MONITORING REPORT FORM
(MPCA GUIDANCE DOCUMENT 4-08)

Former Food & Fuel
4020 – 233rd Avenue NW
St. Francis, MN 55070
Carlson McCain Project #5306-00
MPCA Leak #18925

Prepared for:

MPCA (Multi-Site Fund Financed Program)
Attn: Ms. Kathryn Serier
520 Lafayette Road
St. Paul, MN 55155

December 11, 2014

Carlson McCain

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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: **Leak00018925** Date: **December 11, 2014**

Responsible Party Information

Name: **MPCA (Multi-Site Fund Financed Program)** Phone #: **(651) 231-6043**

Mailing Address: **520 Lafayette Road**

City: **St. Paul** Zip Code: **55155**

Alternate Contact (if any) for Responsible Party: **Kathryn Serier** Phone #: **(651) 231-6043**

Leak Site Information

Leak Site Name: **Former Food & Fuel** Phone #: **N/A**

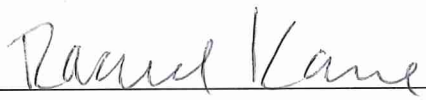
Leak Site Address: **4020 – 233rd Avenue Northwest**

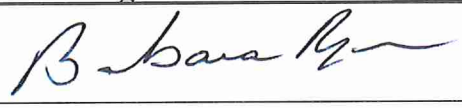
City: **St. Francis** Zip Code: **55070** County: **Anoka**

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.

Name and Title of Report Author(s)	**Signature**	**Date Signed**
Rachel F. Kane Environmental Scientist		12/11/14
Christopher J. Loch Senior Environmental Project Manager		12/11/14

Name and Title of Report Reviewer(s)	**Signature**	**Date Signed**
Barbara A. Ryan, P.G. Senior Geologist		12/11/14

Name(s) of Field Technician(s): **Chris Loch and Rachel Kane**

Company and Mailing Address: **Carlson McCain, Inc.**
P.O Box 429
Maple Plain, MN 55359

Project Manager E-mail Address: **cloch@carlsonmccain.com**

Phone: **952-346-3913**

Fax: **952-346-3901**

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.

Subsequent to initial Limited Site Investigation (LSI) activities associated with the Former Food & Fuel facility (Site), Carlson McCain, Inc. (Carlson McCain) was contracted by the Minnesota Pollution Control Agency (MPCA) Multi-Site Fund Finance Program to conduct additional subsurface investigation activities. The Site location is shown of Figure 1, attached. Initial LSI activities included the advancement of five soil borings (GP-1 through GP-5) to assess the vertical and horizontal extents of soil and groundwater contamination associated with the petroleum release discovered during historical underground storage tank (UST) removal activities at the Site. The previous LSI confirmed and assessed remaining soil and groundwater contamination in regards to nearby receptors. In addition, vapor intrusion assessment activities associated with the LSI indicated a relatively low risk for impacts to the Site building, utility corridors and off-site structures. However, the horizontal extent of groundwater contamination was not defined to the east and northeast (interpolated down-gradient directions) from the previously advanced soil boring GP-5. Laboratory analysis of the groundwater sample collected from soil boring GP-5, advanced to the east and within the interpolated down-gradient direction from the former tank basin, identified elevated gasoline range organics (GRO), diesel range organics (DRO) and volatile organic compounds (VOCs). The detected benzene concentration was above its Minnesota Department of Health (MDH) Health Risk Limit (HRL). The MPCA contracted Carlson McCain to further assess and potentially define the horizontal extent of groundwater contamination with the advancement of two additional radial soil borings for soil and groundwater sample collection.

Following coordination with the City of St. Francis and underground utility clearance, Carlson McCain oversaw the advancement of two radial soil borings (GP-6 and GP-7) at the Site on October 27, 2014. The soil borings were advanced by Thein Well Company (Thein), a MPCA Multi-Site Fund Financed Program approved drilling contractor. Soil boring GP-6 was advanced to the east of the previously advanced soil borings GP-5. Soil boring GP-7 was advanced to the northeast of soil boring GP-5. Soil boring locations, including borings previously advanced during initial LSI activities, are visually depicted on updated Figures 2a and 2b, attached.

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

N/A

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.

Soil and groundwater samples were collected from each additional radial push probe boring (GP-6 and GP-7) and submitted for laboratory analysis. Soil samples were collected within each boring at the soil interval above the saturated sand unit and submitted to Pace Analytical Services (Pace), a certified and MPCA fund-financed contracted laboratory, for benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), DRO and GRO analysis. In addition, a groundwater sample was collected from each additional soil boring and submitted to Pace for DRO, GRO and VOC analysis. Laboratory analysis of soil and groundwater samples collected from recently advanced soil borings GP-6 and GP-7 indicated all analyzed constituents were not present at concentrations above laboratory detection limits. The recent laboratory analytical report is attached as Appendix A. Laboratory analytical results are summarized in updated Tables 3, 4, 7 and 8.

Based on laboratory analytical results of soil and groundwater samples collected from recent soil borings, the horizontal extent of groundwater contamination discovered during previous investigation activities appears defined. The interpolated horizontal extents of GRO, DRO and benzene groundwater contamination are depicted on updated Figures 3a, 3b and 3c, respectively, and attached for reference.

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.

Additional vapor survey activities were not requested by the MPCA to be included with this additional subsurface investigation.

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.

The MPCA did not request additional vapor intrusion assessment. Previous LSI activities indicated an unlikely risk for potential vapor intrusion impacting the Site, nearby property structures and buried utility corridors/trenches.

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.

Free product was not identified during previous and recent soil boring advancement oversight and sampling activities.

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.

N/A

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.

Recent radial soil borings, advanced beyond the initial LSI soil boring GP-5, appear to have defined the horizontal extent of the groundwater contamination plume. In coordination with the previously submitted LSI report dated June 26, 2014, residual soil and groundwater contamination appears to pose a minimal risk to the immediate and surrounding environment.

During previous investigation activities conducted by Carlson McCain, the impacted groundwater plume extents were not horizontally defined to the east and northeast from the previously advanced soil boring GP-5. The primary risk associated with undefined residual groundwater contamination was the plume extending below off-site structures, which may lead to the potential for vapor intrusion. In addition, the City of St. Francis water tower is located approximately 650 feet to the east of the release source area (former tank basin).

Additional soil borings GP-6 and GP-7, advanced within the interpolated down-gradient directions beyond soil boring GP-5, did not identify soil contamination from depths between the surface and the termination depths ranging between 25 and 30 feet below ground surface (bgs) during field screening activities. Soil samples submitted for laboratory analysis were collected from the soil sample interval located directly above the saturated, poorly graded sand (SP) layer encountered in each soil boring. The saturated sand layer was encountered at depths between 20.5 and 26 feet bgs, directly below a lean clay or clayey silt layer. Laboratory analysis of the collected soil samples did not identify petroleum compounds present at concentrations above laboratory detection limits.

Groundwater was encountered in each additional radial soil boring (GP-6 and GP-7) and collected for laboratory analysis. Final static water levels were measured at depths between 15.45 and 16.05 feet bgs within advanced soil borings. Groundwater samples were collected from temporary wells installed to straddle the saturated sand layer in each soil boring. Laboratory analysis of the groundwater samples collected from each soil boring did not indicate petroleum compound concentrations above laboratory detection limits. The absence of elevated petroleum constituent concentrations suggests that the groundwater contamination plume is defined.

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.

Carlson McCain recommends MPCA Leak Site closure. Additional investigation activities recommended by Carlson McCain and approved by the MPCA, in conjunction with the previously conducted LSI, appears to have defined the petroleum impacted groundwater plume. Initial LSI activities, conducted by Carlson McCain, did not define the horizontal extent of groundwater contamination to the east and northeast (interpolated down-gradient directions) of soil boring GP-5. The MPCA contracted Carlson McCain to further assess and potentially define the horizontal extents of the groundwater contamination plume with the advancement of two additional radial soil borings for soil and groundwater sample collection. A total of two direct push-probe borings (GP-6 and GP-7) were advanced beyond the initial LSI soil boring GP-5 to assess soil and groundwater plume extents.

The Site closure determination is based on confirmatory information regarding the MPCA general policy.

- ***Impacted groundwater that has or may affect human health:*** **The additional investigation conducted by Carlson McCain did not identify any additional direct threats or elevated risks associated with contaminated groundwater and potential risks to human health when compared to the previously completed LSI. In addition, the advancement of soil borings GP-6 and GP-7 appear to have defined the horizontal extent of the impacted groundwater plume. The results of the additional investigation suggest there is a low risk for groundwater contamination to migrate off-site and impact the City of St. Francis water tower located approximately 650 feet to the east from the release source area.**

- ***Led or may lead to dangerous conditions due to petroleum vapor:*** **The additional investigation appears to have confirmed the results from the previous vapor intrusion assessment conducted during initial Site investigation activities. The previous vapor intrusion assessment identified an insignificant threat for soil gas**

to impact Site and off-site buildings and buried utility structures. Recent groundwater sample analysis suggests the contamination plume has not extended below Site and off-site buildings and buried structures (utility trenches/corridors). The additional investigation supports the risk assessment associated with the previously submitted LSI.

- ***Affect or may affect surface water quality:*** **The groundwater contamination plume appears defined with the advancement of additional soil borings GP-6 and GP-7. Surface water features are not present within the vicinity of the plume.**

- ***Caused or may cause dermal contact:*** **Residual soil and groundwater contamination is not expected to pose a risk for dermal contact. The depth and magnitude of remaining soil and groundwater contamination appears to substantially reduce the potential for dermal contact. Soil boring advancement and past tank removal activities suggest petroleum contamination is present below the former tank excavation basin.**

Based on Site conditions with respect to MPCA general Guidance Closure Criteria, Carlson recommends LEAK Site 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.

N/A

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.

N/A

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.)

N/A

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.

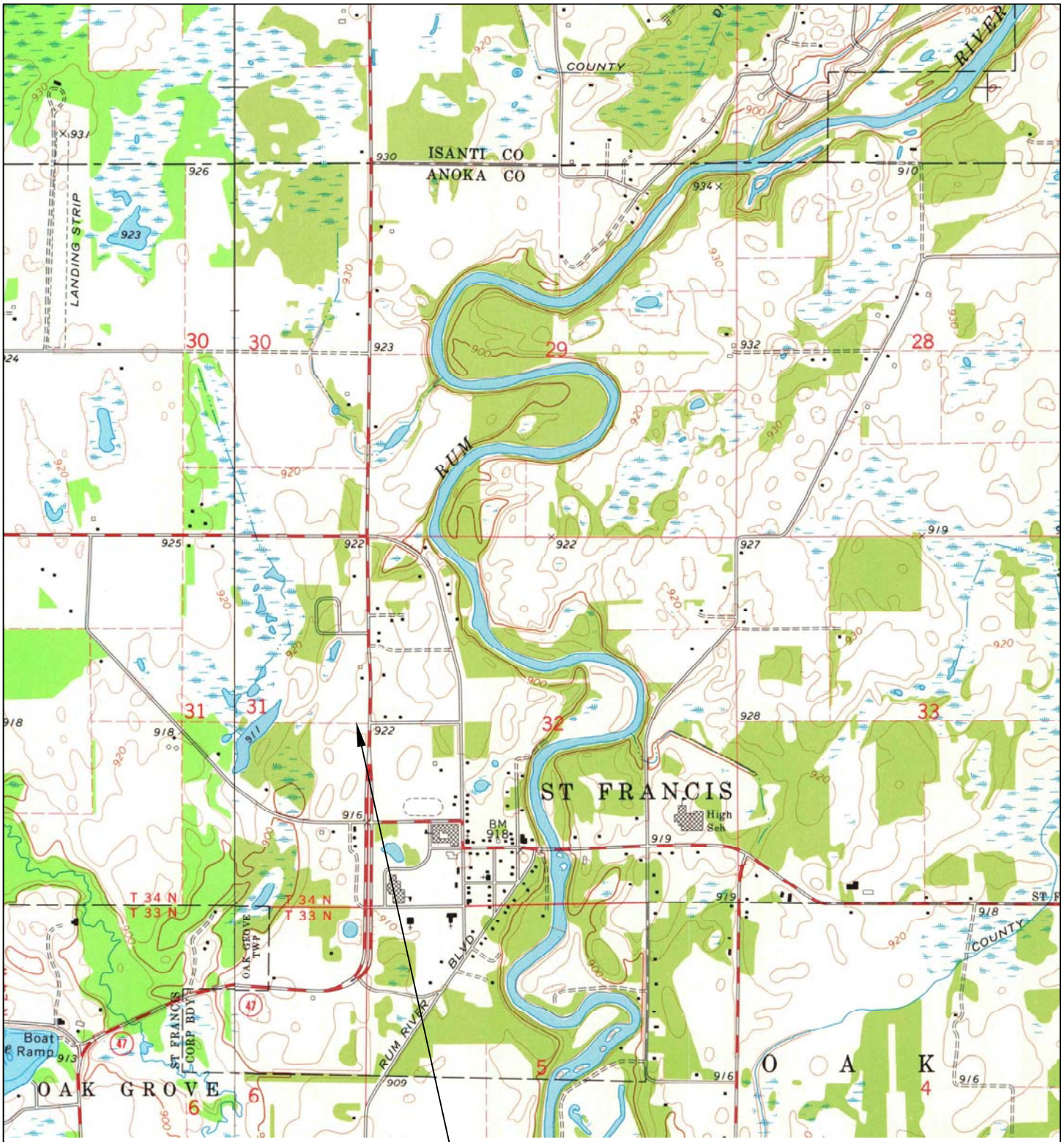
☐ Graph(s) showing contaminant concentrations over time for all monitoring and recovery wells.

☐ 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.

