	
Tetrachloroethene	ug/m3	69	60.8	88	66-135	
Tetrahydrofuran	ug/m3	30	32.2	107	73-130	
Toluene	ug/m3	38.3	47.2	123	71-134	
trans-1,2-Dichloroethene	ug/m3	40.3	31.8	79	68-129	
trans-1,3-Dichloropropene	ug/m3	46.2	50.9	110	75-129	
Trichloroethene	ug/m3	54.6	52.0	95	68-134	
Trichlorofluoromethane	ug/m3	57.1	61.3	107	61-134	
Vinyl acetate	ug/m3	35.8	42.7	119	70-139	
Vinyl chloride	ug/m3	26	22.5	87	64-134	

SAMPLE DUPLICATE: 1360617

Parameter	Units	10215436001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	ND		25	
1,1,2,2-Tetrachloroethane	ug/m3	ND	ND		25	
1,1,2-Trichloroethane	ug/m3	ND	ND		25	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	ND		25	
1,1-Dichloroethane	ug/m3	ND	ND		25	

Date: 01/10/2013 03:18 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 9309 Oschendorf
 Pace Project No.: 10216400

SAMPLE DUPLICATE: 1360617

Parameter	Units	10215436001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1-Dichloroethene	ug/m3	ND	ND		25	
1,2,4-Trichlorobenzene	ug/m3	ND	ND		25	
1,2,4-Trimethylbenzene	ug/m3	ND	ND		25	
1,2-Dibromoethane (EDB)	ug/m3	ND	ND		25	
1,2-Dichlorobenzene	ug/m3	ND	ND		25	
1,2-Dichloroethane	ug/m3	ND	ND		25	
1,2-Dichloropropane	ug/m3	ND	ND		25	
1,3,5-Trimethylbenzene	ug/m3	ND	ND		25	
1,3-Butadiene	ug/m3	ND	ND		25	
1,3-Dichlorobenzene	ug/m3	ND	ND		25	
1,4-Dichlorobenzene	ug/m3	ND	ND		25	
2-Butanone (MEK)	ug/m3	0.93	0.72	25	25	CH,L1,SS
2-Hexanone	ug/m3	ND	ND		25	
2-Propanol	ug/m3	ND	ND		25	
4-Ethyltoluene	ug/m3	ND	ND		25	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	ND		25	
Acetone	ug/m3	ND	3.2		25	CH,L1,SS
Benzene	ug/m3	0.34	.31J		25	
Benzyl chloride	ug/m3	ND	ND		25	
Bromodichloromethane	ug/m3	ND	ND		25	
Bromoform	ug/m3	ND	ND		25	
Bromomethane	ug/m3	ND	ND		25	
Carbon disulfide	ug/m3	2.5	2.3	9	25	
Carbon tetrachloride	ug/m3	1.8	1.8	.1	25	
Chlorobenzene	ug/m3	ND	ND		25	
Chloroethane	ug/m3	ND	ND		25	
Chloroform	ug/m3	ND	ND		25	
Chloromethane	ug/m3	0.70	0.72	3	25	
cis-1,2-Dichloroethene	ug/m3	ND	ND		25	
cis-1,3-Dichloropropene	ug/m3	ND	ND		25	
Cyclohexane	ug/m3	ND	ND		25	
Dibromochloromethane	ug/m3	ND	ND		25	
Dichlorodifluoromethane	ug/m3	2.5	2.4	2	25	
Dichlorotetrafluoroethane	ug/m3	ND	ND		25	
Ethanol	ug/m3	2.2	2.0	6	25	
Ethyl acetate	ug/m3	ND	ND		25	
Ethylbenzene	ug/m3	ND	ND		25	
Hexachloro-1,3-butadiene	ug/m3	ND	ND		25	
m&p-Xylene	ug/m3	ND	ND		25	
Methyl-tert-butyl ether	ug/m3	ND	ND		25	
Methylene Chloride	ug/m3	0.90	0.85	6	25	
n-Heptane	ug/m3	ND	ND		25	
n-Hexane	ug/m3	0.44	ND		25	
Naphthalene	ug/m3	ND	ND		25	
o-Xylene	ug/m3	ND	ND		25	
Propylene	ug/m3	ND	ND		25	
Styrene	ug/m3	1.1	1.1	5	25	
Tetrachloroethene	ug/m3	ND	ND		25	

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Pace Project No.: 10216400

SAMPLE DUPLICATE: 1360617

Parameter	Units	10215436001 Result	Dup Result	RPD	Max RPD	Qualifiers
Tetrahydrofuran	ug/m3	ND	ND		25	
Toluene	ug/m3	0.82	.75J		25	
trans-1,2-Dichloroethene	ug/m3	ND	ND		25	
trans-1,3-Dichloropropene	ug/m3	ND	ND		25	
Trichloroethene	ug/m3	ND	ND		25	
Trichlorofluoromethane	ug/m3	1.5	1.5	.3	25	
Vinyl acetate	ug/m3	ND	ND		25	
Vinyl chloride	ug/m3	ND	ND		25	

SAMPLE DUPLICATE: 1360618

Parameter	Units	10215523001 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	ND		25	
1,1,2,2-Tetrachloroethane	ug/m3	ND	ND		25	
1,1,2-Trichloroethane	ug/m3	ND	ND		25	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	ND		25	
1,1-Dichloroethane	ug/m3	ND	ND		25	
1,1-Dichloroethene	ug/m3	ND	ND		25	
1,2,4-Trichlorobenzene	ug/m3	ND	ND		25	
1,2,4-Trimethylbenzene	ug/m3	ND	ND		25	
1,2-Dibromoethane (EDB)	ug/m3	ND	ND		25	
1,2-Dichlorobenzene	ug/m3	ND	ND		25	
1,2-Dichloroethane	ug/m3	ND	ND		25	
1,2-Dichloropropane	ug/m3	ND	ND		25	
1,3,5-Trimethylbenzene	ug/m3	ND	.26J		25	
1,3-Butadiene	ug/m3	ND	ND		25	
1,3-Dichlorobenzene	ug/m3	ND	ND		25	
1,4-Dichlorobenzene	ug/m3	ND	ND		25	
2-Butanone (MEK)	ug/m3	ND	ND		25	
2-Hexanone	ug/m3	ND	ND		25	
2-Propanol	ug/m3	ND	ND		25	
4-Ethyltoluene	ug/m3	ND	ND		25	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	ND		25	
Acetone	ug/m3	12.9	14.9	14	25	CH,L1,SS
Benzene	ug/m3	0.98	1.0	3	25	
Benzyl chloride	ug/m3	ND	ND		25	
Bromodichloromethane	ug/m3	ND	ND		25	
Bromoform	ug/m3	ND	ND		25	
Bromomethane	ug/m3	ND	ND		25	
Carbon disulfide	ug/m3	ND	ND		25	
Carbon tetrachloride	ug/m3	2.3	2.3	.04	25	
Chlorobenzene	ug/m3	ND	ND		25	
Chloroethane	ug/m3	ND	ND		25	
Chloroform	ug/m3	ND	ND		25	
Chloromethane	ug/m3	0.71	0.84	17	25	
cis-1,2-Dichloroethene	ug/m3	ND	ND		25	
cis-1,3-Dichloropropene	ug/m3	ND	ND		25	

Date: 01/10/2013 03:18 PM

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QUALITY CONTROL DATA

Project: 9309 Oschendorf
 Pace Project No.: 10216400

SAMPLE DUPLICATE: 1360618

Parameter	Units	10215523001 Result	Dup Result	RPD	Max RPD	Qualifiers
Cyclohexane	ug/m3	1.2	1.3	9	25	
Dibromochloromethane	ug/m3	ND	ND		25	
Dichlorodifluoromethane	ug/m3	2.2	2.4	8	25	
Dichlorotetrafluoroethane	ug/m3	ND	ND		25	
Ethanol	ug/m3	23.0	27.2	17	25	
Ethyl acetate	ug/m3	1.1	1.2	12	25	
Ethylbenzene	ug/m3	ND	.58J		25	
Hexachloro-1,3-butadiene	ug/m3	ND	ND		25	
m&p-Xylene	ug/m3	ND	2J		25	
Methyl-tert-butyl ether	ug/m3	ND	ND		25	
Methylene Chloride	ug/m3	1.3	1.3	6	25	
n-Heptane	ug/m3	1.4	1.6	9	25	
n-Hexane	ug/m3	1.3	1.4	11	25	CH,L1
Naphthalene	ug/m3	ND	ND		25	
o-Xylene	ug/m3	ND	.58J		25	
Propylene	ug/m3	ND	ND		25	
Styrene	ug/m3	ND	ND		25	
Tetrachloroethene	ug/m3	ND	ND		25	
Tetrahydrofuran	ug/m3	ND	ND		25	
Toluene	ug/m3	5.0	5.4	8	25	
trans-1,2-Dichloroethene	ug/m3	ND	ND		25	
trans-1,3-Dichloropropene	ug/m3	ND	ND		25	
Trichloroethene	ug/m3	ND	ND		25	
Trichlorofluoromethane	ug/m3	ND	1.5J		25	
Vinyl acetate	ug/m3	ND	ND		25	
Vinyl chloride	ug/m3	ND	ND		25	



QUALIFIERS

Project: 9309 Oschendorf
Pace Project No.: 10216400

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.

