

LIMITED SITE INVESTIGATION REPORT FORM (MPCA GUIDANCE DOCUMENT 4-06)

Former Food & Fuel
4020 - 233rd Avenue NW
St. Francis, MN 55070
Carlson McCain Project #4977-00
MPCA Leak #18925

Prepared for:

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

June 26, 2014



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Minnesota Pollution Control Agency

Investigation Report Form

Guidance Document 4-06

Complete this form to document site investigation activities, including Limited Site Investigations (LSIs) and Remedial Investigations (RIs). Do not revise or delete any text or questions from this report form. Include any additional information that is important for making a site management decision. If only an LSI is necessary, some questions do not need to be answered and have been identified in the form. Highlighted text contains instructions and references to related guidance documents for that section or question. Refer to Minnesota Pollution Control Agency (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 requirements and methods.

MPCA Site ID: **Leak00018925**

Date: **June 26, 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: **Ms. Kathryn Serier**

Phone #: **651-231-6043**

Leak Site Information

Leak Site Name: **Former Food & Fuel**

Phone #: **651-231-6043**

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

City: **St. Francis**

Zip Code: **55070**

County: **Anoka**

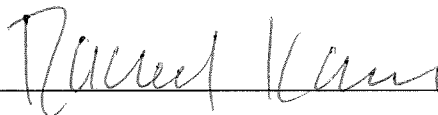
Environmental Professional Information

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
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Rachel F. Kane
Environmental Scientist



6/26/14

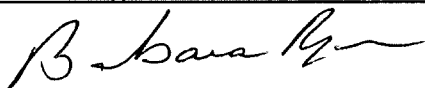
Christopher J. Loch
Project Manager



6/26/14

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



6/26/14

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

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Emergency and High Priority Sites

- A. Is an existing drinking water well impacted or likely to be impacted within a two-year travel time? ☐ Yes ☒ No
- B. Is a hydrogeologically sensitive aquifer impacted that is tapped by water wells that are within 500 feet from the release source? **If YES**, explain below. ☐ Yes ☒ No
- C. Has the public water supply risk assessment concluded that the site is a high priority site with respect to a public water supply well (see Guidance Document 4-18 *Public Water Supply Risk Assessment at Petroleum Remediation Sites*)? ☐ Yes ☒ No
- D. Is there an existing surface water impact as indicated by 1) a petroleum sheen on the surface water or 2) a petroleum sheen or volatile organic compounds in the part per million range observed in a ground water sample collected close to the surface water? ☐ Yes ☒ No
- E. Has free product been detected at the site? **If YES**, attach Guidance Document 2-03 *Free Product Recovery Report Worksheet* in Section 6. ☐ Yes ☒ No
- F. Are there any existing field-detectable vapor impacts (photoionization detector, explosimeter, odors, etc.) to a receptor? ☐ Yes ☒ No
- G. Did the vapor intrusion assessment detect contaminants in excess of acute intrusion screening values (see Guidance Document 4-01a *Vapor Intrusion Assessments Performed during Site Investigations*)? ☐ Yes ☒ No

If you answered **YES** to any of questions A through G above, describe below the actions taken to date to reduce or eliminate the risk posed by the release.

N/A

Section 1: Site Assessment

Site and Release Information

Complete Guidance Document 1-03a *Spatial Data Reporting Form*, Guidance Document 2-05 *Release Information Worksheet* if 3-02 *General Excavation Report Worksheet* was not completed, and include in Section 6.

- 1.1 Describe the land use and pertinent geographic features (e.g., topographic changes, surface waters, etc.) within 1,000 feet of the site. Illustrate these features using the Site Location Map, aerial photographs, and Sanborn Fire Insurance Maps™ for the various time periods they are available in Section 4.