Figures



SOURCE: USGS QUAD MAP (ST. FRANCIS, 1974)(CROWN, 1974)

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LIMITED SITE INVESTIGATION
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 5306-00
MPCA LEAK NO: 18925

FIGURE 1
SITE LOCATION

SOIL VAPOR BORING LOCATION

SOIL BORING LOCATION

0 20 40

SCALE IN FEET

N

SOURCE: GOOGLE EARTH

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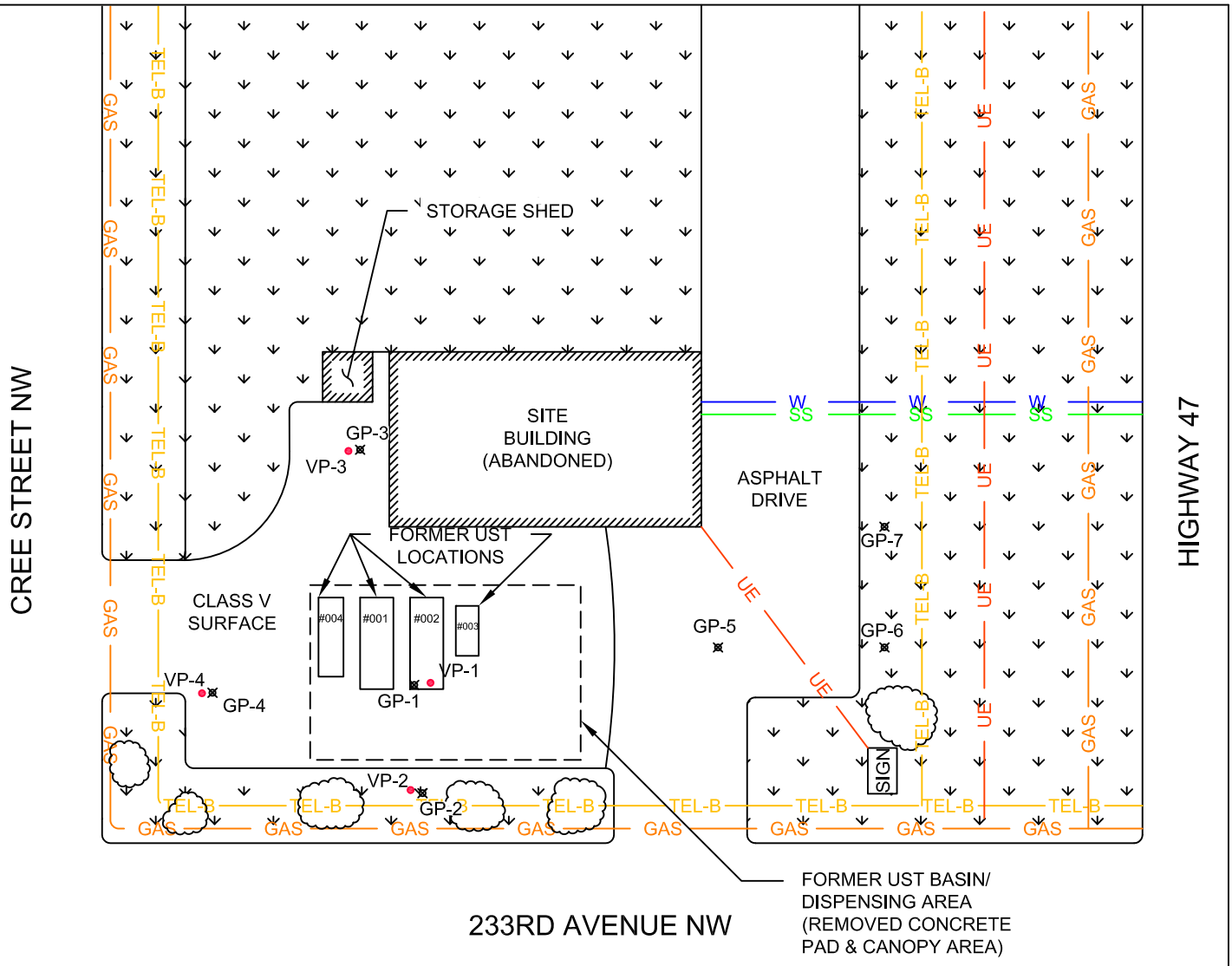
MPCA LEAK NO: 18925

FIGURE 2a
AERIAL PLAN VIEW



GRASS

SOIL VAPOR BORING LOCATION

SOIL BORING LOCATION

INTERPOLATED FORMER TANK BASIN

TEL-B BURIED TELEPHONE

GAS BURIED GAS

SS BURIED SANITARY SEWER

UE BURIED ELECTRIC LINE

W BURIED WATER

0 20 40

SCALE IN FEET

N

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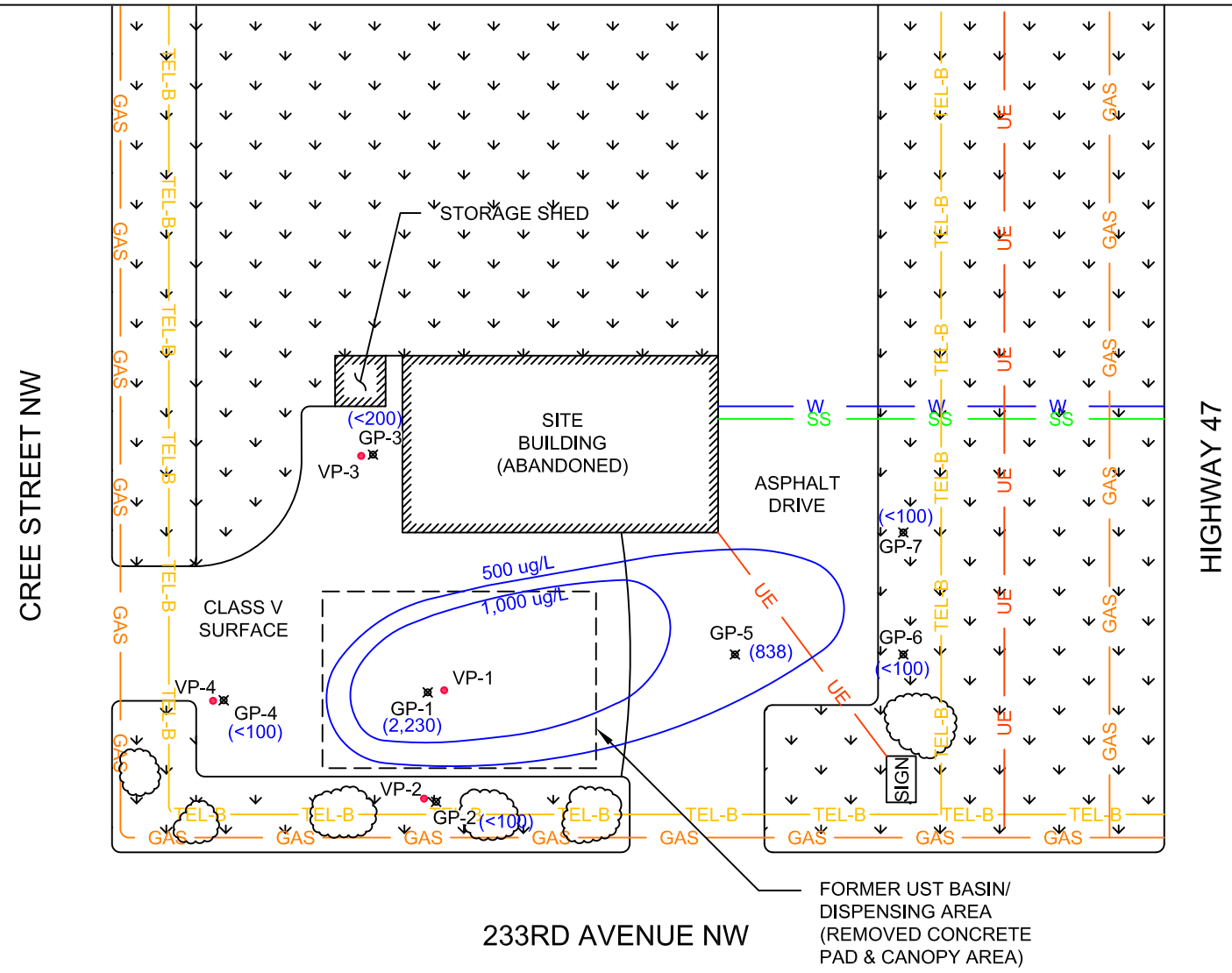
FIGURE 2b
SITE PLAN VIEW



GRO ISO-CONCENTRATION CONTOUR

(<100) GRO LAB CONCENTRATION (ug/L)

ug/L MICROGRAMS PER LITER

GRASS

SOIL VAPOR BORING LOCATION

SOIL BORING LOCATION

INTERPOLATED FORMER TANK BASIN

TEL-B BURIED TELEPHONE

GAS BURIED GAS

SS BURIED SANITARY SEWER

UE BURIED ELECTRIC LINE

W BURIED WATER

0 20 40

SCALE IN FEET

N

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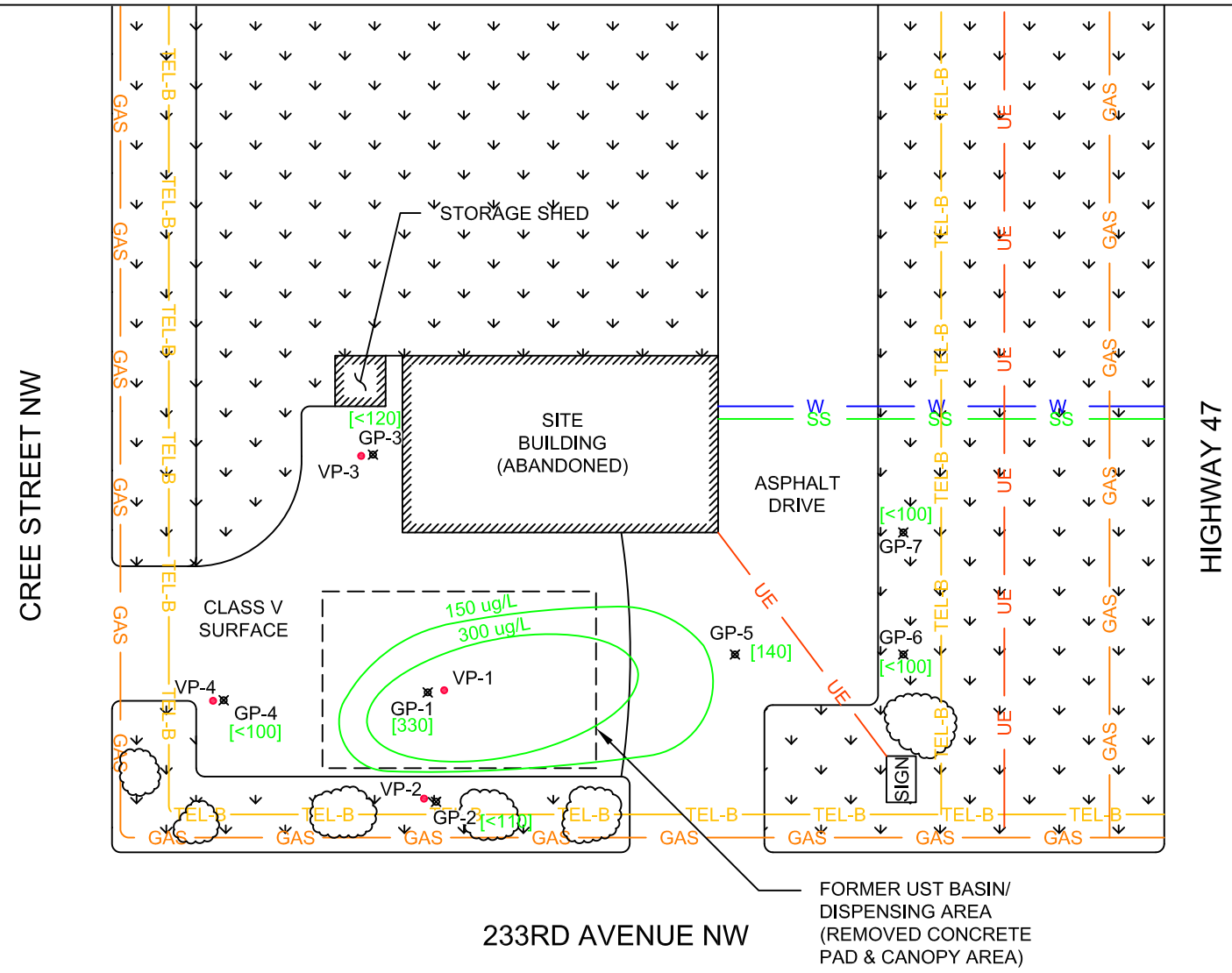
FIGURE 3a
GRO CONCENTRATION MAP (GROUNDWATER)