ND - Not Detected at or above adjusted reporting limit.

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 10216400001

- [1] The Total Hydrocarbon (THC) pattern occurred in the second half of the chromatogram (after toluene).
- [2] Sample was analyzed in hold but unreportable due to QC Failure. Sample re-analyzed beyond the recommended MPCA Guidance Document 4-01a 14 day holding time. Analysis occurred within 30 days of collection, the EPA method TO-15 recommended holding time.

ANALYTE QUALIFIERS

- CH The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased high.
- L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.
- SS This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.



Pace Analytical Services, Inc.
1700 Elm Street - Suite 200
Minneapolis, MN 55414
(612)607-1700

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 9309 Oschendorf

Pace Project No.: 10216400

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10216400001	VIAI-9309-Air-01	TO-15	AIR/16522		

Data File: \\192.168.10.12\chem\10air0.i\010413.b\00424.D
Report Date: 07-Jan-2013 13:11

Pace Analytical Services, Inc.

TENTATIVELY IDENTIFIED COMPOUNDS

Client Name:
Lab Smp Id: 10216400001
Operator : CJR
Sample Location:
Sample Matrix: AIR
Analysis Type: VOA
Inj Date: 04-JAN-2013 23:28

Client SDG: 010413.b
Sample Date:
Sample Point:
Date Received:
Level: LOW

Number TICs found: 10

CONCENTRATION UNITS:
(ug/L or ug/KG) ppbv

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	3.833	1220	J
2.	Unknown	15.228	453	J
3. 81983-70-2	Cyclohexane, 2-propyl-1,1,3	15.979	410	NJ
4. 1000152-47-	trans-Decalin, 2-methyl-	16.096	580	NJ
5.	Unknown	16.295	447	J
6.	Unknown	16.462	460	J
7.	Unknown	16.599	402	J
8. 1000111-72-	cis,trans-1,6-Dimethylspiro	16.791	399	NJ
9.	Unknown	17.021	380	J
10.	Unknown	17.399	296	J

Pace Analytical Services, Inc.

TO15 Analysis (UNIX)

Data file : \\192.168.10.12\chem\10air0.i\010413.b\00424.D
 Lab Smp Id: 10216400001
 Inj Date : 04-JAN-2013 23:28
 Operator : CJR
 Smp Info :
 Misc Info : 16522
 Comment : Volatile Organic COMPOUNDS in Air
 Method : \\192.168.10.12\chem\10air0.i\010413.b\TO15_002-13.m
 Meth Date : 07-Jan-2013 11:43 creindl Quant Type: ISTD
 Cal Date : 02-JAN-2013 14:01 Cal File: 00213.D
 Als bottle: 24
 Dil Factor: 13.40000
 Integrator: HP RTE
 Target Version: 4.14
 Processing Host: 10MNCREINDL

Inst ID: 10air0.i

Compound Sublist: all.sub

Concentration Formula: Amt * DF * Uf * CpndVariable

Name	Value	Description
DF	13.400	Dilution Factor
UF	1.000	ng unit correction factor
Cpnd Variable		Local Compound Variable

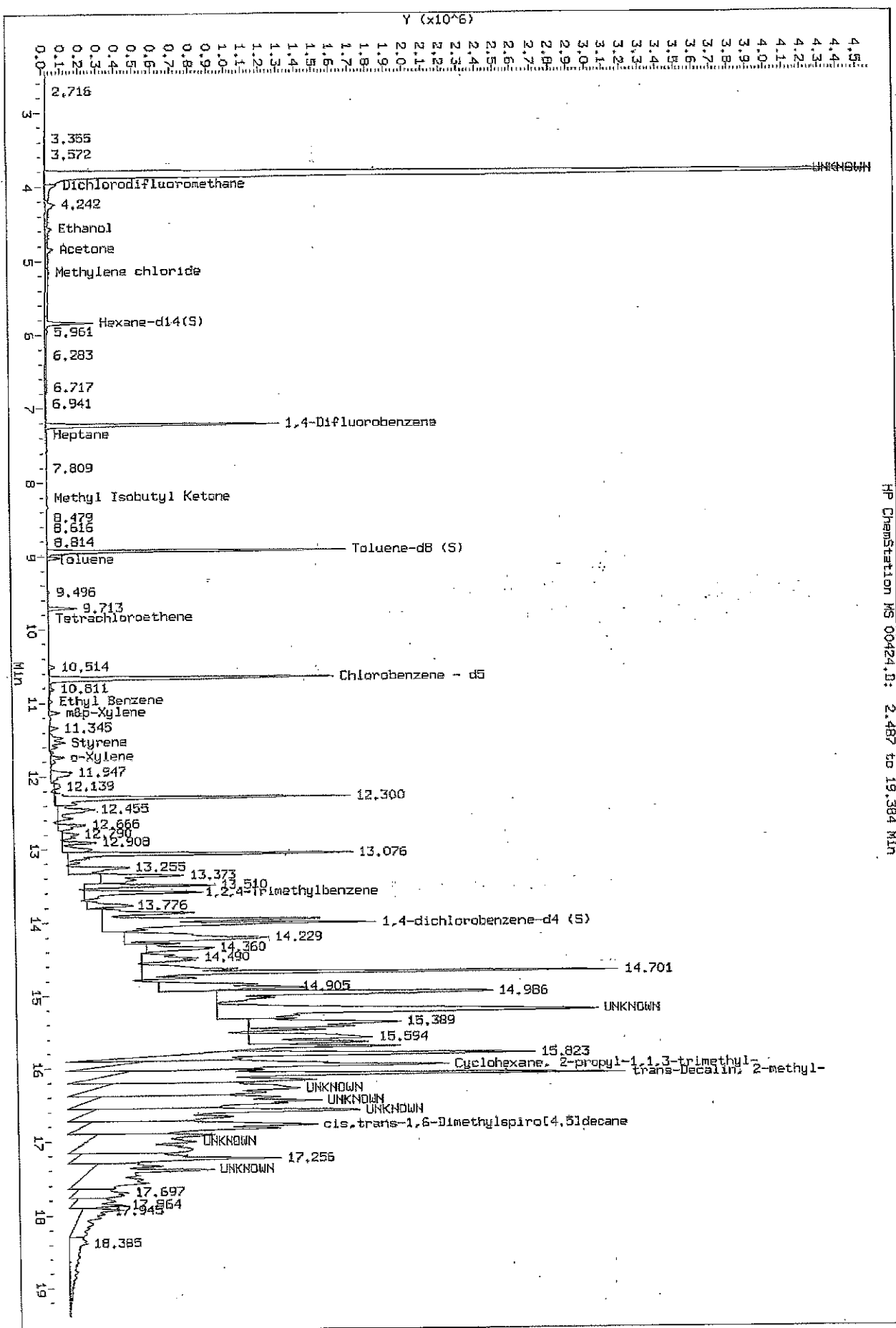
ISTD	RT	AREA	AMOUNT	
* 38	1,4-Difluorobenzene	7.226	2212379	10.000
* 55	Chlorobenzene - d5	10.675	3077553	10.000