The former Food & Fuel gas station (Site) is located at 4020 – 233rd Avenue Northwest in St. Francis, Minnesota. The Site is currently abandoned, developed with a former retail store building and detached storage shed. An abandoned carwash building exists directly to the north of the Site building. The Site historically operated as a gas station, convenience store and carwash. A total of four underground storage tanks (USTs) and four fuel dispensers were previously operated at the Site. The USTs, fuel dispensers, associated piping, concrete dispensing pad and dispenser canopy were removed from the Site on October 18, 2012. The removed USTs were located directly to the south of the Site building, below the former fuel dispenser islands and concrete dispensing pad. The Site is currently adjoined by commercial properties (undeveloped and storage lots) to the north; Highway 47 followed by commercial property to the east; 233rd Avenue Northwest followed by commercial and residential town-home properties to the south; and Cree Street Northwest followed by commercial properties to the west. The nearest observed surface water feature is an unnamed pond located approximately 765 feet (0.14 mile) to the northwest of the Site release source area (former tank basin). Two relatively large wetland areas are located approximately 770 feet (0.14 mile) to the southwest and 1,230 feet (0.23 mile) to the northwest of the Site release source area. The Rum River is located approximately 2,080 feet (0.39 mile) to the northeast of the Site release source area. The area of the Site is defined by generally flat topography. The Aerial and Site Plan Views, depicting current Site characteristics and the former UST basin, are attached as Figures 2a and 2b.

- 1.2 Briefly describe the history of the site and any past site investigation work that may have been completed. If a Phase I or Phase II report has been prepared for this site, include a copy in Section 6.

The Site historically operated as a gas station and convenience store. To date, there have not been any other environmental assessments or investigations conducted at the Site. The Site petroleum release was reported to the MPCA subsequent to UST, fuel dispenser and associated piping removal activities and laboratory analytical review of collected confirmatory soil samples. Tank removal activities were conducted by Zahl Petroleum Company (Zahl) on October 18, 2012. Thatcher Engineering, Inc. (Thatcher) personnel

were on-site to oversee tank removal activities and conduct confirmatory soil sampling. Thatcher collected a total of four soil samples from below each removed UST. Soil samples were submitted to a certified laboratory (Pace Analytical Services) for analysis of diesel range organics (DRO), gasoline range organics (GRO), benzene, toluene, ethylbenzene, xylenes (BTEX) and methyl-tert-butyl-ether (MTBE). Laboratory analysis of soil samples indicated elevated concentrations of GRO, DRO, ethylbenzene, toluene and xylenes below the former tank basin (consisting of four USTs). Thatcher provided the MPCA with laboratory analytical results and 12 photographs depicting tank removal activities. However, information pertaining to field screening activities, observations, sampling depths, excavation basin extents and sampling locations were not provided.

Because a responsible party (RP) was not established, the MPCA accepted the Site into the Multi-Site Fund Financed Program. The MPCA subsequently contracted Carlson McCain, Inc. (Carlson McCain) to conduct a standard scope Limited Site Investigation (LSI) to assess the extent of soil contamination and potential impacts to shallow groundwater. As part of this LSI, the MPCA requested Carlson McCain to conduct a background review of previous tank removal activities and prepare an Excavation Report (MPCA Guidance Document 3-02). The excavation report is attached as Appendix A.

- 1.3 List other potential petroleum sources within 500 feet of the site and identify them on the Potential Receptor Map in Section 4.

Review of the MPCA's online leaking underground storage tank (LUST), Tank Sites database and "What's in my Neighborhood" release database indicated that petroleum contaminated properties or potential petroleum sources (tanks) were not identified within 500 feet of the Site. In addition, tanks were not observed during receptor survey walkthrough activities at properties surrounding the Site.

- 1.4 Describe the status of the tank system(s) including current and former tanks, piping, and dispensers. Summarize the status and characteristics of all past and present tanks in Table 1 and identify all components on a Site Map.

A total of two 8,000-gallon gasoline USTs (#001 and #002); one 2,000-gallon diesel fuel UST (#003); and one 4,000-gallon gasoline UST; were removed from the Site on October 18, 2012 by Zahl. A total of four fuel dispensers, the concrete dispensing pad, the dispenser area canopy and associated tank system piping were also removed from the Site. The fuel dispensers, piping and dispenser canopy were located directly above the former UST excavation basin. The former tank excavation basin, consisting of four USTs, is visually depicted on Figures 2a and 2b, attached.