DRO ISO-CONCENTRATION CONTOUR

[<100] DRO LAB CONCENTRATION (ug/L)

ug/L MICROGRAMS PER LITER

GRASS

SOIL VAPOR BORING LOCATION

SOIL BORING LOCATION

INTERPOLATED FORMER TANK BASIN

TEL-B BURIED TELEPHONE

GAS BURIED GAS

SS BURIED SANITARY SEWER

UE BURIED ELECTRIC LINE

W BURIED WATER

0 20 40

SCALE IN FEET

N

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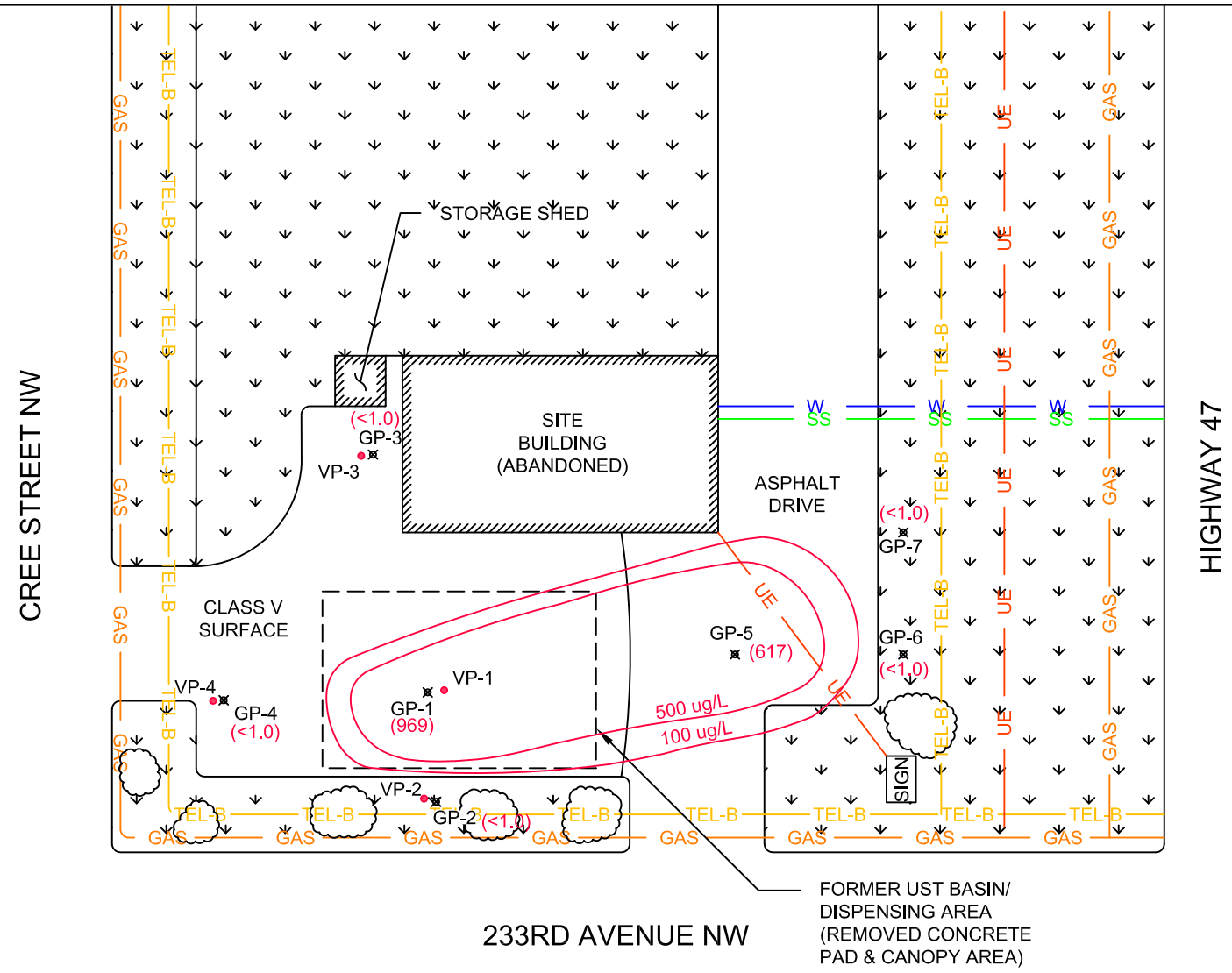
MPCA LEAK NO: 18925

FIGURE 3b
DRO CONCENTRATION MAP (GROUNDWATER)



BENZENE ISO-CONCENTRATION CONTOUR

(<1.0) BENZENE LAB CONCENTRATION (ug/L)

ug/L MICROGRAMS PER LITER

GRASS

SOIL VAPOR BORING LOCATION

SOIL BORING LOCATION

INTERPOLATED FORMER TANK BASIN

TEL-B BURIED TELEPHONE

GAS BURIED GAS

SS BURIED SANITARY SEWER

UE BURIED ELECTRIC LINE

W BURIED WATER

0 20 40

SCALE IN FEET

N

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FIGURE 3c
BENZENE CONCENTRATION MAP (GROUNDWATER)

Tables

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
001	Steel	UST	8,000-gallons	Gasoline	5/15/84	Removed (10/18/12)	Poor condition, pitting and rusting[3]
002	Steel	UST	8,000-gallons	Gasoline	5/15/84	Removed (10/18/12)	Poor condition, pitting and rusting[3]
003	Steel	UST	2,000-gallons	Diesel fuel	5/15/84	Removed (10/18/12)	Poor condition, pitting and hole[3]
004	Composite	UST	4,000-Gallons	Gasoline	11/6/97	Removed (10/18/12)	Good, no pitting or rusting[3]

[1] "F" for fiberglass or "S" for Steel
[2] Indicate: removed (date), abandoned in place (date), or currently in use.
Add additional rows as needed.
Notes: *UST = underground storage tank; AST = aboveground storage tank.* [3] *Indicates observations made from photographs provided by Thatcher and the MPCA*

Table 2
Results of Soil Headspace Screening

Depth (ft)	Soil Boring ID									
	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7	8	9	10
0-2.5'	0.0	0.0	0.0	0.0	0.0	0.0	0.0			
2.5-5.0'	0.0	0.0	4.1	0.0	0.0	0.0	0.0			
5.0-7.5'	0.0	0.0	12.8	0.0	0.0	0.0	0.0			
7.5-10.0'	0.7	0.0	0.0	0.0	0.0	0.0	0.0			
10.0-12.5'	17.8	0.0	0.0	0.0	0.0	0.0	0.0			
12.5-15.0'	9.1	0.0	0.0	0.0	0.0	0.0	0.0			
15.0-17.5'	30.6	0.0	0.0	0.0	0.0	0.0	0.0			
17.5-20.0'	19.1	0.0	0.0	0.0	0.0	0.0	0.0			
20.0-22.5'	19.8	0.0	0.0	0.0	0.0	0.0	0.0			
22.5-25.0'	3.0	0.0	0.0	0.0	0.0	0.0*	0.0			
25.0-27.5'	7.5	0.0	0.0	0.0	0.0		0.0			
27.5-30.0'	227	0.0*	0.0*	0.0	0.0*		0.0*			
30.0-32.5'	122			0.0						
32.5-35.0'	9.6			0.0*						
35.0-37.5'	0.0									
37.5-40.0'	0.0*									

List instruments used and discuss field methods and procedures in Section 6. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes: * *indicates end of boring. NR = no recovery. Results reported in parts per million (ppm) and obtained by utilizing a MiniRae Photo-ionization detector (PID) equipped with a 10.6eV lamp.*

Table 3
Analytical Results of Soil Samples[1]

Boring ID	Sampled Depth (ft)	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	GRO	DRO	Lab Type[2]
GP-1	17.5-20’	03/13/14	**0.31**	**3.3**	**2.2**	**5.6**	<0.30	**18.7**	<6.6	Fixed
GP-1	37.5-40’	03/13/14	<0.057	<0.057	<0.057	<0.17	<0.29	<5.7	<7.6	Fixed
GP-2	22.5-25’	03/13/14	<0.057	<0.057	<0.057	<0.17	<0.28	<5.7	<7.0	Fixed
GP-3	22.5-25’	03/13/14	<0.056	<0.056	<0.056	<0.17	<0.28	<5.6	<5.6	Fixed
GP-4	25-27.5’	03/14/14	<0.059	<0.059	<0.059	<0.18	<0.30	<5.9	<6.4	Fixed
GP-5	22.5-25’	03/14/14	<0.064	<0.064	<0.064	<0.19	<0.32	<6.4	<7.3	Fixed
GP-6	17.5-20’	10/27/14	<0.060	<0.060	<0.060	<0.18	<0.30	<12.0	<6.2	Fixed
GP-7	22.5-25’	10/27/14	<0.058	<0.058	<0.058	<0.17	<0.29	<11.7	<6.4	Fixed
MeOH Blank		03/14/14	<0.050	<0.050	<0.050	<0.15	<0.25	<5.0	NA	Fixed
MeOH Blank		10/27/14	<0.050	<0.050	<0.050	<0.15	<0.25	<10.0	NA	Fixed

[1] Report results in mg/kg. Use less than symbols to show detection limit.
[2] Indicate “mobile” or “fixed” in the lab type column.
Add additional rows as needed.
Notes: *mg/kg = milligrams per kilogram; GRO = gasoline range organics; DRO = diesel range organics; MTBE = methyl-tert-butyl-ether; NA = not analyzed; and **Bold** indicates concentration above laboratory detection limit.*

Table 4
Other Contaminants Detected in Soils (Petroleum or Non-petroleum Derived)[1]

Boring ID	Sampled Depth (ft)	Date Sampled								Lab Type[2]
GP-1	17.5-20’	NA*								Fixed
GP-1	37.5-40’									Fixed
GP-2	22.5-25’									Fixed
GP-3	22.5-25’									Fixed
GP-4	25-27.5’									Fixed
GP-5	22.5-25’									Fixed
GP-6	17.5-20’									Fixed
GP-7	22.5-25’									Fixed
MeOH Blank										Fixed
MeOH Blank										Fixed

[1] Report results in mg/kg. Use less than symbols to show detection limit.
[2] Indicate “mobile” or “fixed” in the lab type column.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in soil collected from borings. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes: *mg/kg = milligrams per kilogram; NA* = indicates not analyzed for full VOCs because groundwater samples were collected.*

Table 5
Contaminated Surface Soil Results

Sample ID	Headspace 10 ppm or Greater[1] (Y/N)	Petroleum Saturated (Y/N)
GP-1 (0-2.5')	No (0.0 ppm)	No
GP-2 (0-2.5')	No (0.0 ppm)	No
GP-3 (0-2.5')	No (0.0 ppm)	No
GP-4 (0-2.5')	No (0.0 ppm)	No
GP-5 (0-2.5')	No (0.0 ppm)	No
GP-6 (0-2.5')	No (0.0 ppm)	No
GP-7 (0-2.5')	No (0.0 ppm)	No

[1] As measured with a photoionization detector (PID).
Add additional rows as needed.
Notes: *ppm = parts per million.*

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

	Soil Boring							
	GP-1	**GP-2**	**GP-3**	**GP-4**	**GP-5**	**GP-6**	**GP-7**	**8**
Static Water Level Depth[1] (ft)	18.9'	16.6'	16.7'	16.9'	17.1'	16.05'	15.45'	
Sampled Depth (ft)	28-33'	25-30'	25-30'	28-33'	26-31'	19-24'	25-29'	
Sampling Method[2]	Peristaltic pump	Peristaltic pump	Peristaltic pump	Peristaltic pump	Peristaltic pump	Peristaltic pump	Peristaltic pump	

[1] Describe the methods used to measure water levels in borings in Section 6.
[2] Refer to Guidance Document 4-05 for acceptable ground water sampling methods.
Notes: *All units are in feet below ground surface (bgs). Sample depth indicates the screened interval for groundwater collection from the soil boring.*

Table 7
Analytical Results of Water Samples Collected from Borings[1]

Boring ID	Date Sampled (1)	Sampled Depth (ft)	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	GRO	DRO	Lab Type[2]
GP-1W	03/13/14	28-33'	**969**	**694**	<10.0	<30.0	<10.0	**2,230**	**330**	Fixed
GP-2W	03/13/14	25-30'	<1.0	<1.0	<1.0	<3.0	<1.0	<100	<110	Fixed
GP-3W	03/13/14	25-30'	<1.0	<1.0	<1.0	<3.0	<1.0	<200	<120	Fixed
GP-4W	03/14/13	28-33'	<1.0	<1.0	<1.0	<3.0	<1.0	<100	<100	Fixed
GP-5W	03/14/13	26-31'	**617**	**5.1**	**1.6**	<3.0	<1.0	**838**	**140**	Fixed
GP-10W*	03/13/14	28-33'	**1050**	**702**	<10.0	<30.0	<10.0	**1,900**	**310**	Fixed
GP-6W	10/27/14	19-24'	<1.0	<1.0	<1.0	<3.0	<1.0	<100	<100	Fixed
GP-7W	10/27/14	22.5-25'	<1.0	<1.0	<1.0	<3.0	<1.0	<100	<100	Fixed
Trip Blank	03/13/14	--	<1.0	<1.0	<1.0	<3.0	<1.0	<100	NA	Fixed
Trip Blank	10/27/14	--	<1.0	<1.0	<1.0	<3.0	<1.0	<100	NA	Fixed
MN Department of Health HRL[3]			2.0	200	50	300	--	--	--	--

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Add additional rows as needed.
Notes: *GRO = gasoline range organics; DRO = diesel range organics; MTBE = methyl-tert-butyl-ether; NA = not analyzed; ug/L = micrograms per liter;* ***Bold*** *indicates concentrations above or at laboratory detection limits; Highlighted cell indicates concentration exceeding Minnesota Department of Health (MDH) Health Risk Limits (HRLs). MDH HRLs are currently not established for GRO, DRO and MTBE. *indicates that MW-10W is a duplicate sample of GP-1W.*

Table 8
Other Contaminants Detected in Water Samples Collected from Borings (Petroleum or Non-petroleum Derived)[1]

Boring ID	Date Sampled (1)	Sampled Depth (ft)								Lab Type[2]
GP-1W	N/A									Fixed
GP-2W										Fixed
GP-3W										Fixed
GP-4W										Fixed
GP-5W										Fixed
GP-10W										Fixed
GP-6W										Fixed
GP-7W										Fixed
Trip Blank										Fixed
Trip Blank										Fixed
MN Department of Health HRL[3]										--

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in water samples collected from soil borings and temporary wells. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes: *N/A = not applicable because "other" contaminants were not reported above laboratory detection limits; ug/L = micrograms per liter.*