RT	AREA	CONCENTRATIONS		QUAL	QUANT		CPND #
		ON-COL (ppbv)	FINAL (ppbv)		LIBRARY	LIB ENTRY	
Unknown					CAS #:		
3.833	20148069	91.6696946	1220	0		0	38
Unknown					CAS #:		
15.228	10412089	33.8323577	453	0		0	55
Cyclohexane, 2-propyl-1,1,3-trimethyl-					CAS #: 81983-70-2		
15.979	9407442	30.5579241	410	70	NIST05.L	35081	55
trans-Decalin, 2-methyl-					CAS #: 1000152-47-3		
16.096	13329215	43.3110754	580	81	NIST05.L	24396	55
Unknown					CAS #:		
15.295	10270254	33.3714910	447	0		0	55

RT	CONCENTRATIONS			QUAL	QUANT		CPND #
	AREA	ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
====	====	=====	=====	====	=====	=====	=====
Unknown					CAS #:		
16.462	10557829	34.3059498	460	0		0	55
Unknown					CAS #:		
16.599	9226701	29.9806362	402	0		0	55
cis,trans-1,6-Dimethylspiro[4.5]decane					CAS #: 1060111-72-3		
16.791	9160909	29.7668564	399	92	NIST05.L	33565	55
Unknown					CAS #:		
17.021	8733295	28.3773968	380	0		0	55
Unknown					CAS #:		
17.399	6787591	22.0551520	296	0		0	55

Data File: \\192.168.10.12\chem\10airp.1\1010413.b\00424.D
 Injection Date: 04-JUN-2013 23:28
 Instrument: 10airp.1
 Client Sample ID:

HP ChemStation MS 00424.D: 2.487 to 19.384 Min





AIR: CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

10216400

Section A Required Client Information: Company: <u>WELC</u> Address: <u>14 Coconino Blvd</u> Email To: <u>Morris MN</u> Phone: _____ Fax: _____ Requested Due Date/TAT: _____		Section B Required Project Information: Report To: <u>Matt Johnson</u> Copy To: _____ Purchase Order No.: _____ Project Name: <u>Oshindab</u> Project Number: <u>9309</u>		Section C Invoice Information: Attention: <u>Sheldon Green</u> Company Name: _____ Address: _____ Pace Quote Reference: _____ Pace Project Manager/Sales Rep. _____ Pace Profile #: _____		Page: <u>17256</u> of _____
--	--	--	--	---	--	-----------------------------

ITEM #	Section D Required Client Information		COLLECTED		Canister Pressure (Initial Field - psig)	Canister Pressure (Final Field - psig)	Summa Can Number	Flow Control Number	Pace Lab ID
	AIR SAMPLE ID	Sample IDs MUST BE UNIQUE	MEDIA CODE	PID Reading (Client only)					
1	<u>VIAI-9309-Air-01</u>		<u>64</u>				<u>170</u>		
2									
3									
4									
5									
6									
7									
8									
9									
10									
11									
12									

SUPERFUND/MULTISITE PROJECT

REINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS			
						Temp in °C	Received on Ice	Custody Sealed Cooler	Samples Intact
<u>Andrew Scott</u>	<u>12/26</u>	<u>1045</u>	<u>Andrew Scott</u>	<u>12/26</u>	<u>1045</u>	Y/N	Y/N	Y/N	Y/N
<u>Andrew Scott</u>	<u>12/26</u>	<u>11:20</u>	<u>Andrew Scott</u>	<u>12/26</u>	<u>11:20</u>	Y/N	Y/N	Y/N	Y/N

Comments: Valve threads show
thing is a punch
from damaged
sum

LK # 17482

SAMPLER NAME AND SIGNATURE
 PRINT Name of SAMPLER: _____
 SIGNATURE of SAMPLER: [Signature]
 DATE Signed: 12/26/00

ORIGINAL



Document Name:
Air Sample Condition Upon Receipt
Document No.:
F-MN-A-106-rev.06

Document Revised: 13Nov2012
Page 1 of 1
Issuing Authority:
Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name:

Project #:

WO#: 10216400

WCEC

Courier: Fed Ex UPS USPS Client
 Commercial Pace Other: *Speedee*



Tracking Number: _____

Custody Seal on Cooler/Box Present? Yes No
Seals Intact? Yes No

Optional: Proj. Due Date: _____ Proj. Name: _____

Packing Material: Bubble Wrap Bubble Bags Foam None Other: _____

Temperature (TO17 and TO13 samples only) (°C): *AMB* Corrected Temp (°C): _____ Thermometer Used: B88A912167504 80512447
Temp should be above freezing to 6°C Date & Initials of Person Examining Contents: *CA 12/24/12*

Comments: _____

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	9.
Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	10.
Media: <i>Air Can</i>		11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A	12.

Samples Received: *1 Can, 1 bag*

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
<i>V11-9309-A1-01</i>	<i>Pace 0170</i>				<i>AAA</i>

CLIENT NOTIFICATION/RESOLUTION
 Person Contacted: _____ Date/Time: _____
 Comments/Resolution: _____
 Field Data Required? Yes No

Project Manager Review: *DM* Date: *12/27/12*
 Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DEHNR Certification Office (i.e. out of hold, incorrect preservative, out of temp, incorrect containers)

APPENDIX B

Methodologies and Procedures

SOIL SAMPLING PROCEDURES

Hand Auger

Ochsendorf Residence
Hector, MN
WCEC Project No.: 12-9309-30

Hand Auger

Test hole borings were conducted with a 3" Dutch hand Auger. Hand auger borings were completed to the approximate depth of 5 feet. The hand auger was decontaminated between each hole.

Headspace Analysis of Soil Samples

Soil samples for on-site screening were placed in plastic, a Ziplock®-style bags. Each bag was half-filled with soil and sealed. Headspace development proceeded for a minimum of 10 minutes; each bag was shaken for 15 seconds before and after this period. Analysis was performed with a photoionization detector (PID). To perform the field headspace analysis, the PID was inserted through the plastic bag to a depth of approximately one-half of the total headspace, and maximum meter response over a period of 5 seconds was recorded.

The PID used was a Minnie Rae Plus model PGM75K with a 10.6 eV lamp. The PID was calibrated on site each morning, noon, and afternoon with compressed isobutylene gas to read parts-per-million volume/volume of benzene vapors.

Laboratory Analysis of Soil and Water Samples

Soil samples were collected in laboratory-supplied, test-specific sample containers, then stored and shipped in ice-filled containers along with a chain of custody form(s). Water samples were analyzed for benzene, ethyl-benzene, toluene, and xylene (BTEX), methyl tertiary butyl ether (MTBE), volatile organic compounds (VOCs), gasoline range organics (GRO), and/or diesel range organics (DRO).

VAPOR INTRUSION SAMPLING PROCEDURES

Ochsendorf Residence

Hector, MN

WCEC Project No.: 12-9309-30

Vapor Sampling- Soil Gas

Soil gas sampling points are advanced to 4 feet below grade using direct push technology (Geoprobe[®]). The soil gas sampling device is a four-foot long steel rod with a 1-inch outside diameter (OD). A slotted aluminum drive point attached to 1/4" OD polyethylene tubing is attached to the rod and driven to a desired depth by a hydraulic drive/push hammer. When desired depth is reached, the steel rod is detached from the aluminum drive point, leaving the tubing and drive point in the ground. To create a seal above the point, 2 cup of coarse sand is poured into the boring to cover the aluminum drive point, followed by 1 cup of bentonite and 2 cup of distilled water. The bentonite water combination may be repeated, and then bentonite is used to backfill the remaining hole, followed by more distilled water. This process is to ensure samples collected are representative of sub-surface vapors. Upon completion of sampling, the borings are backfilled or grouted in accordance with Minnesota Department of Health (MDH) guidelines. New tubing and drive points are used for each boring/sample to eliminate cross contamination.

Vapor Sampling- Sub-Slab

WCEC used an electric concrete coring tool to obtain a soil gas sample from beneath the slab-on-grade. An aluminum drive point attached to 1/4" OD polyethylene tubing is installed just below the cement slab. Coarse sand is used to cover the aluminum drive point and bentonite is used to backfill a portion of the hole, then sealed at the surface with cement to prevent infiltration of ambient air. After the first round of sampling the tubing was sealed with a removable plug. Upon completion of the second sampling event, the sampling points was removed and patched with cement.