1.5 Briefly describe the known or suspected source(s) of the release and how it was discovered.

The source of the release is likely associated with the poor condition of the previously removed USTs #001 through #003. Photographs provided by Thatcher indicated pitting and rusting throughout the surface of USTs #001 through #003. In addition, photos showed holes present on the surface of UST #003. The release was reported to the MPCA by Thatcher subsequent to tank removal activities and upon review of the laboratory analytical results of confirmatory UST basin bottom samples.

1.6 When did the release occur (if known)? **Unknown**

1.7 What was the volume and type(s) of petroleum product released (if known)?

Unknown

Released product type(s): **Gasoline and Diesel Fuel**

When a tank has been excavated, refer to Guidance Documents 3-01 *Excavation of Petroleum Contaminated Soil and Tank Removal Sampling* and 3-02 *General Excavation Report Worksheet* for reporting requirements. If a tank has been excavated or if contaminated soil was removed for off-site treatment prior to this investigation, include Guidance Document 3-02 in Section 6.

1.8 Was soil excavated for off-site treatment? ☐ Yes ☒ No

Date(s) soil was excavated: **NA**

Total volume removed:

Volume of total soil removed that was petroleum saturated:

Soil treatment method:

- ☐ Land treatment
- ☐ Thermal treatment
- ☐ Composting/Biopiling
- ☐ Other ()

Name and location of treatment facility:

If you checked "Other", describe how the soil was treated and attach applicable documentation at the end of the reporting form.

Site-Specific Geology and Hydrogeology

- 1.9** Discuss the soil borings drilled and provide rationale for their locations. Include boring logs in Section 6. Boring logs must include all the information required in Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations*.

A total of five direct-push probe soil borings (GP-1 through GP-5) were advanced at the Site on March 13, 2014 and March 14, 2014. Soil borings were advanced within and adjacent to the release source area (former tank basin). Soil borings were advanced at locations to assess the vertical and horizontal extents of soil contamination and potential impacts to a shallow groundwater unit. Soil boring GP-1 was advanced within the former UST basin, located to the south of the Site building; GP-2 was advanced to the south of the former UST basin, along 233rd Avenue; GP-3 was advanced along the west side of the Site building and to the north of the former UST basin; GP-4 was advanced to the west of the former UST basin; and GP-5 was advanced to the east of the former UST basin. In addition, a total of four soil vapor borings (VP-1 through VP-4) were advanced throughout the Site. Soil gas samples were collected at each vapor boring location to assess vapor intrusion impacts towards Site and off-site structures. Soil and vapor boring locations are visually depicted on Figures 2a and 2b, attached.

- 1.10** Indicate the locations and depths of soil samples submitted for grain size analysis.

A total of three grain size samples were collected during LSI soil boring advancement activities. The grain size samples were collected from soil borings GP-1 at depths between 30 and 34 feet bgs; GP-3 at depths between 26 and 30 feet bgs; and GP-4 at depths between 30 and 34 feet bgs. The soil samples were collected at intervals which intersected the relatively shallow groundwater table within saturated, fine grained, poorly graded sand (SP).

- 1.11** Discuss in detail the site geology based on soil boring data, grain size analyses, cross sections, geologic logs of nearby water wells, and available published information. Include detailed descriptions of more porous lenses or stringers within tighter soil types.

Based on LSI soil borings advanced throughout the Site, surficial geology in the area primarily consists of brown, fine to medium grained, well graded sand (SW) from the ground surface to depths between 7.5 and 10 feet bgs. Soil borings GP-3, GP-4 and GP-5 encountered relatively thin lenses of light brown, fine grained, poorly graded sand (SP) below the well graded sand layer to depths between 9 and 11.1 feet bgs. A light gray, clayey sand (SC) was encountered below the sand layers and extend to depths between 11.6 and 14.1 feet bgs. The clayey sand transitioned into a light gray, slightly plastic, lean clay (CL) and extended to depths between 19.3 and 23.5 feet bgs. A clayey silt layer followed by brown, saturated, poorly graded sand was encountered in each soil boring. The saturated sand layer was encountered at depths between 26 and 28.5 feet bgs, extending to the termination depths of each soil boring advanced throughout the Site. Moist to wet sand and gravel seams (0.5 to 0.7 feet thick) were encountered in soil

borings GP-3, GP-4 and GP-5 between the lean clay and clayey silt layers. The geologic cross sectional plan view for the Site is attached as Figure 4. Geologic cross sections of the Site are attached as Figures 5a and 5b.