Table 9
Monitoring Well Completion Information[1]

Well Number	MDH Unique Well Number	Date Installed	Surface Elevation	Top of Casing Elevation	Bottom of Well Elevation	Screen Interval (Elev. - Elev.)	Total Well Depth from Surface (ft)
N/A							

[1] Include well construction diagrams and MDH well logs in Section 6.
Add additional rows as needed.
Notes: (location and elevation of benchmark) *Monitoring wells were not installed.*

Table 10
Water Level Measurements in Wells[1]

Well Number	Date Sampled	Depth to Water from Top of Riser	Product Thickness	Depth to Water Below Grade	Relative Groundwater Elevation	Water Level Above Screen (Y/N)
N/A						

[1] Describe the methods used to measure water levels in Section 6.
Add additional rows as needed.
Notes: *Monitoring wells were not installed.*

Table 11
Analytical Results of Water Samples Collected from Wells[1]

Well Number	Date Sampled	Benzene	Toluene	Ethyl-benzene	Xylenes	MTBE	GRO	DRO	Lab Type[2]
N/A									

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Add additional rows as needed.
Notes: *Monitoring wells were not installed.*

Table 12
Other Contaminants Detected in Water Samples
Collected from Wells (Petroleum or Non-petroleum Derived)[1]

Well Number	Date Sampled								Lab Type[2]
N/A									

[1] Report results in µg/L. Use less than symbols to show detection limit.
[2] Indicate "mobile" or "fixed" in the lab type column.
[3] See http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html for list of current HRLs.
Indicate other contaminants (either petroleum or non-petroleum derived) detected in water samples collected from wells. Add additional rows as needed, and copy the entire table if more columns are needed.
Notes: *Monitoring wells were not installed.*

Table 13
Natural Attenuation Parameters

Well Number	Sample Date	Temp. °C	pH	Dissolved Oxygen (mg/L)	Nitrate (mg/L)	(Fe II) (mg/L)	(H_2S, HS^-) (mg/L)
N/A							

Describe the methods and procedures used in Section 6. Add additional rows as needed
Notes: *Monitoring wells were not installed.*

Table 14
Free Product Recovery

Recovery Location ID	Recovery Date	Pre-Recovery Measurements				Recovery Method	Event Recovery[3]		Cumulative Recovery[4]		Comments
		Depth to FP[1] (ft)	Depth to GW[2] (ft)	FP Thickness (ft)	FP Volume (gal)		FP (gal)	GW (gal)	FP (gal)	GW (gal)	
N/A											

[1] FP = Free Product
[2] GW = Ground Water
[3] Volume recovered during individual recovery event for that location.
[4] Cumulative volume recovered at each recovery location (i.e., keep a running total for each recovery point).
Describe the methods and procedures used in Section 6. Add additional rows as needed.
Notes: *Monitoring wells were not installed.*

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		Base-ment (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	4020 233rd Avenue NW	Site	No	Contact	N/A	Yes	Yes	No	No	Yes	Site release – MPCA Leak #18925
2	23307 St. Francis Blvd. NW	420' E	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Municipal Liquor
3	Unknown	150' N	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Abandoned carwash (Site)
4	Unknown	375' N	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Storage Stables (storage lots/sheds)
5	23340 Cree Street NW	200' NW	No	Survey Letter	N/A	Yes	Yes	No	No	No	St. Francis City Hall
6	23306 Cree Street NW	140' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Edward Jones/The Ink Well Tattoo
7	233325 - 233rd Lane	285' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
8	233329 - 233rd Lane	300' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
9	233333 - 233rd Lane	325' NW	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
10	4062 - 234 Avenue NW	350' NW	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
11	4059 - 244 Avenue NW	430' NW	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
12	4067 - 244 Avenue NW	490' NW	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
13	4078 - 233rd Lane	395' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
14	4088 - 233rd Lane	430' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
15	4087 - 233rd Lane	425' NW	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
16	4080 - 234 Avenue NW	455' NW	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
17	23280 St. Francis Blvd. NW	130' S	No	Survey Letter	N/A	Yes	Yes	No	No	No	Anoka Hennepin Credit Union
18	23256 St. Francis Blvd. NW	340' S	No	Survey Letter	N/A	Yes	Yes	No	No	No	Kids Country Childcare
19	23212 St. Francis Blvd. NW	480' S	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Dairy Queen (Suite #1300)
20	23180 Dakota Street NW	225' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
21	23176 Dakota Street NW	260' SW	No	Survey Letter	N/A	Yes	Yes	Yes	No	No	Residential town home – Kathy Jensen
22	23170 Dakota Street NW	290' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
23	23162 Dakota Street NW	325' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
24	23154 Dakota Street NW	365' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
25	23148 Dakota Street NW	405' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
26	23142 Dakota Street NW	450' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
27	23157 Dakota Street NW	435' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
28	23165 Dakota Street NW	405' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
29	23171 Dakota Street NW	380' SW	No	Survey Letter	N/A	Yes	Yes	Yes	No	No	Residential town home – Jill Pederson
30	23177 Dakota Street NW	355' SW	Yes	Survey Letter	Irrigation	Yes	Yes	Yes	Yes	No	Residential town home – Kim Murphy
31	23181 Dakota Street NW	340' SW	No	Assumed	N/A	Yes	Yes	Yes	Unk.	No	Residential town home
32	4100 233rd Avenue NW	420' SW	No	Assumed	N/A	Yes	Not Found	Yes	Unk.	No	Residential town home

[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: *Unk. = Unknown. Distances to nearby properties were measured from the center the former UST basin/dispenser area.*

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)
#30	Not listed*	922’	Unk.	Unk.	Unk.	Unk.	Irrigation	Kim Murphy	350’ SW (up-gradient)
N/A	#562963	917’	451’	316’	910’	Eau Claire/Mt. Simon	Irrigation	St. Francis School	1425’ SE
N/A	#503082	917’	60’	55’	902’	Quat.	Domestic	Mark Nielsen	1,955’ NE
N/A	#165996	918’	161’	158’	915’	Quat.	Domestic	C. Nielsen	2,110’ SW

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

Add additional rows as needed.

Notes: *Unk. = unknown and Quat. = Quaternary Buried Artesian Aquifer. N/A indicates not applicable due to irrigation and domestic wells identified outside of the search radius is visually depicted on Figure 7, attached. *indicates information provided from returned receptor survey letter.*

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)
1	Unnamed Pond	765’ NW	Yes (GP-3)
2	Wetland Pocket	770’ SW	Yes (GP-4 and GP-2)
3	Large Wetland Area	1,230’ NW	Yes (GP-3)
4	Rum River	2,080 NE	No

[1] Map ID should correspond to a surface water feature ID on the Potential Receptor Map.

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

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

Add additional rows as needed.

Notes: *Distances measured from the former UST basin/dispensing area and groundwater contamination plume depicted on Figure 3, attached. The surface water features are visually depicted and identified on Figure 7, attached.*

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	Site water service line from Highway 47 to east side of Site building	Copper	7.5 feet	1 inch	West	Unk.	Sand	At least 8.5 feet above static water level (March 13 & 14, 2014)
2	Water main along Highway 47	PVC	7.5 feet	6 inch	South	Unk.	Sand	At least 8.5 feet above static water level (March 13 & 14, 2014)
3	Water main along Cree Street NW	PVC	7.5 feet	6 inch	North	Unk.	Sand	At least 8.5 feet above static water level (March 13 & 14, 2014)
4	Sanitary sewer service from west side of Highway 47 to east side of Site building	PVC	7.5 feet	4 inch	East	Unk.	Sand	At least 8.5 feet above static water level (March 13 & 14, 2014)
5	Sanitary sewer main along west side of Highway 47	PVC	7.5 feet	6 inch	North	Unk.	Sand	At least 8.5 feet above static water level (March 13 & 14, 2014)
6	Storm sewer lines along 233rd Avenue NW	Concrete	4-5 feet	12 inch	East/west	Unk.	Sand*	At least 11 feet above static water level (March 13 & 15, 2014)
7	Site private buried electric lines	Cable	4 feet*	N/A	N/A	Unk.	Native*	At least 12 feet above static water level (March 13 & 14, 2014)
8	Site buried telephone lines	Cable	4 feet*	N/A	N/A	Unk.	Native*	At least 12 feet above static water level (March 13 & 14, 2014)
9	Site buried gas lines	Unk.	4 feet*	Unk.	N/A	Unk.	Native*	At least 12 feet above static water level (March 13 & 14, 2014)

[1] ID should correspond to an identified utility line on the Potential Receptor Map. Add more rows as needed. **Notes:** *PVC = polyvinyl chloride. *indicates assumed. Identified Site and off-site utility lines are visually depicted on Figures 2b and 6, attached.*

Utility ID[1]	Name, title, and telephone number for public entity contacted to obtain information or other source of information
1, 2, 3, 4 & 5	Mr. Paul Teicher, City of St. Francis Public Works Director, (763) 235-2304/observations made during utility locates
6, 7, 8 & 9	Observations from utility locate/receptor survey walkthrough/assumed

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

Table 19
Vapor Survey Results

Location ID[1]	Description[2]	Monitoring Date	PID Reading (ppm)	Percent of the LEL[3]
1	Storm sewer grate (SE corner of 233rd Ave NW and Cree Street NW)	03/13/14	0.0	0%
2	Storm sewer (SW corner of 233rd Ave NW and Cree Street NW)	03/13/14	0.0	0%
3	Storm sewer grate (east side of Cree St NW at the southwest corner of the St. Francis Credit Union	03/13/14	0.0	0%
4	Storm sewer grate (east side of Cree St NW at the northwest corner of the Kids Country Childcare)	03/13/14	0.0	0%
5	Storm sewer grate (west side of Cree St NW across from storm grates #3 and #4)	03/13/14	0.0	0%
6	Storm sewer grate (south side of 234 Ave NW, near corner of Cree St. NW, across from storm grate # 7)	03/13/14	0.0	0%
7	Storm sewer grate (north side of 234 Ave NW, near corner of Cree St. NW, across from storm grate # 6)	03/13/14	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.
Add additional rows as needed.
Notes: *Sewer grate locations visually depicted on Figure 6, attached.*

Table 20
Results of Soil Gas Sampling for Vapor Intrusion Screening[1]

Sample ID[2]											**Intrusion Screening Value[3]**
Date											
Depth (feet)											
PID (ppm)											
COMPOUNDS	**Result**	**Report Limit**	**Result**	**Report Limit**	**Result**	**Report Limit**	**Result**	**Report Limit**	**Result**	**Report Limit**	
See Attached Table 20											

[1] Report results in µg/m^3.
[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.*
Add additional rows as needed, and copy the entire table if more columns are needed.

Notes:

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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Appendix A

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

November 11, 2014

Chris Loch
Carlson McCain, Inc
P.O box 429
Maple Plain, MN 55359

RE: Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Dear Chris Loch:
Enclosed are the analytical results for sample(s) received by the laboratory on October 28, 2014. 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,

Justin Benjamin
justin.benjamin@pacelabs.com
Project Manager

Enclosures

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without the written consent of Pace Analytical Services, Inc..

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

CERTIFICATIONS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414
A2LA Certification #: 2926.01
Alaska Certification #: UST-078
Alaska Certification #MN00064
Alabama Certification #40770
Arizona Certification #: AZ-0014
Arkansas Certification #: 88-0680
California Certification #: 01155CA
Colorado Certification #Pace
Connecticut Certification #: PH-0256
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Florida/NELAP Certification #: E87605
Guam Certification #:14-008r
Georgia Certification #: 959
Georgia EPD #: Pace
Idaho Certification #: MN00064
Hawaii Certification #MN00064
Illinois Certification #: 200011
Indiana Certification#C-MN-01
Iowa Certification #: 368
Kansas Certification #: E-10167
Kentucky Dept of Envi. Protection - DW #90062
Kentucky Dept of Envi. Protection - WW #:90062
Louisiana DEQ Certification #: 3086
Louisiana DHH #: LA140001
Maine Certification #: 2013011
Maryland Certification #: 322
Michigan DEPH Certification #: 9909
Minnesota Certification #: 027-053-137
Mississippi Certification #: Pace
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New York Certification #: 11647
North Carolina Certification #: 530
North Carolina State Public Health #: 27700
North Dakota Certification #: R-036
Ohio EPA #: 4150
Ohio VAP Certification #: CL101
Oklahoma Certification #: 9507
Oregon Certification #: MN200001
Oregon Certification #: MN300001
Pennsylvania Certification #: 68-00563
Puerto Rico Certification
Saipan (CNMI) #:MP0003
South Carolina #:74003001
Texas Certification #: T104704192
Tennessee Certification #: 02818
Utah Certification #: MN000642013-4
Virginia DGS Certification #: 251
Virginia/VELAP Certification #: Pace
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West Virginia Certification #: 382
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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: GP-6 (17.5-20') **Lab ID: 10286929001** Collected: 10/27/14 11:05 Received: 10/28/14 12:45 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	ND	mg/kg	6.2	1	11/03/14 00:00	11/05/14 22:20		
Surrogates								
n-Triacontane (S)	69	%.	50-150	1	11/03/14 00:00	11/05/14 22:20	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.060	1	11/05/14 11:19	11/10/14 20:04	71-43-2	
Ethylbenzene	ND	mg/kg	0.060	1	11/05/14 11:19	11/10/14 20:04	100-41-4	
Gasoline Range Organics	ND	mg/kg	12.0	1	11/05/14 11:19	11/10/14 20:04		
Methyl-tert-butyl ether	ND	mg/kg	0.30	1	11/05/14 11:19	11/10/14 20:04	1634-04-4	
Toluene	ND	mg/kg	0.060	1	11/05/14 11:19	11/10/14 20:04	108-88-3	
Xylene (Total)	ND	mg/kg	0.18	1	11/05/14 11:19	11/10/14 20:04	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	102	%.	80-125	1	11/05/14 11:19	11/10/14 20:04	98-08-8	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**16.4**	%	0.10	1		11/06/14 11:31		