Sub-Slab Sampling

A central location, away from foundation footings and floor penetrations, on the basement floor or slab-on-grade is required for sub-slab sampling. Once an appropriate location is found, an electric concrete coring tool (KVA Drill) with a 3/4" wide by 1' long bit is used to drill a hole through the basement foundation or slab-on-grade in order to advance a disposable aluminum sampling point to a desired sub-slab depth. The aluminum point is attached to 1/4" outside diameter (OD) polyethylene tubing, which is woven through a hollow steel push rod (1" OD), and is driven to a desired depth by a hammer. When a desired depth is reached, the steel rod is detached from the aluminum drive point, leaving the tubing and drive point in the ground. In most cases, a sample obtained immediately below the slab is required, therefore, the steel rods are used simply to secure the point directly under the slab. After any steel rods are removed, coarse sand is used to cover the aluminum point and bentonite is used to backfill the remaining hole. The boring is sealed at the surface either with grout or cement to prevent infiltration of ambient air.

Prior to collecting the sample, a minimum of two volumes (i.e. total volume of the sampling point tube) is purged utilizing a graduated syringe. To isolate soil gas from surface air inside of the tubing,

a locking type clamp is used on the tubing between purging and sampling. After the tubing is purged, an in-line moisture trap is installed to prevent moisture from entering the Summa® canister. A sample is collected by attaching the top end of the tubing to the Summa® canister instrumented with a vacuum gauge. Vacuum gauges are only used one time and the vacuum pressure in any remaining canisters is assumed. The Summa® canister valve is closed after the vacuum gauge indicates that the canister is full.

Upon completion, the sampling points are backfilled or grouted in accordance with Minnesota Department of Health (MDH) guidelines and the concrete is patched. All tubing and drive points are replaced after each sample to eliminate sample carryover problems.

Indoor Air Sampling

WCEC's method of indoor air sampling follows the MPCA Guidance Document 4-01a, which involves the use of a Summa® canister analyzed using the EPA TO-15 (full-scan) method for the compounds listed in the Minnesota Soil Gas List (Appendix A of MPCA Guidance Document 4-01a). Prior to collecting indoor samples, a pre-sampling indoor inspection is performed. An Indoor Air Quality Survey is also completed at least two weeks prior to sample collection. A completed questionnaire, as well as details of what modifications the occupants were requested to make and to what extent they complied with the request is gathered. Per inspection and questionnaire results, vapor sampling points are determined. Ideally, samples are collected from the lowest level of the structure near the suspected source and from the main floor and/or other commonly used spaces to assess worst-case exposures and the distribution of contaminants within the structure.

For main floor and/or commonly used spaces, the Summa® canister sample port is placed in the breathing zone, approximately 3-5 feet from the floor, in the center of the room. For the lowest level of the structure (e.g., basements), the Summa® canister sample port is placed directly near the point of suspected vapor entry (e.g., sump).

A flow controller is attached to the Summa® canister to regulate flow over a 24 hour period. After 24 hours WCEC returns to close the valve on the canister, collect the canister and record the time on the Air Sampling Form and the Chain-of-Custody. If a grab sample is required, a flow controller is not used. On every indoor air sample, WCEC uses an in-line moisture trap to prevent moisture from entering the canister.

Soil Gas Sample Collection

Prior to collecting the sample, a minimum of two volumes (i.e., total volume of the sampling point tube) is purged from the tube utilizing a graduated syringe. To isolate soil gas from surface air inside of the tubing, a locking-type clamp is used on the tubing during purging and between purging and sampling. After the tubing is purged, an in-line moisture trap is installed to prevent moisture from entering the Summa7 canister. A sample is collected by attaching the top end of the tubing to the Summa7 canister instrumented with a vacuum gauge. The time was noted, and the valve was opened. After the vacuum gauge indicated that the Summa® canister was full, the valve was closed and the total sampling time was recorded. Since the pressure gauge can only be used once (due to moisture), the sampling time of the first canister was used as a guide when collecting subsequent soil gas samples at the site.

Organic Vapor Measurement

A photoionization detector (PID) is used to record the organic vapor measurement. To perform the field analysis, the inert tubing that was used to fill the canister is connected to the PID. The maximum meter response over a period of 5 seconds is recorded. This measurement is recorded onto the chain of custody form and sample field sheet.

The PID used is a Minnie Rae Plus model PGM75K with a 10.6 eV lamp. The PID is fresh air calibrated and span calibrated with compressed isobutylene gas to read parts-per-million volume/volume of benzene vapors at the site prior to use and as needed. In addition, it is calibrated monthly with compressed isobutylene gas to read parts-per-million volume/volume of benzene vapors.

Laboratory Analysis of Vapor Samples

Soil gas samples are collected in laboratory-supplied, test-specific sample containers, then shipped along with a chain of custody form(s). Soil gas samples are analyzed by EPA method TO-15 (full scan) for compounds in the Minnesota Soil Gas List. In situations where high contamination levels are known to exist, such as with elevated organic vapor field screening readings, the use of EPA method TO-14 will be allowable. This determination should be made only by the laboratory.

VAPOR SURVEY PROCEDURES

**Ochsendorf Residence
Hector, MN
WCEC Project #: 12-9309-30**

Equipment and Calibration

Vapor surveys are performed using a MiniRAE photoionization detector (PID) equipped with a 10.6 eV lamp. The PID is fresh air calibrated and span calibrated with isobutylene at the site prior to use and as needed throughout surveying. In addition, it is calibrated monthly with compressed isobutylene gas to read parts-per-million volume/volume of benzene vapors.

Utility Vapor Survey

Utility vapor surveys are coordinated with city personnel when (if) possible. Storm and sanitary sewer covers (STACs) are removed from the sanitary and storm sewer unless slotted. The PID is fitted with tubing and a squeeze bulb to draw sample to the unit and obtain remote readings where appropriate along the column of the utility. All site specific vapor survey points are surveyed and measurements are recorded within the sampling field sheets.

Note: The PID is fresh air calibrated with tubing attached prior to utility measurement.

Basement Vapor Survey

Basement vapor surveys are performed using the PID to assess the ambient air at vapor accumulation and/or entry points within the basement. Possible areas of vapor accumulation and/or entry include basement sewer drains, sumps, cracks in the foundation, building corners, crawl spaces, and in any area of poor circulation. All measurements are collected low to the ground where vapors are concentrated. All site specific vapor survey points are surveyed and measurements are recorded within the sampling field sheets.

**QUALITY ASSURANCE/QUALITY CONTROL
PROCEDURES
Ochsendorf Residence
Hector, MN**

Sampling/Handling Procedures

Disposable latex gloves were used by field technicians at all times during sampling. Gloves were replaced when soiled and between each sampling point to minimize cross and background contamination. Sampling equipment and sampling canisters were kept away from potential sources of cross and background contamination and were replaced if deemed necessary.

Equipment Decontamination

Between uses, all non-disposable sampling equipment was scrubbed in a solution of biodegradable Alconox detergent and distilled water, rinsed with distilled water, rinsed with methyl alcohol, and finally triple-rinsed with distilled water. Water disposal was in accordance with state guidelines.

Chain of Custody

Samples were logged onto a lab-specific chain-of-custody form immediately after a sample was collected. This record contains the following information: project number, sample description, matrix, number of containers, type of preservative, analyses requested, sampling date, sampler(s), sampler's signature(s), WCEC relinquishing signature(s), date, and time.


The last page of the chain-of-custody form was retained by WCEC; the remainder of the form was shipped with the samples to the appropriate laboratory. At the laboratory, the chain-of-custody form was signed by the appropriate laboratory personnel at the time the samples were received. A copy of this chain-of-custody form was included in each laboratory report sent to WCEC. As few persons as possible handled the samples and chain-of-custody form(s).

APPENDIX C












Geologic Logs and Soil Borings

WCEC SOIL BORING LOG

LEAK NUMBER: 17842	BORING #: TH2
PROJECT NUMBER: 12-9309-30	DATE: 12/20/2012
PROJECT NAME: Ochsendorf Property	TIME -start:
DRILLER: Kevin Boike	-end:
DRILLING METHOD: Hand Auger	SURFACE ELEVATION: GPS
BENCHMARK:	

Depth (feet)	Sampling Information			ASTM	Depth	Material Description				Screened Interval	WL	PID (ppm)	PID Converted	Lithology symbol
	T	A	R			Size/Description	Moisture	Color	Other					
0	HA				0-5	Organic Clay with some coarse sand interspersed	Moist	Brown	Slightly Plastic Slight organic odor			0.0	0	
5												0.0	0	
10														
15														
20														
25														

Comments: No Groundwater is present. Only enough moisture within the soil to be slightly plastic.	Water Level Measurements		KEY
	Water Level	Product Level	
	N/A		Sampling Info: T = sample type A = attempt R = recovery B = blow count N = N value Definitions: WL = Water Level Elapsed time = time between end of drilling & sampling.