According to boring logs of the nearest identified private water wells (unique #562963, #503082 and #165996) located approximately 1,425 feet (0.27 mile) to the southeast; 1,955 feet (0.37 mile) to the northeast; and 2,110 feet (0.4 mile) to the southwest, respectively, sand is documented from depths between 7 to 35 feet bgs. Well logs indicate that the sand layer is followed by clay, clay with sand and clay with gravel to depths between 41 and 225 feet bgs. The irrigation well (#562963) documents bedrock associated with the St. Lawrence formation is encountered from 225 to 246 feet bgs, followed by sandstone of the Franconia Formation extending to the well termination depth of 410 bgs.

Grain size analysis was completed for three soil samples collected at depths intersecting the surficial groundwater table. Grain size analysis data was utilized to complete a hydraulic conductivity (K) estimate for the unit using the Krumbien & Monk Method. Grain size data evaluation and calculations are attached as Appendix I. The Krumbien & Monk Method uses grain size distribution to estimate K. The calculated values were averaged to provide an average K of 14.42 feet per day. The thickness of the shallow aquifer unit is estimated between 5 and 11.5 feet ("b" value), based on the thickness of the poorly graded sand seam encountered in each soil boring. Based on this data, the transmissivity value was estimated to range between 36.45 and 323.96 square feet per day. The average transmissivity calculated throughout the Site is 118.97 square feet per day. The groundwater unit is considered an aquifer for the purpose of the MPCA Petroleum Remediation Program (PRP).

- 1.12 Discuss in detail the local and regional hydrogeology based geologic logs of nearby water wells and available published information.

Saturated, poorly graded sand was encountered within each advanced soil boring at depths between 25 and 28.5 feet bgs. Subsequent to soil boring advancements, the static water level rose to depths between 16.6 and 18.9 feet bgs throughout the Site. The static groundwater depths appear to closely reflect Site topography and the water level of nearby ponds, wetlands and the Rum River.

The MDH online CWI database indicated that nearby irrigation and domestic wells #562963, #503082 and #165996, located approximately 1,425 feet to the southeast; 1,955 feet to the northeast; and 2,110 feet to the southwest from the Site, respectively, have measured static water levels between depths of 3 and 15 feet bgs. The domestic well logs indicate that resource groundwater is obtained at depths between 55 and 251 feet bgs, within a Quaternary buried aquifer and the sandstone bedrock aquifer of the Eau Claire-Mt. Simon Formations. The MDH well logs referenced for geologic and resource water information, for properties located beyond 500 feet from the Site, are attached as Appendix K. General well locations are visually depicted on Figure 7, attached.

- 1.13** Discuss site ground water flow direction using soil boring data, monitoring well data if collected, plume geometry, and available published information.

Based on LSI soil boring data, Site observations and review of the online Google Earth® database, regional groundwater is interpolated to flow to the east/northeast, towards the Rum River. Soil boring GP-5, advanced to the east of the petroleum release source area, identified elevated GRO, DRO, benzene, toluene and ethylbenzene concentrations in the collected groundwater sample. It appears the impacted groundwater plume has migrated towards soil boring GP-5.

Furthermore, local groundwater appears to flow to the east/northeast, following the change of elevation towards the Rum River located approximately 2,080 feet (0.39 mile) to the northeast of the Site release source area. A change of elevation from approximately 921 National Geodetic Vertical Datum (NGVD) at the Site to 903 feet NGVD along the shoreline of the Rum River was calculated.

The interpolated groundwater flow direction reflects data from LSI soil boring data and the topography and natural drainage surrounding the Site. In addition, local groundwater flow direction was based on the assumption that groundwater flow closely parallels ground surface topography. This does not take into account any historic cut and fill activity, shallow bedrock or unobserved artificial conditions.