Sample: GP-7 (22.5-25') **Lab ID: 10286929002** Collected: 10/27/14 13:20 Received: 10/28/14 12:45 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	ND	mg/kg	6.4	1	11/03/14 00:00	11/05/14 22:12		
Surrogates								
n-Triacontane (S)	66	%.	50-150	1	11/03/14 00:00	11/05/14 22:12	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO		Preparation Method: TPH GRO/PVOC WI ext.					
Benzene	ND	mg/kg	0.058	1	11/05/14 11:19	11/10/14 20:23	71-43-2	
Ethylbenzene	ND	mg/kg	0.058	1	11/05/14 11:19	11/10/14 20:23	100-41-4	
Gasoline Range Organics	ND	mg/kg	11.7	1	11/05/14 11:19	11/10/14 20:23		
Methyl-tert-butyl ether	ND	mg/kg	0.29	1	11/05/14 11:19	11/10/14 20:23	1634-04-4	
Toluene	ND	mg/kg	0.058	1	11/05/14 11:19	11/10/14 20:23	108-88-3	
Xylene (Total)	ND	mg/kg	0.17	1	11/05/14 11:19	11/10/14 20:23	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	102	%.	80-125	1	11/05/14 11:19	11/10/14 20:23	98-08-8	
Dry Weight	Analytical Method: ASTM D2974							
Percent Moisture	**13.9**	%	0.10	1		11/06/14 11:31		

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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: MeOH Blank **Lab ID: 10286929003** Collected: 10/27/14 13:25 Received: 10/28/14 12:45 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.							
Benzene	ND	mg/kg	0.050	1	11/05/14 11:19	11/10/14 18:06	71-43-2	
Ethylbenzene	ND	mg/kg	0.050	1	11/05/14 11:19	11/10/14 18:06	100-41-4	
Gasoline Range Organics	ND	mg/kg	10.0	1	11/05/14 11:19	11/10/14 18:06		
Methyl-tert-butyl ether	ND	mg/kg	0.25	1	11/05/14 11:19	11/10/14 18:06	1634-04-4	
Toluene	ND	mg/kg	0.050	1	11/05/14 11:19	11/10/14 18:06	108-88-3	
Xylene (Total)	ND	mg/kg	0.15	1	11/05/14 11:19	11/10/14 18:06	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	100	%.	80-125	1	11/05/14 11:19	11/10/14 18:06	98-08-8	

Sample: GP-6W **Lab ID: 10286929004** Collected: 10/27/14 11:15 Received: 10/28/14 12:45 Matrix: Water

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	ND	mg/L	0.10	1	10/29/14 14:13	10/30/14 09:20		
Surrogates								
n-Triacontane (S)	105	%.	50-150	1	10/29/14 14:13	10/30/14 09:20	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO							
Gasoline Range Organics	ND	ug/L	100	1		11/07/14 18:06		
Surrogates								
a,a,a-Trifluorotoluene (S)	98	%.	80-125	1		11/07/14 18:06	98-08-8	
8260 VOC	Analytical Method: EPA 8260							
Acetone	ND	ug/L	20.0	1		11/06/14 00:08	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/06/14 00:08	107-05-1	
Benzene	ND	ug/L	1.0	1		11/06/14 00:08	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/06/14 00:08	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/06/14 00:08	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/06/14 00:08	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/06/14 00:08	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/06/14 00:08	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/06/14 00:08	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/06/14 00:08	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/06/14 00:08	108-90-7	
Chloroethane	ND	ug/L	4.0	1		11/06/14 00:08	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/06/14 00:08	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/06/14 00:08	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/06/14 00:08	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/06/14 00:08	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		11/06/14 00:08	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/06/14 00:08	124-48-1	

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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: GP-6W **Lab ID: 10286929004** Collected: 10/27/14 11:15 Received: 10/28/14 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC	Analytical Method: EPA 8260							
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/06/14 00:08	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		11/06/14 00:08	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:08	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:08	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:08	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/06/14 00:08	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/06/14 00:08	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/06/14 00:08	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/06/14 00:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/06/14 00:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/06/14 00:08	156-60-5	
Dichlorofluoromethane	ND	ug/L	4.0	1		11/06/14 00:08	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/06/14 00:08	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/06/14 00:08	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		11/06/14 00:08	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/06/14 00:08	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		11/06/14 00:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		11/06/14 00:08	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/06/14 00:08	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/06/14 00:08	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/06/14 00:08	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/06/14 00:08	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/06/14 00:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/06/14 00:08	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/06/14 00:08	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		11/06/14 00:08	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	103-65-1	
Styrene	ND	ug/L	1.0	1		11/06/14 00:08	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/06/14 00:08	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/06/14 00:08	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/06/14 00:08	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/06/14 00:08	109-99-9	
Toluene	ND	ug/L	1.0	1		11/06/14 00:08	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:08	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:08	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/06/14 00:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/06/14 00:08	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/06/14 00:08	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	1		11/06/14 00:08	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/06/14 00:08	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/06/14 00:08	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/06/14 00:08	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		11/06/14 00:08	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/06/14 00:08	1330-20-7	

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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: GP-6W **Lab ID: 10286929004** Collected: 10/27/14 11:15 Received: 10/28/14 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC	Analytical Method: EPA 8260							
Surrogates								
1,2-Dichloroethane-d4 (S)	83	%.	75-125	1		11/06/14 00:08	17060-07-0	
Toluene-d8 (S)	103	%.	75-125	1		11/06/14 00:08	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	75-125	1		11/06/14 00:08	460-00-4	

Sample: GP-7W **Lab ID: 10286929005** Collected: 10/27/14 13:40 Received: 10/28/14 12:45 Matrix: Water

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	ND	mg/L	0.10	1	10/29/14 14:13	10/30/14 09:26		P4
Surrogates								
n-Triacontane (S)	86	%.	50-150	1	10/29/14 14:13	10/30/14 09:26	638-68-6	
WIGRO GCV	Analytical Method: WI MOD GRO							
Gasoline Range Organics	ND	ug/L	100	1		11/07/14 17:43		
Surrogates								
a,a,a-Trifluorotoluene (S)	96	%.	80-125	1		11/07/14 17:43	98-08-8	pH
8260 VOC	Analytical Method: EPA 8260							
Acetone	ND	ug/L	20.0	1		11/06/14 00:22	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/06/14 00:22	107-05-1	
Benzene	ND	ug/L	1.0	1		11/06/14 00:22	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/06/14 00:22	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/06/14 00:22	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/06/14 00:22	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/06/14 00:22	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/06/14 00:22	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/06/14 00:22	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/06/14 00:22	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/06/14 00:22	108-90-7	
Chloroethane	ND	ug/L	4.0	1		11/06/14 00:22	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/06/14 00:22	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/06/14 00:22	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/06/14 00:22	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/06/14 00:22	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		11/06/14 00:22	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/06/14 00:22	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/06/14 00:22	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		11/06/14 00:22	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:22	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:22	106-46-7	

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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: GP-7W **Lab ID: 10286929005** Collected: 10/27/14 13:40 Received: 10/28/14 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC	Analytical Method: EPA 8260							
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/06/14 00:22	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/06/14 00:22	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/06/14 00:22	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/06/14 00:22	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/06/14 00:22	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/06/14 00:22	156-60-5	
Dichlorofluoromethane	ND	ug/L	4.0	1		11/06/14 00:22	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/06/14 00:22	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/06/14 00:22	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		11/06/14 00:22	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/06/14 00:22	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		11/06/14 00:22	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		11/06/14 00:22	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/06/14 00:22	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/06/14 00:22	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/06/14 00:22	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/06/14 00:22	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/06/14 00:22	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/06/14 00:22	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/06/14 00:22	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		11/06/14 00:22	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	103-65-1	
Styrene	ND	ug/L	1.0	1		11/06/14 00:22	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/06/14 00:22	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/06/14 00:22	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/06/14 00:22	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/06/14 00:22	109-99-9	
Toluene	ND	ug/L	1.0	1		11/06/14 00:22	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:22	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/06/14 00:22	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/06/14 00:22	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/06/14 00:22	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/06/14 00:22	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	1		11/06/14 00:22	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/06/14 00:22	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/06/14 00:22	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/06/14 00:22	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		11/06/14 00:22	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/06/14 00:22	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%.	75-125	1		11/06/14 00:22	17060-07-0	
Toluene-d8 (S)	104	%.	75-125	1		11/06/14 00:22	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	75-125	1		11/06/14 00:22	460-00-4	

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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: TRIP BLANKS **Lab ID: 10286929006** Collected: 10/27/14 13:45 Received: 10/28/14 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV	Analytical Method: WI MOD GRO							
Gasoline Range Organics	ND	ug/L	100	1		11/06/14 20:58		
Surrogates								
a,a,a-Trifluorotoluene (S)	97	%.	80-125	1		11/06/14 20:58	98-08-8	
8260 VOC	Analytical Method: EPA 8260							
Acetone	ND	ug/L	20.0	1		11/05/14 21:31	67-64-1	
Allyl chloride	ND	ug/L	4.0	1		11/05/14 21:31	107-05-1	
Benzene	ND	ug/L	1.0	1		11/05/14 21:31	71-43-2	
Bromobenzene	ND	ug/L	1.0	1		11/05/14 21:31	108-86-1	
Bromochloromethane	ND	ug/L	1.0	1		11/05/14 21:31	74-97-5	
Bromodichloromethane	ND	ug/L	1.0	1		11/05/14 21:31	75-27-4	
Bromoform	ND	ug/L	4.0	1		11/05/14 21:31	75-25-2	
Bromomethane	ND	ug/L	4.0	1		11/05/14 21:31	74-83-9	
2-Butanone (MEK)	ND	ug/L	5.0	1		11/05/14 21:31	78-93-3	
n-Butylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	104-51-8	
sec-Butylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	135-98-8	
tert-Butylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	98-06-6	
Carbon tetrachloride	ND	ug/L	1.0	1		11/05/14 21:31	56-23-5	
Chlorobenzene	ND	ug/L	1.0	1		11/05/14 21:31	108-90-7	
Chloroethane	ND	ug/L	4.0	1		11/05/14 21:31	75-00-3	
Chloroform	ND	ug/L	1.0	1		11/05/14 21:31	67-66-3	
Chloromethane	ND	ug/L	4.0	1		11/05/14 21:31	74-87-3	
2-Chlorotoluene	ND	ug/L	1.0	1		11/05/14 21:31	95-49-8	
4-Chlorotoluene	ND	ug/L	1.0	1		11/05/14 21:31	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	4.0	1		11/05/14 21:31	96-12-8	
Dibromochloromethane	ND	ug/L	1.0	1		11/05/14 21:31	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	1.0	1		11/05/14 21:31	106-93-4	
Dibromomethane	ND	ug/L	4.0	1		11/05/14 21:31	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	1.0	1		11/05/14 21:31	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	1.0	1		11/05/14 21:31	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	1.0	1		11/05/14 21:31	106-46-7	
Dichlorodifluoromethane	ND	ug/L	1.0	1		11/05/14 21:31	75-71-8	
1,1-Dichloroethane	ND	ug/L	1.0	1		11/05/14 21:31	75-34-3	
1,2-Dichloroethane	ND	ug/L	1.0	1		11/05/14 21:31	107-06-2	
1,1-Dichloroethene	ND	ug/L	1.0	1		11/05/14 21:31	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	1.0	1		11/05/14 21:31	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	1.0	1		11/05/14 21:31	156-60-5	
Dichlorofluoromethane	ND	ug/L	4.0	1		11/05/14 21:31	75-43-4	
1,2-Dichloropropane	ND	ug/L	4.0	1		11/05/14 21:31	78-87-5	
1,3-Dichloropropane	ND	ug/L	1.0	1		11/05/14 21:31	142-28-9	
2,2-Dichloropropane	ND	ug/L	4.0	1		11/05/14 21:31	594-20-7	
1,1-Dichloropropene	ND	ug/L	1.0	1		11/05/14 21:31	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	4.0	1		11/05/14 21:31	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	4.0	1		11/05/14 21:31	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	4.0	1		11/05/14 21:31	60-29-7	
Ethylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	1		11/05/14 21:31	87-68-3	

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ANALYTICAL RESULTS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Sample: TRIP BLANKS **Lab ID: 10286929006** Collected: 10/27/14 13:45 Received: 10/28/14 12:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC	Analytical Method: EPA 8260							
Isopropylbenzene (Cumene)	ND	ug/L	1.0	1		11/05/14 21:31	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	1		11/05/14 21:31	99-87-6	
Methylene Chloride	ND	ug/L	4.0	1		11/05/14 21:31	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	1		11/05/14 21:31	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	1		11/05/14 21:31	1634-04-4	
Naphthalene	ND	ug/L	4.0	1		11/05/14 21:31	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	103-65-1	
Styrene	ND	ug/L	1.0	1		11/05/14 21:31	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		11/05/14 21:31	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		11/05/14 21:31	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		11/05/14 21:31	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		11/05/14 21:31	109-99-9	
Toluene	ND	ug/L	1.0	1		11/05/14 21:31	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		11/05/14 21:31	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		11/05/14 21:31	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		11/05/14 21:31	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		11/05/14 21:31	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		11/05/14 21:31	79-01-6	
Trichlorofluoromethane	ND	ug/L	4.0	1		11/05/14 21:31	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		11/05/14 21:31	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		11/05/14 21:31	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		11/05/14 21:31	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		11/05/14 21:31	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		11/05/14 21:31	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	84	%.	75-125	1		11/05/14 21:31	17060-07-0	
Toluene-d8 (S)	104	%.	75-125	1		11/05/14 21:31	2037-26-5	
4-Bromofluorobenzene (S)	96	%.	75-125	1		11/05/14 21:31	460-00-4	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