Topsoil  Sand/Gravel Fill  Silt  Sand  Silty Sand 	Clay  Silty Clay  Sandy Clay  Sand/Gravel  Clayey Sand 	screened interval for temporary well 	Sample Types: MS = macro LB = large bore DT = Dual Tube SP15 = Screen point HA = hand auger SS = split spoon Analysis: LS = lab soil sample LW = lab water sample S = sieve analysis
---	--	--	--

WCEC SOIL BORING LOG

LEAK NUMBER: 17842 PROJECT NUMBER: 12-9309-30 PROJECT NAME: Ochsendorf Property DRILLER: Kevin Boike DRILLING METHOD: Hand Auger BENCHMARK:	BORING #: TH3 DATE: 12/20/2012 TIME -start: -end: SURFACE ELEVATION: GPS
--	---

Depth (feet)	Sampling Information			ASTM	Depth	Material Description				Screened Interval	WL	PID (ppm)	PID Converted	Lithology symbol
	T	A	R			Size/Description	Moisture	Color	Other					
0	HA				0-5	Organic Clay with some coarse sand interspersed	Moist	Brown	Slightly Plastic Slight organic odor			0.0	0	
5												0.0	0	
10														
15														
20														
25														

Comments: No Groundwater is present. Only enough moisture within the soil to be slightly plastic.	Water Level Measurements Water Level: N/A Product Level:	KEY Sampling Info: T = sample type A = attempt R = recovery B = blow count N = N value Definitions: WL = Water Level Elapsed time = time between end of drilling & sampling.	Sample Types: MS = macro LB = large bore DT = Dual Tube SP15 = Screen point HA = hand auger SS = split spoon Analysis: LS = lab soil sample LW = lab water sample S = sieve analysis
---	---	--	--

Topsoil		Clay	
Sand/Gravel Fill		Silty Clay	
Silt		Sandy Clay	
Sand		Sand/Gravel	
Silty Sand		Clayey Sand	

screened
interval for
temporary
well

APPENDIX D

Field or Sampling Data Sheets

Site Name Oschunda Res

9309

Job Type MS

22. Purpose: Preliminary test hole EOC test hole Monitor well Remediation Other

23. WCEC staff Site Mill + Kevin Boike Date 12-20-12

24. Driller Name / address / phone:
Kevin Boike

25. Site manager / owner present? Names 

26. Weather: temperature _____ humidity _____ wind _____
precipitation _____ trends _____

27. Instrument CALIBRATION: (write times of calibration, if different) Instrument TYPE? PID FID
9:00 AM Calibration At 10:30
12:00 NOON _____
3:00 PM _____

Any problems with the instrument? _____

28. Number of holes drilled: 2 29. Any holes you would have liked to drill that you couldn't?
Why? Where? No

30. General Stratigraphy (Describe) Clay - Brown

FIELD MAP CHECKLIST

- Benchmark Loc.
- NORTH ARROW

- Wheel Tape
 Decimal
 Feet

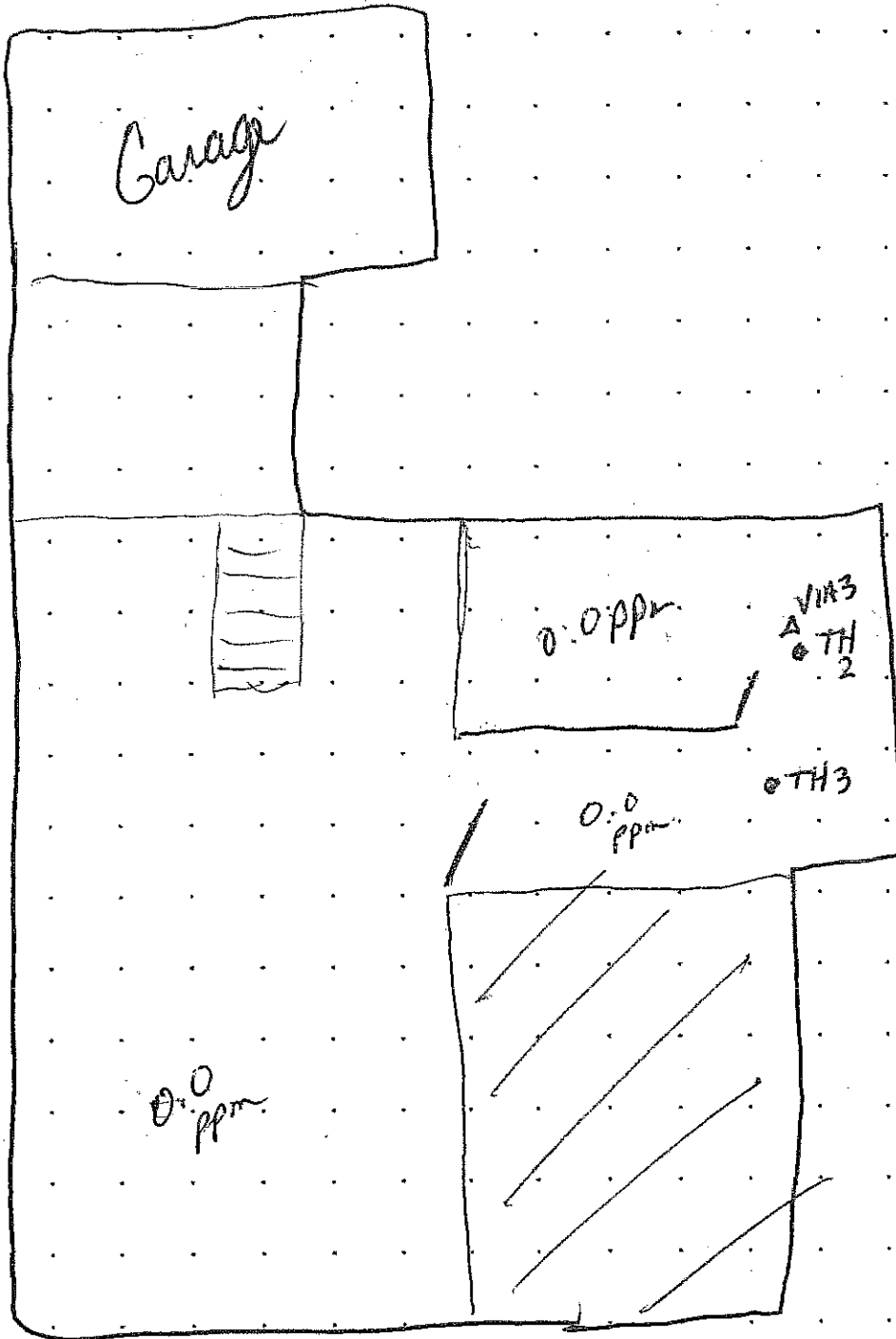
- Scale
- Site Buildings
- Adjacent Bldgs.
- Street Names
- Surface cover
- Trees
- Property line/fence
- AST's (contents)
- UST's (contents)
- Vent pipes?
- Product lines
- Pumps/islands
- Former tanks
- Chemical storage
- Drill hole locations
- Monitor well loc. (esp. flush mount)

- Excavation
- Utilities (depth?)
 - sewer
 - water
 - telephone
 - electric
 - storm drains
 - drainage ditch

- Basement drains
- Tile drains
- Known local wells
- Junk piles
- Sidewalks

PHOTO LOG DESCRIPTIONS

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____



0 SCALE 1cm =



Drawn by: _____

Date: _____



PROJECT No.: 9709

FIELD MAP

- | | | |
|----------------|-----------------------|------------------------------|
| ● Monitor Well | - - - - - Other | +++++++ Tracks |
| ○ Test Hole | - - - - - Storm Sewer | ----- Fiberoptic/phone |
| ○ Date / / | - - - - - Sewer | ----- Underground Power |
| ⊕ Bench Mark | - - - - - Water | ○ · · · · ○ Overhead Utility |
| ■ Sample Loc. | - - - - - Gas | ----- Fence/prop line |

LSI Checklist

Before

Order Sumas	Check lab jars and Geoprobe supplies
Gopher locate	Site Map and 500 foot Receptor Map
MDH sealing notification	Well Survey (MGS, MPCA website, MDH website)
MPCA notification	Check Gopher online for utility responses

***Review and bring site scope of work (PF bid or MS work plan). Anything not in scope is a change order and should be approved by PM before completed.