QC Batch: GCV/12890 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10286929001, 10286929002, 10286929003

METHOD BLANK: 1836498 Matrix: Solid
Associated Lab Samples: 10286929001, 10286929002, 10286929003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/kg	ND	0.050	11/10/14 17:46	
Ethylbenzene	mg/kg	ND	0.050	11/10/14 17:46	
Gasoline Range Organics	mg/kg	ND	10.0	11/10/14 17:46	
Methyl-tert-butyl ether	mg/kg	ND	0.25	11/10/14 17:46	
Toluene	mg/kg	ND	0.050	11/10/14 17:46	
Xylene (Total)	mg/kg	ND	0.15	11/10/14 17:46	
a,a,a-Trifluorotoluene (S)	%.	101	80-125	11/10/14 17:46	

LABORATORY CONTROL SAMPLE & LCSD: 1836499 1836500

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	mg/kg	5	5.2	5.1	105	103	80-120	2	20	
Ethylbenzene	mg/kg	5	5.3	5.2	105	103	80-120	2	20	
Gasoline Range Organics	mg/kg	50	54.5	53.9	109	108	80-120	1	20	
Methyl-tert-butyl ether	mg/kg	5	5.3	4.8	105	97	80-120	9	20	
Toluene	mg/kg	5	5.3	5.1	105	103	80-120	2	20	
Xylene (Total)	mg/kg	15	15.7	15.4	105	103	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%.				101	99	80-125			

MATRIX SPIKE SAMPLE: 1836501

Parameter	Units	10287153001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	mg/kg	ND	5.7	5.4	95	80-120	
Ethylbenzene	mg/kg	ND	5.7	5.5	96	80-120	
Gasoline Range Organics	mg/kg	ND	56.8	57.0	100	80-120	
Methyl-tert-butyl ether	mg/kg	ND	5.7	5.3	93	80-120	
Toluene	mg/kg	ND	5.7	5.4	96	80-120	
Xylene (Total)	mg/kg	ND	17	16.2	95	80-120	
a,a,a-Trifluorotoluene (S)	%.				101	80-125	

SAMPLE DUPLICATE: 1836502

Parameter	Units	10287153002 Result	Dup Result	RPD	Qualifiers
Benzene	mg/kg	ND	ND		
Ethylbenzene	mg/kg	ND	ND		
Gasoline Range Organics	mg/kg	ND	ND		
Methyl-tert-butyl ether	mg/kg	ND	ND		

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

SAMPLE DUPLICATE: 1836502

Parameter	Units	10287153002 Result	Dup Result	RPD	Qualifiers
Toluene	mg/kg	ND	ND		
Xylene (Total)	mg/kg	ND	ND		
a,a,a-Trifluorotoluene (S)	%.	103	103	0	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

QC Batch: GCV/12874 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water
Associated Lab Samples: 10286929004, 10286929005, 10286929006

METHOD BLANK: 1834342 Matrix: Water
Associated Lab Samples: 10286929004, 10286929005, 10286929006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	11/06/14 20:36	
a,a,a-Trifluorotoluene (S)	%.	95	80-125	11/06/14 20:36	

LABORATORY CONTROL SAMPLE & LCSD: 1834343 1834345

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	1090	1170	109	117	80-120	7	20	
a,a,a-Trifluorotoluene (S)	%.				93	94	80-125			

MATRIX SPIKE SAMPLE: 1836671

Parameter	Units	10286663009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	798	1000	2040	124	80-120	M1
a,a,a-Trifluorotoluene (S)	%.				103	80-125	

SAMPLE DUPLICATE: 1836676

Parameter	Units	10286663005 Result	Dup Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	ND		
a,a,a-Trifluorotoluene (S)	%.	108	105	2	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

QC Batch: MPRP/50453
QC Batch Method: ASTM D2974
Analysis Method: ASTM D2974
Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10286929001, 10286929002

SAMPLE DUPLICATE: 1837850

Parameter	Units	10286827001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	28.7	27.1	6	

SAMPLE DUPLICATE: 1837851

Parameter	Units	10287291007 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	9.3	11.1	17	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

QC Batch: MSV/29223 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 465 W
Associated Lab Samples: 10286929004, 10286929005, 10286929006

METHOD BLANK: 1836524 Matrix: Water
Associated Lab Samples: 10286929004, 10286929005, 10286929006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/05/14 20:49	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/05/14 20:49	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/05/14 20:49	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/05/14 20:49	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/05/14 20:49	
1,1-Dichloroethane	ug/L	ND	1.0	11/05/14 20:49	
1,1-Dichloroethene	ug/L	ND	1.0	11/05/14 20:49	
1,1-Dichloropropene	ug/L	ND	1.0	11/05/14 20:49	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/05/14 20:49	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/05/14 20:49	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/05/14 20:49	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/05/14 20:49	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/05/14 20:49	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/05/14 20:49	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/05/14 20:49	
1,2-Dichloroethane	ug/L	ND	1.0	11/05/14 20:49	
1,2-Dichloropropane	ug/L	ND	4.0	11/05/14 20:49	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/05/14 20:49	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/05/14 20:49	
1,3-Dichloropropane	ug/L	ND	1.0	11/05/14 20:49	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/05/14 20:49	
2,2-Dichloropropane	ug/L	ND	4.0	11/05/14 20:49	
2-Butanone (MEK)	ug/L	ND	5.0	11/05/14 20:49	
2-Chlorotoluene	ug/L	ND	1.0	11/05/14 20:49	
4-Chlorotoluene	ug/L	ND	1.0	11/05/14 20:49	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/05/14 20:49	
Acetone	ug/L	ND	20.0	11/05/14 20:49	
Allyl chloride	ug/L	ND	4.0	11/05/14 20:49	
Benzene	ug/L	ND	1.0	11/05/14 20:49	
Bromobenzene	ug/L	ND	1.0	11/05/14 20:49	
Bromochloromethane	ug/L	ND	1.0	11/05/14 20:49	
Bromodichloromethane	ug/L	ND	1.0	11/05/14 20:49	
Bromoform	ug/L	ND	4.0	11/05/14 20:49	
Bromomethane	ug/L	ND	4.0	11/05/14 20:49	
Carbon tetrachloride	ug/L	ND	1.0	11/05/14 20:49	
Chlorobenzene	ug/L	ND	1.0	11/05/14 20:49	
Chloroethane	ug/L	ND	4.0	11/05/14 20:49	
Chloroform	ug/L	ND	1.0	11/05/14 20:49	
Chloromethane	ug/L	ND	4.0	11/05/14 20:49	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/05/14 20:49	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/05/14 20:49	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

METHOD BLANK: 1836524 Matrix: Water
Associated Lab Samples: 10286929004, 10286929005, 10286929006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/05/14 20:49	
Dibromomethane	ug/L	ND	4.0	11/05/14 20:49	
Dichlorodifluoromethane	ug/L	ND	1.0	11/05/14 20:49	
Dichlorofluoromethane	ug/L	ND	4.0	11/05/14 20:49	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/05/14 20:49	
Ethylbenzene	ug/L	ND	1.0	11/05/14 20:49	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/05/14 20:49	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/05/14 20:49	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/05/14 20:49	
Methylene Chloride	ug/L	ND	4.0	11/05/14 20:49	
n-Butylbenzene	ug/L	ND	1.0	11/05/14 20:49	
n-Propylbenzene	ug/L	ND	1.0	11/05/14 20:49	
Naphthalene	ug/L	ND	4.0	11/05/14 20:49	
p-Isopropyltoluene	ug/L	ND	1.0	11/05/14 20:49	
sec-Butylbenzene	ug/L	ND	1.0	11/05/14 20:49	
Styrene	ug/L	ND	1.0	11/05/14 20:49	
tert-Butylbenzene	ug/L	ND	1.0	11/05/14 20:49	
Tetrachloroethene	ug/L	ND	1.0	11/05/14 20:49	
Tetrahydrofuran	ug/L	ND	10.0	11/05/14 20:49	
Toluene	ug/L	ND	1.0	11/05/14 20:49	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/05/14 20:49	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/05/14 20:49	
Trichloroethene	ug/L	ND	0.40	11/05/14 20:49	
Trichlorofluoromethane	ug/L	ND	4.0	11/05/14 20:49	
Vinyl chloride	ug/L	ND	0.40	11/05/14 20:49	
Xylene (Total)	ug/L	ND	3.0	11/05/14 20:49	
1,2-Dichloroethane-d4 (S)	%.	85	75-125	11/05/14 20:49	
4-Bromofluorobenzene (S)	%.	96	75-125	11/05/14 20:49	
Toluene-d8 (S)	%.	103	75-125	11/05/14 20:49	

LABORATORY CONTROL SAMPLE: 1836525

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.8	94	75-125	
1,1,1-Trichloroethane	ug/L	20	16.3	82	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	17.5	88	74-125	
1,1,2-Trichloroethane	ug/L	20	20.0	100	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	17.9	90	56-133	
1,1-Dichloroethane	ug/L	20	17.7	88	75-125	
1,1-Dichloroethene	ug/L	20	18.8	94	70-125	
1,1-Dichloropropene	ug/L	20	16.7	84	73-125	
1,2,3-Trichlorobenzene	ug/L	20	17.6	88	75-125	
1,2,3-Trichloropropane	ug/L	20	18.8	94	75-125	
1,2,4-Trichlorobenzene	ug/L	20	19.5	98	75-125	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

LABORATORY CONTROL SAMPLE: 1836525

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	19.5	98	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	46.3	93	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	17.8	89	75-125	
1,2-Dichlorobenzene	ug/L	20	18.6	93	75-125	
1,2-Dichloroethane	ug/L	20	15.2	76	75-125	
1,2-Dichloropropane	ug/L	20	19.4	97	75-125	
1,3,5-Trimethylbenzene	ug/L	20	19.3	97	75-125	
1,3-Dichlorobenzene	ug/L	20	17.7	88	75-125	
1,3-Dichloropropane	ug/L	20	17.5	87	75-125	
1,4-Dichlorobenzene	ug/L	20	18.2	91	75-125	
2,2-Dichloropropane	ug/L	20	16.7	83	66-130	
2-Butanone (MEK)	ug/L	100	81.2	81	64-126	
2-Chlorotoluene	ug/L	20	18.4	92	73-125	
4-Chlorotoluene	ug/L	20	19.0	95	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	89.1	89	71-125	
Acetone	ug/L	100	113	113	66-131	
Allyl chloride	ug/L	20	17.5	87	70-129	
Benzene	ug/L	20	17.7	89	75-125	
Bromobenzene	ug/L	20	18.6	93	75-125	
Bromochloromethane	ug/L	20	19.3	96	75-125	
Bromodichloromethane	ug/L	20	16.8	84	75-125	
Bromoform	ug/L	20	17.7	89	70-125	
Bromomethane	ug/L	20	12.1	60	30-150	
Carbon tetrachloride	ug/L	20	15.5	77	68-129	
Chlorobenzene	ug/L	20	18.8	94	75-125	
Chloroethane	ug/L	20	18.4	92	68-133	
Chloroform	ug/L	20	17.1	85	75-125	
Chloromethane	ug/L	20	18.0	90	57-140	
cis-1,2-Dichloroethene	ug/L	20	19.8	99	75-125	
cis-1,3-Dichloropropene	ug/L	20	17.7	88	75-125	
Dibromochloromethane	ug/L	20	19.1	96	75-125	
Dibromomethane	ug/L	20	18.1	91	75-125	
Dichlorodifluoromethane	ug/L	20	19.6	98	50-134	
Dichlorofluoromethane	ug/L	20	16.7	83	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	17.2	86	75-125	
Ethylbenzene	ug/L	20	18.1	90	75-125	
Hexachloro-1,3-butadiene	ug/L	20	16.5	83	74-128	
Isopropylbenzene (Cumene)	ug/L	20	19.8	99	73-125	
Methyl-tert-butyl ether	ug/L	20	18.0	90	75-125	
Methylene Chloride	ug/L	20	18.9	95	75-125	
n-Butylbenzene	ug/L	20	17.9	89	73-125	
n-Propylbenzene	ug/L	20	18.2	91	72-125	
Naphthalene	ug/L	20	18.2	91	74-125	
p-Isopropyltoluene	ug/L	20	19.4	97	74-125	
sec-Butylbenzene	ug/L	20	19.5	97	74-125	
Styrene	ug/L	20	20.7	104	75-125	
tert-Butylbenzene	ug/L	20	19.2	96	74-125	

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(612)607-1700

QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

LABORATORY CONTROL SAMPLE: 1836525

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	19.2	96	71-125	
Tetrahydrofuran	ug/L	200	211	106	70-125	
Toluene	ug/L	20	19.2	96	75-125	
trans-1,2-Dichloroethene	ug/L	20	19.5	98	73-125	
trans-1,3-Dichloropropene	ug/L	20	18.4	92	75-125	
Trichloroethene	ug/L	20	19.8	99	75-125	
Trichlorofluoromethane	ug/L	20	16.1	80	70-128	
Vinyl chloride	ug/L	20	18.1	91	70-130	
Xylene (Total)	ug/L	60	60.5	101	75-125	
1,2-Dichloroethane-d4 (S)	%.			85	75-125	
4-Bromofluorobenzene (S)	%.			95	75-125	
Toluene-d8 (S)	%.			105	75-125	

MATRIX SPIKE SAMPLE: 1838667

Parameter	Units	10287014014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	50	51.1	102	74-131	
1,1,1-Trichloroethane	ug/L	ND	50	46.4	92	73-139	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	45.0	90	72-125	
1,1,2-Trichloroethane	ug/L	ND	50	50.1	100	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	50	53.3	107	68-150	
1,1-Dichloroethane	ug/L	0.25J	50	47.6	95	73-132	
1,1-Dichloroethene	ug/L	0.24J	50	53.3	106	71-142	
1,1-Dichloropropene	ug/L	ND	50	47.9	96	73-139	
1,2,3-Trichlorobenzene	ug/L	ND	50	46.7	93	70-129	
1,2,3-Trichloropropane	ug/L	ND	50	46.9	94	74-125	
1,2,4-Trichlorobenzene	ug/L	ND	50	52.2	104	70-129	
1,2,4-Trimethylbenzene	ug/L	ND	50	51.5	103	72-136	
1,2-Dibromo-3-chloropropane	ug/L	ND	125	122	98	66-127	
1,2-Dibromoethane (EDB)	ug/L	ND	50	46.6	93	75-125	
1,2-Dichlorobenzene	ug/L	ND	50	48.3	97	75-125	
1,2-Dichloroethane	ug/L	ND	50	38.3	77	68-128	
1,2-Dichloropropane	ug/L	ND	50	50.8	102	74-131	
1,3,5-Trimethylbenzene	ug/L	ND	50	51.2	102	75-131	
1,3-Dichlorobenzene	ug/L	ND	50	47.0	94	73-125	
1,3-Dichloropropane	ug/L	ND	50	45.7	91	75-125	
1,4-Dichlorobenzene	ug/L	ND	50	48.0	96	73-125	
2,2-Dichloropropane	ug/L	ND	50	47.8	96	58-150	
2-Butanone (MEK)	ug/L	ND	250	206	82	56-140	
2-Chlorotoluene	ug/L	ND	50	48.7	97	70-130	
4-Chlorotoluene	ug/L	ND	50	50.9	102	73-126	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	250	224	90	69-128	
Acetone	ug/L	ND	250	267	106	57-143	
Allyl chloride	ug/L	ND	50	48.5	97	65-146	
Benzene	ug/L	ND	50	46.5	93	75-129	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

MATRIX SPIKE SAMPLE: 1838667

Parameter	Units	10287014014 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromobenzene	ug/L	ND	50	48.8	98	74-125	
Bromochloromethane	ug/L	ND	50	50.0	100	75-126	
Bromodichloromethane	ug/L	ND	50	43.8	88	75-128	
Bromoform	ug/L	ND	50	45.7	91	66-130	
Bromomethane	ug/L	ND	50	31.6	63	30-150	
Carbon tetrachloride	ug/L	ND	50	45.4	91	69-148	
Chlorobenzene	ug/L	ND	50	47.6	95	75-125	
Chloroethane	ug/L	ND	50	52.0	104	71-143	
Chloroform	ug/L	ND	50	45.5	91	75-126	
Chloromethane	ug/L	0.82J	50	50.7	100	55-150	
cis-1,2-Dichloroethene	ug/L	0.17J	50	52.4	104	75-130	
cis-1,3-Dichloropropene	ug/L	ND	50	47.1	94	72-129	
Dibromochloromethane	ug/L	ND	50	50.6	101	73-129	
Dibromomethane	ug/L	ND	50	46.6	93	75-125	
Dichlorodifluoromethane	ug/L	ND	50	54.4	109	70-150	
Dichlorofluoromethane	ug/L	ND	50	47.3	95	75-135	
Diethyl ether (Ethyl ether)	ug/L	ND	50	45.0	90	72-126	
Ethylbenzene	ug/L	ND	50	47.7	95	75-128	
Hexachloro-1,3-butadiene	ug/L	ND	50	47.8	96	65-144	
Isopropylbenzene (Cumene)	ug/L	ND	50	52.7	105	75-131	
Methyl-tert-butyl ether	ug/L	ND	50	46.3	93	74-128	
Methylene Chloride	ug/L	ND	50	49.7	99	69-125	
n-Butylbenzene	ug/L	ND	50	52.5	105	70-137	
n-Propylbenzene	ug/L	ND	50	49.4	99	72-131	
Naphthalene	ug/L	ND	50	48.7	97	70-132	
p-Isopropyltoluene	ug/L	ND	50	53.0	106	73-133	
sec-Butylbenzene	ug/L	ND	50	54.1	108	74-133	
Styrene	ug/L	ND	50	54.8	110	75-128	
tert-Butylbenzene	ug/L	ND	50	50.9	102	74-130	
Tetrachloroethene	ug/L	0.65J	50	52.8	104	68-140	
Tetrahydrofuran	ug/L	ND	500	540	108	65-131	
Toluene	ug/L	ND	50	50.5	101	75-129	
trans-1,2-Dichloroethene	ug/L	ND	50	53.7	107	70-136	
trans-1,3-Dichloropropene	ug/L	ND	50	47.8	96	71-125	
Trichloroethene	ug/L	4.4	50	58.5	108	72-135	
Trichlorofluoromethane	ug/L	ND	50	47.8	96	75-150	
Vinyl chloride	ug/L	ND	50	51.0	102	73-150	
Xylene (Total)	ug/L	ND	150	159	106	75-129	
1,2-Dichloroethane-d4 (S)	%.				81	75-125	
4-Bromofluorobenzene (S)	%.				95	75-125	
Toluene-d8 (S)	%.				104	75-125	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

SAMPLE DUPLICATE: 1838666

Parameter	Units	10287014013 Result	Dup Result	RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		
1,1,1-Trichloroethane	ug/L	ND	ND		
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		
1,1,2-Trichloroethane	ug/L	ND	ND		
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		
1,1-Dichloroethane	ug/L	ND	ND		
1,1-Dichloroethene	ug/L	ND	ND		
1,1-Dichloropropene	ug/L	ND	ND		
1,2,3-Trichlorobenzene	ug/L	ND	ND		
1,2,3-Trichloropropane	ug/L	ND	ND		
1,2,4-Trichlorobenzene	ug/L	ND	ND		
1,2,4-Trimethylbenzene	ug/L	ND	ND		
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		
1,2-Dibromoethane (EDB)	ug/L	ND	ND		
1,2-Dichlorobenzene	ug/L	ND	ND		
1,2-Dichloroethane	ug/L	ND	ND		
1,2-Dichloropropane	ug/L	ND	ND		
1,3,5-Trimethylbenzene	ug/L	ND	ND		
1,3-Dichlorobenzene	ug/L	ND	ND		
1,3-Dichloropropane	ug/L	ND	ND		
1,4-Dichlorobenzene	ug/L	ND	ND		
2,2-Dichloropropane	ug/L	ND	ND		
2-Butanone (MEK)	ug/L	ND	ND		
2-Chlorotoluene	ug/L	ND	ND		
4-Chlorotoluene	ug/L	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		
Acetone	ug/L	ND	ND		
Allyl chloride	ug/L	ND	ND		
Benzene	ug/L	ND	ND		
Bromobenzene	ug/L	ND	ND		
Bromochloromethane	ug/L	ND	ND		
Bromodichloromethane	ug/L	ND	ND		
Bromoform	ug/L	ND	ND		
Bromomethane	ug/L	ND	ND		
Carbon tetrachloride	ug/L	ND	ND		
Chlorobenzene	ug/L	ND	ND		
Chloroethane	ug/L	ND	ND		
Chloroform	ug/L	ND	ND		
Chloromethane	ug/L	1.3J	1.6J		
cis-1,2-Dichloroethene	ug/L	ND	ND		
cis-1,3-Dichloropropene	ug/L	ND	ND		
Dibromochloromethane	ug/L	ND	ND		
Dibromomethane	ug/L	ND	ND		
Dichlorodifluoromethane	ug/L	ND	ND		
Dichlorofluoromethane	ug/L	ND	ND		
Diethyl ether (Ethyl ether)	ug/L	ND	ND		
Ethylbenzene	ug/L	ND	ND		

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

SAMPLE DUPLICATE: 1838666

Parameter	Units	10287014013 Result	Dup Result	RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	ND		
Isopropylbenzene (Cumene)	ug/L	ND	ND		
Methyl-tert-butyl ether	ug/L	ND	ND		
Methylene Chloride	ug/L	ND	ND		
n-Butylbenzene	ug/L	ND	ND		
n-Propylbenzene	ug/L	ND	ND		
Naphthalene	ug/L	ND	ND		
p-Isopropyltoluene	ug/L	ND	ND		
sec-Butylbenzene	ug/L	ND	ND		
Styrene	ug/L	ND	ND		
tert-Butylbenzene	ug/L	ND	ND		
Tetrachloroethene	ug/L	ND	ND		
Tetrahydrofuran	ug/L	ND	ND		
Toluene	ug/L	ND	ND		
trans-1,2-Dichloroethene	ug/L	ND	ND		
trans-1,3-Dichloropropene	ug/L	ND	ND		
Trichloroethene	ug/L	ND	ND		
Trichlorofluoromethane	ug/L	ND	ND		
Vinyl chloride	ug/L	ND	ND		
Xylene (Total)	ug/L	ND	ND		
1,2-Dichloroethane-d4 (S)	%.	84	83	1	
4-Bromofluorobenzene (S)	%.	97	97	0	
Toluene-d8 (S)	%.	103	105	1	

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

QC Batch: OEXT/27120 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10286929001, 10286929002

METHOD BLANK: 1833737 Matrix: Solid
Associated Lab Samples: 10286929001, 10286929002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	11/05/14 15:59	
n-Triacontane (S)	%.	85	50-150	11/05/14 15:59	

LABORATORY CONTROL SAMPLE & LCSD: 1833738 1833739

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	66.9	73.3	84	92	70-120	9	20	
n-Triacontane (S)	%.				82	89	50-150			

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QUALITY CONTROL DATA

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

QC Batch: OEXT/27072 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10286929004, 10286929005

METHOD BLANK: 1830244 Matrix: Water
Associated Lab Samples: 10286929004, 10286929005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	10/30/14 07:48	
n-Triacontane (S)	%.	89	50-150	10/30/14 07:48	

LABORATORY CONTROL SAMPLE & LCSD: 1830245 1830246

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/L	2	1.7	1.7	84	84	75-115	1	20	
n-Triacontane (S)	%.				82	79	50-150			

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QUALIFIERS

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

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.

PQL - Practical Quantitation 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.

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TNI - The NELAC Institute.

ANALYTE QUALIFIERS

M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P4	Sample field preservation does not meet EPA or method recommendations for this analysis.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

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

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: S306-00 Former Food & Fuel
Pace Project No.: 10286929

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10286929001	**GP-6 (17.5-20')**	WI MOD DRO	OEXT/27120	WI MOD DRO	GCSV/14435
10286929002	**GP-7 (22.5-25')**	WI MOD DRO	OEXT/27120	WI MOD DRO	GCSV/14435
10286929004	**GP-6W**	WI MOD DRO	OEXT/27072	WI MOD DRO	GCSV/14381
10286929005	**GP-7W**	WI MOD DRO	OEXT/27072	WI MOD DRO	GCSV/14381
10286929001	**GP-6 (17.5-20')**	TPH GRO/PVOC WI ext.	GCV/12890	WI MOD GRO	GCV/12891
10286929002	**GP-7 (22.5-25')**	TPH GRO/PVOC WI ext.	GCV/12890	WI MOD GRO	GCV/12891
10286929003	**MeOH Blank**	TPH GRO/PVOC WI ext.	GCV/12890	WI MOD GRO	GCV/12891
10286929004	**GP-6W**	WI MOD GRO	GCV/12874		
10286929005	**GP-7W**	WI MOD GRO	GCV/12874		
10286929006	**TRIP BLANKS**	WI MOD GRO	GCV/12874		
10286929001	**GP-6 (17.5-20')**	ASTM D2974	MPRP/50453		
10286929002	**GP-7 (22.5-25')**	ASTM D2974	MPRP/50453		
10286929004	**GP-6W**	EPA 8260	MSV/29223		
10286929005	**GP-7W**	EPA 8260	MSV/29223		
10286929006	**TRIP BLANKS**	EPA 8260	MSV/29223		

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CHAIN-OF-CUSTODY / Analytical Request Document

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

10286929

Page: 1 of 1

1796957

Section A Required Client Information:

Company:	Carlson McCain, Inc.
Address:	P.O. Box 429
Email To:	clock@carlsonmccain.com
Phone: 952-346-3913	Fax:
Requested Due Date/TAT:	

Section B Required Project Information:

Report To:	Chris Lock
Copy To:	Chris Lock
Purchase Order No.:	5306-00
Project Name:	Fountain Food & Fuel
Project Number:	5306-00

Section C Invoice Information:

Attention:	Chris Lock
Company Name:	Carlson McCain
Address:	"Same"
Pace Quote Reference:	MPCA Fount Finance Cont.
Pace Project Manager:	Justin Benjamin
Pace Profile #:	

REGULATORY AGENCY

☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER
☒ UST ☐ RCRA ☐ OTHER _____

Site Location STATE: MN

Section D Required Client Information

SAMPLE ID
(A-Z, 0-9 / ,-)
Sample IDs MUST BE UNIQUE

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

Requested Analysis Filtered (Y/N)

ITEM #	SAMPLE ID	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED COMPOSITE START DATE	COLLECTED COMPOSITE START TIME	COLLECTED COMPOSITE END/GRAB DATE	COLLECTED COMPOSITE END/GRAB TIME	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives: Unpreserved	H_2SO_4	HNO_3	HCl	NaOH	$Na_2S_2O_3$	Methanol	Other	Analysis Test: DRO	GRO/BTEX with Dry Ice	PAH	GRO	VOCs	Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.
1	GP-6 (17.5-20')	SL	G	10/27/14	11:05	—	—	—	5	3						2		X	X	X				N	001
2	GP-7 (22.5-25')	SL	G	10/27/14	1:20	—	—	—	5	3						2		X	X	X				N	002
3	MeOH Blank	OT	—	10/27/14	1:25	—	—	—								1			X					N	003
4						—	—	—																	
5	GP-6W	WT	—	10/27/14	11:15	—	—	—	8				3								X	X	X	N	004
6	GP-7W	WT	—	10/27/14	1:40	—	—	—	8				3								X	X	X	N	005
7	Trip Blanks	OT	—	10/27/14	1:45	—	—	—					2									X	X	N	006
8																									
9																									
10																									
11																									
12																									

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS: Temp in °C	Received on Ice (Y/N)	Custody Sealed Cooler (Y/N)	Samples Intact (Y/N)
PID's = 0.0 ppm IN Soil Samples		10-28	12:00		10/28	1200				
	PM's	10/28	12:15	Tom Pace	10/28	1245	6.4	Y	N	Y

ORIGINAL

SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Chris Lock

SIGNATURE of SAMPLER: _____ DATE Signed (MM/DD/YY): 10/27/14

*Important Note: By signing this form you are accepting Pace's NET 30 day payment terms and agreeing to late charges of 1.5% per month for any invoices not paid within 30 days.