On-Site

- Have all identified utilities responded?
- Are *private* utilities (sewer, water, underground electrical, phone, gas) to buildings marked?
- 5 TH: One worst case and others to define extent in all directions (strategically placed in other potentially contaminated areas if present).
 - ~Complete 4 THs to 5 ft below WT or 10 ft below deepest PID hit.
 - ~Complete stratigraphy TH *in clean area* to 20 ft below WT or 20 ft below highest *site* PID
 - ~Complete saturation test on worst case area/depth to determine if residual NAPL is present at the site (if present; attempt to define extent via addnl sat tests)
 - ~Record any free product (free phase NAPL) identified and attempt to recover. Record details.
 - ~If contamination at 2 ft or shallower, complete PID and saturation test of each sample and attempt to define via addnl shallow borings (ex TH2a, TH2b, etc).
 - ~3 grain size to evaluate potential aquifer: collect at water table and other porous units (bring back all bags for reference).
 - ~ If groundwater does not collect, set temporary well to straddle observed or suspected water table (consider using more than 5 ft of screen for greater surface area).
- 5 VIA: One worst case and others to define extent in proximity to identified receptors. See GD for depth.
- Measure/map site features including adjacent utilities, manholes, & ditches. Measure/map THs and VIAs.
- Survey THs and document/describe benchmark (survey surface water elevation if w/in 500 ft)
- 500 ft Property Survey: complete Table 15 and map locations on 500 ft map
- Identify surface waters within ¼ mile (= 1320 feet): complete Table 17 (if w/in 500 ft include on map).
- Utility Receptor Survey: complete Table 18 (measure sewer depths via manholes).
- Complete PID vapor survey of any at risk receptors (manholes, basements): assign ID and map location.
- Document justification and rationale for any of the above tasks that are a change order.

Example Change Orders encountered while on-site

Vertical extent of contamination greater than 15 ft bsg (requires boring greater than 25 ft)
Contamination identified at 2 ft or shallower (requires saturation test(s) and addnl shallow borings to define)
Free product identification (requires recovery)
Water sample cannot be collected immediately upon completion of the boring (requires 2nd attempt and possible temp/well return trip)
More than 15 properties w/in 500 ft of site
PID vapor survey at more than 8 points and/or at offsite property

Bring

Drilling packet	MPCA GDs	Soil jars/MeOH/dry wt bags	GPS?
Site map	Locate w/utility ph #'s	VOC/GRO vials	Camera
500 foot map	Receptor survey cards	1 liter amber jars (DRO)	Batteries
Chain-of-custody's	PID/cal gas/charger	Trip blanks	Safety vest

Geoprobe/Grout Trailer

fill water tank	rod clamp and wiper	mini bailers/rope	tar patch
survey equipment	pipe wrenches	alconox	concrete patch
water probe	core opener tools	wire brush	walking wheel
liners (macro/LB)	scale	ear plugs/muffs	distilled water
cutting shoe (sand & clay)	screens/casings	grout casing	paper towels
1 1/4 in rods	check valves	5 gallon buckets (min 2)	ziplock bags
push/pull caps	3/8" tubing	grout/benseal	gloves

Dual Tube

liners
set screws
wrench
bumpers
push cap
cutting shoe
1" rods
DT puller
torch/propane

Screen Point

screens
expendable points w/O rings
wire

VIA

VIA toolbox
vise grip & syringe
1/4" tubing
aluminum vapor points
flint sand

WCEC SOIL BORING LOG

LEAK NUMBER:
 PROJECT NUMBER: 9309
 PROJECT NAME:
 DRILLER: KB
 DRILLING METHOD: Hand Auger
 BENCHMARK:

BORING #: TH2
 DATE: 12-20-12
 TIME -start:
 -end:
 SURFACE ELEVATION:

Depth (feet)	Sampling Information					ASTM Symbol	Material Description	Geologic Origin	WL	PID (ppm)	Sample Analysis
	T	A	R	B	N						
0							Organic Clay with Coarse Sand Brown Slightly plastic Moist organic odor			0	
5										0	
10											
15											
20											
25											

Water Level Measurements				
Date	Time	Elapsed Time	Water Level	Product Level
			N/A	—

Comments:

KEY

Sampling Info:
 T = sample type
 A = attempt
 R = recovery
 B = blow count
 N = N value

Definitions:
 WL = Water Level
 Elapsed time = time between end of drilling & sampling.

Sample Types:
 SS = split spoon
 GS = grab sample
 HA = hand auger
 LB = large bore
 MS = macro

Analysis:
 LS = lab soil sample
 LW = lab water sample

WCEC SOIL BORING LOG

LEAK NUMBER:
 PROJECT NUMBER: 9309
 PROJECT NAME:
 DRILLER: KB
 DRILLING METHOD:
 BENCHMARK:

BORING #: TH/3
 DATE:
 TIME -start: 72-20-12
 -end:
 SURFACE ELEVATION:

Depth (feet)	Sampling Information					ASTM Symbol	Material Description	Geologic Origin	WL	PID (ppm)	Sample Analysis
	T	A	R	B	N						
0							Organic Clay with				
		/					Coarse Sand			0	
		/					Brown moist				
		/					Slightly Plastic			0	
		/					Organic obs				
5											
10											
15											
20											
25											

Water Level Measurements					KEY	
Date	Time	Elapsed Time	Water Level	Product Level	Sampling Info:	Sample Types:
			N/A	—	T = sample type A = attempt R = recovery B = blow count N = N value	SS = split spoon GS = grab sample HA = hand auger LB = large bore MS = macro
Comments:					Definitions:	Analysis:
					WL = Water Level Elapsed time = time between end of drilling & sampling.	LS = lab soil sample LW = lab water sample

WCEC SOIL BORING LOG

LEAK NUMBER:
 PROJECT NUMBER:
 PROJECT NAME:
 DRILLER:
 DRILLING METHOD:
 BENCHMARK:

BORING #:
 DATE:
 TIME -start:
 -end:
 SURFACE ELEVATION:

Depth (feet)	Sampling Information					ASTM Symbol	Material Description	Geologic Origin	WL	PID (ppm)	Sample Analysis
	T	A	R	B	N						
0											
5											
10											
15											
20											
25											

Water Level Measurements					KEY	
Date	Time	Elapsed Time	Water Level	Product Level	Sampling Info:	Sample Types:
					T = sample type	SS = split spoon
					A = attempt	GS = grab sample
					R = recovery	HA = hand auger
					B = blow count	LB = large bore
					N = N value	MS = macro
Comments:					Definitions:	Analysis:
					WL = Water Level	LS = lab soil
					Elapsed time = time	sample
					between end of	LW = lab water
					drilling & sampling.	sample

WCEC SOIL BORING LOG

LEAK NUMBER:
 PROJECT NUMBER:
 PROJECT NAME:
 DRILLER:
 DRILLING METHOD:
 BENCHMARK:

BORING #:
 DATE:
 TIME -start:
 -end:
 SURFACE ELEVATION:

Depth (feet)	Sampling Information					ASTM Symbol	Material Description	Geologic Origin	WL	PID (ppm)	Sample Analysis
	T	A	R	B	N						
0											
5											
10											
15											
20											
25											

Water Level Measurements					KEY Sampling Info: T = sample type A = attempt R = recovery B = blow count N = N value Definitions: WL = Water Level Elapsed time = time between end of drilling & sampling.
Date	Time	Elapsed Time	Water Level	Product Level	
					Sample Types: SS = split spoon GS = grab sample HA = hand auger LB = large bore MS = macro Analysis: LS = lab soil sample LW = lab water sample
Comments:					

WCEC SOIL BORING LOG

LEAK NUMBER:
 PROJECT NUMBER:
 PROJECT NAME:
 DRILLER:
 DRILLING METHOD:
 BENCHMARK:

BORING #:
 DATE:
 TIME -start:
 -end:
 SURFACE ELEVATION:

Depth (feet)	Sampling Information					ASTM Symbol	Material Description	Geologic Origin	WL	PID (ppm)	Sample Analysis
	T	A	R	B	N						
0											
5											
10											
15											
20											
25											

Water Level Measurements				
Date	Time	Elapsed Time	Water Level	Product Level
Comments:				

KEY

Sampling Info:
 T = sample type
 A = attempt
 R = recovery
 B = blow count
 N = N value

Definitions:
 WL = Water Level
 Elapsed time = time
 between end of
 drilling & sampling.