Pace Analytical®	Document Name: **Sample Condition Upon Receipt Form**	Document Revised: 28Feb2014 Page 1 of 1
	Document No.: **F-MN-L-213-rev.09**	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt

Client Name: Carlson McCain Inc

Project #: WO# : 10286929

10286929

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ SpeeDee ☐ 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

Thermom. Used: ☐ B88A9130516413 ☐ B88A912167504 ☒ B88A9132521491 **Type of Ice:** ☒ Wet ☐ Blue ☐ None ☐ Samples on ice, cooling process has begun

Cooler Temp Read (°C): 6.4 **Cooler Temp Corrected (°C):** 6.6 **Biological Tissue Frozen?** ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C **Correction Factor:** +0.2 **Date and Initials of Person Examining Contents:** 10/28/14 WDM

Comments:

Chain of Custody Present?	☒ Yes	☐ No	☐ N/A	1.
Chain of Custody Filled Out?	☒ Yes	☐ No	☐ N/A	2.
Chain of Custody Relinquished?	☒ Yes	☐ No	☐ N/A	3.
Sampler Name and/or Signature on COC?	☒ Yes	☐ No	☐ N/A	4.
Samples Arrived within Hold Time?	☒ Yes	☐ No	☐ N/A	5.
Short Hold Time Analysis (<72 hr)?	☐ Yes	☒ No	☐ N/A	6.
Rush Turn Around Time Requested?	☐ Yes	☒ No	☐ N/A	7.
Sufficient Volume?	☐ Yes	☐ No	☒ N/A	8.
Correct Containers Used?	☒ Yes	☐ No	☐ N/A	9.
-Pace Containers Used?	☒ Yes	☐ No	☐ N/A	
Containers Intact?	☒ Yes	☐ No	☐ N/A	10.
Filtered Volume Received for Dissolved Tests?	☐ Yes	☐ No	☒ N/A	11.
Sample Labels Match COC? -Includes Date/Time/ID/Analysis Matrix: SL+WT	☒ Yes	☐ No	☐ N/A	12.
All containers needing acid/base preservation have been checked?	☐ Yes	☐ No	☒ N/A	13. ☐ HNO_3 ☐ H_2SO_4 ☐ NaOH ☐ HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO_3, H_2SO_4, HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	☐ Yes	☐ No	☒ N/A	Sample #
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	☐ Yes	☒ No		Initial when completed:_____ Lot # of added preservative:_____
Headspace in VOA Vials (>6mm)?	☐ Yes	☐ No	☒ N/A	14.
Trip Blank Present?	☒ Yes	☐ No	☐ N/A	15. Only 3 HCl Trip Blanks present. COC claims to have 4
Trip Blank Custody Seals Present?	☒ Yes	☐ No	☐ N/A	
Pace Trip Blank Lot # (if purchased): 100814-01				

CLIENT NOTIFICATION/RESOLUTION **Field Data Required?** ☐ Yes ☐ No

Person Contacted: _____ Date/Time: _____

Comments/Resolution: _____

Project Manager Review: _____ **Date:** 10/29/14

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

METHODS and PROCEDURES

Soil Borings

Soil borings were drilled in accordance with Minnesota Department of Health (MDH) Well Construction Code (Minnesota Rules 4725). Drilling services were provided by a licensed and registered well contractor in the State of Minnesota.

Direct Push Soil Borings

Prior to starting intrusive work, underground utilities were located through the Gopher One-Call State System. In addition, buried utilities were located by private locator contractor. Soil borings were advanced by direct push technology. This method utilizes a truck mounted drill rig which employs a hydraulically-powered probe that utilizes static force and percussion to advance sampling tools into the subsurface for the collection of soil and ground water samples. Soil samples were collected continuously using a 2-inch ID by 5-foot stainless steel "Macro-Core® Sampler".

Soil Classification

Soil samples were manually and visually classified by a Carlson McCain field geologist according to methods outlined in ASTM D2488 and entered onto a field boring log. In general, soil cuttings were thin spread at the surface, in the vicinity in which they were generated.

Field Screening

To determine if contamination was present in soil, visual and olfactory observations, as well as vapor monitoring using a photoionization detector (PID), were conducted. Organic vapors were monitored in soils using MPCA bag headspace methods. The sample was shaken, placed in a warm environment to allow organic vapors to develop and readings were recorded on the field boring logs. Vapor monitoring was also conducted to ensure that atmospheric conditions were sufficient to provide a safe working environment.

Decontamination

Prior to drilling, between boreholes and prior to demobilization, drilling equipment was decontaminated to minimize the potential for any cross-contamination. While drilling, all soil sampling equipment (i.e. split spoons) was thoroughly decontaminated between sampling intervals using an Alconox® wash, followed by a tap water rinse. Equipment such as the HSA was steam cleaned.

Water Level Measurements

As necessary, water level measurements were obtained using an electronic water level indicator within boreholes while or after well casings were installed. Water level measurements were measured from either the ground surface in the case of soil borings, or the top of casing (highest point) in the case of monitoring well sampling. Measurements taken while drilling were made to the nearest 0.1 foot.

Borehole Abandonment

Each direct push borehole was sealed by backfilling with granular bentonite, which was placed and hydrated in 2-foot lifts. Each borehole was then topped off with compacted soil. Each location was mapped for future reference.

Soil Sampling

The sampling surface was kept as clean as practical to minimize the potential for contamination of samples. A clean and dry sheet of relatively inert plastic (i.e. trash bag) was placed on the working surface. If materials used in the sampling process were set down, they were placed on a clean portion of the plastic sheet instead of a non-sterile surface. A clean pair of latex or nitrile gloves was used at the onset of sampling activities at each new sampling point. Sampling personnel kept their hands as clean as practical and replaced gloves if they became soiled while performing sampling activities. Furthermore, sampling personnel took care not to touch the inside of sampling containers, inside of bottle caps or the rim of sample containers. If contact occurred, sample containers were replaced. Care was also exercised to minimize the potential for airborne contamination of samples during collection.

Soil samples submitted to a fixed-base laboratory for chemical analysis were collected directly from the acetate sleeves while drilling. Samples were field preserved (as required) and placed into clean, laboratory supplied sample containers. Each sample container was uniquely numbered and labeled using indelible ink. Additional information on the label included the analytical parameters(s), preservatives(s), sampling personnel, date and time of sample collection and the project number. The label was then directly affixed to the appropriate sample container. The samples were immediately prepared for shipment to the fixed-base laboratory and placed on ice and maintained at a temperature of 4° C. A chain-of-custody was also initiated and kept with the samples until custody was relinquished to the laboratory.

Groundwater Sampling - Soil Borings

At select locations, groundwater samples were obtained from direct push borings completed during this investigation. Groundwater samples collected from boreholes were obtained through a temporary 1-inch diameter by 5 foot long PVC screen attached to a PVC riser. The water sample collected from soil boring GP-7 was obtained through a four foot stainless steel screen attached to stainless steel rods advanced by direct push technology. Purging and sampling was completed using a peristaltic pump and dedicated tubing. The water samples were collected from the terminal end of the tubing, so as to ensure minimal volatilization of the sample. The samples were immediately given to the appropriate field staff and prepared for shipment to the fixed-base laboratory. Purge water was discharged on the ground, away from the soil boring.

Decontamination

New expendable screens, disposable tubing and other sampling equipment were used for each sampling location to minimize the potential for cross-contamination.

Laboratory Analysis

A number of soil and all groundwater samples were collected from selected soil borings and submitted to a fixed-base laboratory for chemical analysis. All samples were prepared and analyzed in accordance with MDH and/or Environmental Protection Agency (EPA) methods and procedures. Soil samples were analyzed for diesel range organics (DRO), gasoline range organics (GRO), benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl-tert-butyl-ether (MTBE). Collected groundwater samples were analyzed for DRO, GRO and volatile organic compounds (VOCS).

Quality Assurance/Quality Control

As a quality assurance/quality control (QA/QC) measure, both field and laboratory samples were analyzed in an effort to evaluate procedures being used. For soil and ground water samples submitted to the fixed-base laboratory, one duplicate sample was collected per 10 samples and submitted for analysis. An equipment blank, consisting of de-ionized rinse water that was ran through the sampling equipment, was also collected during each ground water sampling event to determine if cross-contamination had occurred between sampling locations. A trip blank accompanied the samples that were analyzed for VOCs. Laboratory QA/QC included method blanks, surrogate spikes and/or matrix spikes/ matrix spike duplicates (MS/MSD).

After the data were received from the laboratory, the individual reports were reviewed for accuracy and completeness to make sure that specific data quality objectives had been met (i.e., comparing results from duplicate samples, verification that holding times were met, reviewing detection limits, trip/ equipment blank results, etc.).

Appendix C

BORING NUMBER GP-6

Carlson McCain

CLIENT MPCA **PROJECT NAME** Former Food and Fuel

PROJECT NUMBER 5306-00 **PROJECT LOCATION** St. Francis, Minnesota

DATE STARTED 10/27/14 **COMPLETED** 10/27/14 **GROUND ELEVATION** ___ **HOLE SIZE** 2 inch

DRILLING CONTRACTOR Thein Well Co. **GROUND WATER LEVELS:**

DRILLING METHOD Direct Push ▽ **AT TIME OF DRILLING** 16.1 ft

LOGGED BY C. Loch **CHECKED BY** C. Loch **AT END OF DRILLING** ---

NOTES East of GP-5. **AFTER DRILLING** ---

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0			ML		Dark brown SILT, dry. TOPSOIL		
						1.0		
		MAC 1 2	100	SP		Light brown (7.5YR 4/3) fine-grained SAND, poorly graded, no odors or stains, dry throughout.	10:03	0.0
	5					No odors or stains, dry.	10:03	0.0
		MAC 3 4	100				10:11	0.0
						8.2		
	10			SC		Brown (7.5YR 4/3) CLAYEY SAND, moist, no odors or stains throughout.	10:11	0.0
						11.1		
		MAC 5 6	100	CL		Brown (7.5YR 4/3) SANDY LEAN CLAY with some gravel present, low plasticity and cohesiveness, no odors or stains, moist.	10:20	0.0
	15				▽	no odors or stains, moist throughout.	10:20	0.0
		MAC 7 8	100			More of a grayish brown color and rocks present from 17' to 20' bgs.	10:36	0.0
	20						10:36	0.0
						20.5		
		MAC 9 10	100	SP		Light brownish gray (7.5YR 4/1) very fine-grained SAND, poorly graded, saturated, no odors or stains.	10:51	0.0
	25					25.0	10:51	0.0
						Collected soil sample from 17.5' to 20' bgs. Set PVC screen from 19' to 24'. End of boring at 25.0 feet.		

BORING NUMBER GP-7

Carlson McCain

CLIENT MPCA
PROJECT NAME Former Food and Fuel
PROJECT NUMBER 5306-00
PROJECT LOCATION St. Francis, Minnesota
DATE STARTED 10/27/14 **COMPLETED** 10/27/14
GROUND ELEVATION _____ **HOLE SIZE** 2 inch
DRILLING CONTRACTOR Thein Well Co.
GROUND WATER LEVELS:
DRILLING METHOD Direct Push
▽ **AT TIME OF DRILLING** 15.5 ft
LOGGED BY C. Loch **CHECKED BY** C. Loch
AT END OF DRILLING ---
NOTES NE of GP-5.
AFTER DRILLING ---

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0			ML		0.5 Dark brown SILT, dry. TOPSOIL		
		MAC 1 2	100	SP		Brown (7.5YR 4/3) fine-grained SAND, poorly graded, no odors or stains, dry throughout.	11:55	0.0
	5						11:55	0.0
		MAC 3 4	100			No odors or stains, dry.	12:13	0.0
	10			SC		7.5 Brown (7.5YR 4/3) CLAYEY SAND, moist, no odors or stains throughout.	12:13	0.0
		MAC 5 6	100			12.6 Brown (7.5YR 4/3) SANDY LEAN CLAY, slightly plastic, low cohesiveness, moist.	12:21	0.0
	15				▽		12:21	0.0
		MAC 7 8	100	CL			12:31	0.0
	20					Gray (10YR 4/1) color at 19' bgs.		
		MAC 9 10	100			no odors or stains, moist throughout.	12:31	0.0
						23.0 Gray (10YR 4/1) CLAYEY SILT, no odors or stains, moist to wet.	12:46	0.0
	25			CL-ML			12:46	0.0
		MAC 11 12	100			26.0 Gray (7.5YR 4/1) very fine-grained SAND, poorly graded, saturated, no odors or stains.	13:01	0.0
	30			SP		Collected soil sample from 22.5' to 25' bgs. Set stainless steel screen from 25' to 29'.	13:01	0.0
						30.0		

End of boring at 30.0 feet.