Sample Types:
 SS = split spoon
 GS = grab sample
 HA = hand auger
 LB = large bore
 MS = macro

Analysis:
 LS = lab soil
 sample
 LW = lab water
 sample

WCEC SOIL BORING LOG (cont)

LEAK NUMBER:
PROJECT NUMBER:
PROJECT NAME:

BORING #:
DATE:

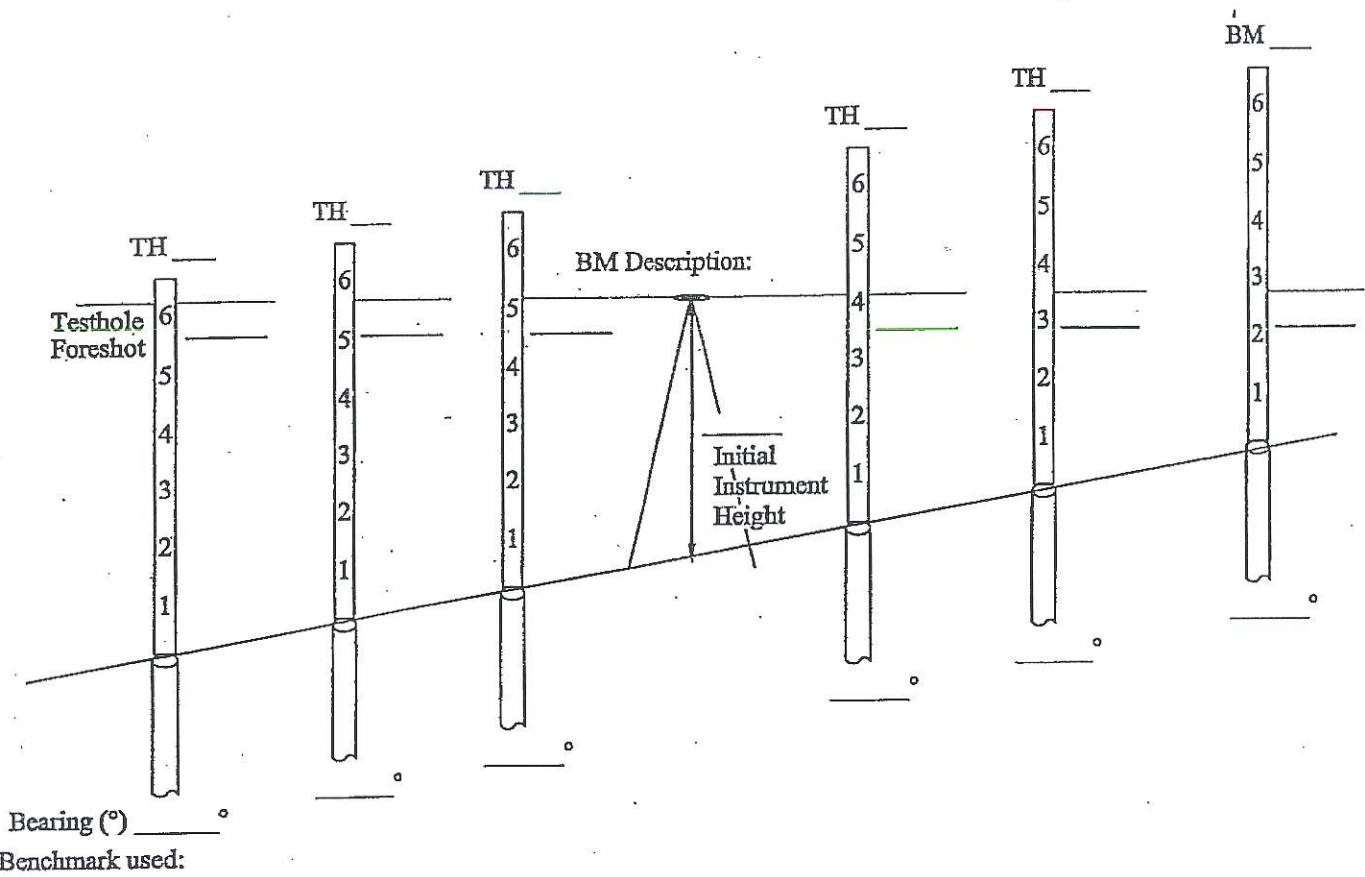
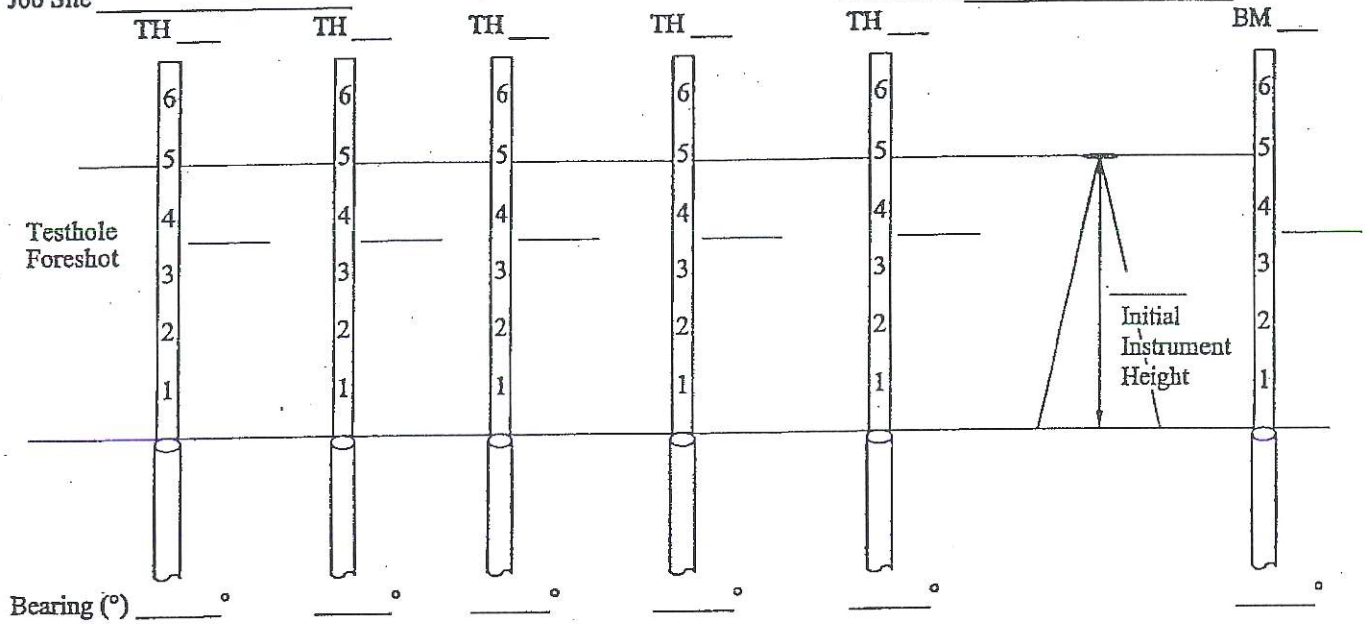
Depth (feet)	Sampling Information					ASTM Symbol	Material Description	Geologic Origin	WL	PID (ppm)	Sample Analysis
	T	A	R	B	N						
25											
30											
35											
40											
45											
50											

<p>Comments:</p>	<p>KEY</p> <p>Sampling Info: T = sample type A = attempt R = recovery B = blow count N = N value</p> <p>Definitions: WL = Water Level Elapsed time = time from end of drilling period to sampling time.</p>	<p>Sample Types: SS = split spoon GS = grab sample HA = hand auger LB = large bore MS = macro sampler</p> <p>Analysis: LS = lab soil sample LW = lab water sample</p>
------------------	--	---

TESTHOLE SURVEY & FIELD INFORMATION SHEET
 West Central Environmental Consultants, Inc.

Job Number _____
 Job Site _____

Date _____
 Technicians _____



VAPOR INTRUSION SAMPLING FIELD SHEET
West Central Environmental Consultants, Inc.

Job Number 9309
Job Name _____
Technicians SJH

Date 12-20-12

	Vapor Instusion Points				
Sample ID	VIA3				
Sample Location	Basement				
Date	12-20-12				
Time	1:00				
Sample Depth in feet (soil gas of sub-slab)	5 feet				
Sample Height in feet (indoor or outdoor)	—				
Total Length of Tubing (ft) above and below grade	6 ft				
Sampling Method	Summa				
Sampling Device	↓				
Purge Volume (cc)					
Purge Device	Syringe				
Summa Canister Vacuum					
Moisture of Sampling Zone	None				
Soil type	Clay 4/5 - 1				
PID (ppm)	0.0				

Calculating purge volume

$\pi r^2 h = \text{total volume in cubic feet}$
 $h = \text{total length of tubing (ft)}$
 $r = \text{inside radius of tubing (ft)}$

Note: For 0.17" ID tubing, use $0.00062 * h = \text{total volume in cubic feet}$. To convert cubic feet to cubic centimeters, multiply the total volume by 28316.85. This equals the volume of air (cc) in the tube. Multiply this value by 2 to determine the volume of air needed to be purged prior to sampling.

Reminder: Indicate PID value on chain of custody. Analyze samples for TO-15 (full scan MN Soil Gas List)

Field Notes: No petro vapors

UTILITY VAPOR SURVEY - FIELD SHEET
West Central Environmental Consultants, Inc.

Job Number _____
Job Site _____
Technician _____

Date _____
Precip/temp/wind _____
Ambient odors/airborne dust _____

Location ID (ex. MH1, CB1, Basement 1, Basement 2, etc) Record location on Map					
Description (sanitary or storm, manhole or catch basin, name of basement, crawl space, sump, etc)					
Location (ex. NE corner of Ave and St, north side Hwy, NW corner of basement, etc)					
PID reading (ppm)					
Percent LEL (ppm / 130 = %)*					
Depth below surface grade (ft)					
Time of reading					
Water present (flowing/not flowing/dry)					
Sheen present on water surface? (Y/N)					
Water sample obtained? (Y/N)					
Other					
Calibration					
Date	Time	Fresh Air Pass ? (Y/N)	Span Pass ? (Y/N)	Gas Lot #	

* using LEL of gasoline = 1.3% = 13000 ppm; may be biased high if monitoring vapors from heavier products such as diesel.

Notes: _____

Table 5: Contaminated Surface Soil Results

Sample ID	Headspace 10 ppm or Greater ¹ Y/N	Petroleum Saturated Y/N

¹As measured with a photoionization detector (PID).
Add additional rows as needed.

Notes:

Table 17: Surface Water Receptor Information

Map ID ¹	Name and Type ²	Distance and Direction from Plume Edge (ft)	Clean Boring/Well Between? ³ (Y or N)

¹Property IDs should correspond to surface water feature ID on the Potential Receptor Map.

²Type includes, but is not limited to, lake, retention pond, infiltration pond, ditch, intermittent stream, river, creek, rain garden, etc.

³If the surface water feature is upgradient or cross-gradient from the site, indicate so with "NA" for not applicable.

Notes:

Table 18: Utility receptor information

Utility ID ¹	Description	Construction Material	Depth to Top of Structure	Diameter	Flow Direction (for liquids)	Year Installed	Backfill Material	Distance to Water Table
Ex 1	Sanitary sewer main between Main St and 1st Ave	PVC	7 ft	2 ft	West	1984	Sand	Top of structure at water table
Ex 2	Water main between Main St and 1st Ave	Polyethylene	8 ft	4 in	West	1986	Sand	1 ft below water table
Ex 3	On-site water service line	Copper	6 ft	2 in	South	1989	Native soils	1 ft above water table
1								
2								
3								
4								
5								
6								
7								
8								
9								
10								

¹ID should correspond to an identified utility line on the Potential Receptor Map. Add more rows as needed.

Notes:

Utility ID ¹	Name, title, and telephone number for public entity contacted to obtain information or other source of information
Ex 1, 2	Mary Smith, City engineer, xxx-xxx-xxxx
Ex 3	Site owner

¹ID should correspond to the same IDs in the above table. Add more rows as needed.

Notes:

APPENDIX E

Guidance Document 1-03a *Spatial Data Reporting Form*



Petroleum Remediation Program
Minnesota Pollution Control Agency

http://www.pca.state.mn.us/programs/lust_p.html

Spatial Data Reporting Form

Guidance Document 1-03a

(For complete instructions, see Guidance Document 1-03.)

Part 1. Background

Has a site location data point been submitted for this site (circle/highlight)? YES or NO
If yes, you do not need to complete Part 2 of this form but should complete Part 3 if there are additional site features to report. This form can be submitted electronically if desired (e.g., as an e-mail attachment to the project manager).

MPCA Site ID: LEAK00017482

Site Name: **Ochsendorf Residence, Hector**

Data Collection Date: **12-20-12**

Name of Person Who Collected Data: **Seth Miller**

Organization Name: **West Central Environmental Consultants, Inc.**

Organization Type: **Environmental Contractor**

Part 2. Site Location (use one of the three spatial data reporting formats provided)

Point Description: **Tank basin**

Collection Method: **GPS**

Datum (circle/highlight): **WGS84** NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.ddddd): **94.720008 W**

Latitude (dd.ddddd): **44.674635 N**

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Part 3. Other Site Features

Location of emergency response boring (ER), test hole (TH1-TH3), & Site Well

Point Description: **ER**

Collection Method: **GPS**

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd): **94.720013 W**

Latitude (dd.dddddd): **44.674639 N**

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description: **TH2**

Collection Method: **GPS**

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd): **94.720005 W**

Latitude (dd.dddddd): **44.674633 N**

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description: **TH3**

Collection Method: **GPS**

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd): **94.720000 W**

Latitude (dd.dddddd): **44.674610**

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

44.674610

Point Description: **Site Well**

Collection Method: **GPS**

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd): **94.720161 W**

Latitude (dd.dddddd): **44.674614 N**

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

APPENDIX F

Guidance Document 2-05 *Release Information Worksheet*



The Release Information Worksheet is necessary in order to meet the Public Record Provision of the Energy Policy Act of 2005. Complete the worksheet below to document tank and release information. This form may be included as an appendix in Guidance Document 4-06 or 4-08, or it may be submitted independently. Please type or print clearly. Do not revise or delete text or questions from this form.

A. General information

Site name/city: Christian Ochsendorf Property – Hector, MN MPCA Site ID#: LEAK000 17482

B. Tank material (check all that apply):

Steel Fiberglass

C. Piping material (check all that apply):

Steel Fiberglass Flexible plastic Copper Other (specify): Unknown

D. Identify the known source(s) of the release or contamination encountered (Only check those options that were verified, if source is unknown check Other and describe):

Piping Tank Dispenser Submersible turbine pump Delivery problem

Other (specify): _____

E. Identify the cause of the release (tank and/or piping) (check all that apply):

Overfill Mechanical or physical damage Install problem Corrosion Spill Unknown

Other (specify): Removal of unused fuel oil AST in basement

F. Identify how the release was detected (check all that apply):

Removal Line leak detection Tank leak detection Visual/Olfactory Site assessment

Other (specify): _____

G. Has the site ever stored E85 in any former or current tank? Yes No

H. Has the site ever stored leaded gasoline in any former or current tank? Yes No

Web pages and phone numbers:

MPCA staff:	http://www.pca.state.mn.us/pca/staff/index.cfm
MPCA phone:	651-296-6300 or 1-800-657-3864
Petroleum Remediation Program Web page:	http://www.pca.state.mn.us/programs/lust_p.html
MPCA Info. Request:	http://www.pca.state.mn.us/about/inforequest.html
MPCA VIC Program:	http://www.pca.state.mn.us/cleanup/vic.html
MPCA Petroleum Brownfields Program:	http://www.pca.state.mn.us/programs/vpic_p.html
PetroFund Web page:	http://www.state.mn.us/cgi-bin/portal/mn/jsp/content.do?id=-536881377&agency=Commerce
PetroFund phone:	651-215-1775 or 1-800-638-0418
State Duty Officer:	651-649-5451 or 1-800-422-0798

APPENDIX G

Guidance Document 4-19 *Conceptual Corrective Action Design Worksheet*.

Not applicable