- 1.14** Describe any evidence of a fluctuating water table or a seasonal high water table (e.g., mottling, saturated soil color or gleyed soils, monitoring well observations). Also, from other sources of information describe the range of natural water table fluctuations in the area.

Evidence of a fluctuating water table was not observed in the advanced soil borings throughout the Site.

Extent and Magnitude of Soil Contamination

1.15 Were soil borings conducted in or adjacent to the following source areas?

Dispensers	☒ yes	☐ no	☐ not present	Piping	☒ yes	☐ no	☐ not present
Transfer areas	☐ yes	☐ no	☒ not present	Remote fill pipes	☐ yes	☐ no	☒ not present
UST basins	☒ yes	☐ no	☐ not present	Valves	☐ yes	☐ no	☒ not present
AST basins	☐ yes	☐ no	☒ not present	Known spill areas	☐ yes	☐ no	☒ not present

1.16 Horizontal Definition: Based on requirements described in Guidance Document 4-01, were a sufficient number of soil borings completed to define the horizontal extent of soil contamination in all directions? ☒ **Yes** ☐ **No**

1.17 Vertical Definition: Based on requirements described in Guidance Document 4-01, were all soil borings completed to the required depth? ☒ **Yes** ☐ **No**

1.18 Site Stratigraphy: Based on requirements described in Guidance Document 4-01, was the stratigraphy boring completed to the required depth? ☒ **Yes** ☐ **No**

If you answered **NO** to any of the four previous questions, explain why the borings were not conducted in the required locations or to the required depths. See Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations* regarding exceptions and MPCA approval for depth of drilling.

N/A

1.19 Describe the vertical and horizontal extent and magnitude of soil contamination based on field observations, soil headspace measurements (Table 2), and soil analytical results (Tables 3 and 4). If non-petroleum contaminants are present, discuss the possible sources of these compounds. Provide a map and two cross sections that illustrate both soil headspace and laboratory analytical results in Section 4. Include laboratory analytical reports and soil sampling methodology in Section 6.

Field screening activities, including visual and olfactory observations identified petroleum odors in soil boring GP-1 at depths ranging between 9.5 to 32 feet bgs. Photoionization detector (PID) readings of 0.7 to 227 parts per million (ppm) were detected in the soil sample intervals collected between 7.5 to 35 feet bgs. The PID reading of 227 ppm was observed within the saturated sand unit. Evidence of petroleum contamination was not observed in each soil sample interval collected from radial soil borings GP-2 through GP-5.

Select soil samples were collected from each LSI soil boring and submitted to a MDH certified laboratory for chemical analysis. A soil sample was collected from the two foot interval directly above the shallow hydrogeologic unit encountered in each soil boring and above the static water level of soil boring GP-1. Soil samples were also collected

from the two foot interval exhibiting the highest PID reading and/or the termination sample interval in each advanced soil boring.

Collected soil samples were submitted to Pace Analytical Services, Inc. (Pace) for analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), gasoline range organics (GRO) and diesel range organics (DRO). Laboratory analysis of soil sample GP-1 (17.5-20'), collected directly above the measured static water level and exhibiting a PID reading (19.1 ppm), indicated elevated concentrations of GRO, benzene, toluene, ethylbenzene and xylenes. Laboratory analysis of soil sample GP-1 (37.5-40') indicated analyzed constituents were not present at concentrations above laboratory detection limits. In addition, petroleum constituents were not present at concentrations above laboratory detection limits in soil samples collected from above the saturated sand layer (surficial groundwater unit) in soil borings GP-2 through GP-5. It appears that petroleum impacted soil is vertically confined by the saturated sand layer (water table) within soil boring GP-1. Horizontally, soil contamination appears defined within the former tank basin area. Laboratory analytical reports are attached as Appendix F and summarized in Tables 3 and 4.

1.20 Is contaminated soil in contact with groundwater? ☒ **Yes** ☐ **No**

If **YES**, or if ground water contamination appears likely, then complete the **Aquifer Determination** section below.

If **NO**, complete question 1.21.

1.21 a) What is the distance separating the deepest contamination from the surface of the water table?

N/A

b) Was this distance measured during site activities, referenced from geologic information, or estimated based on professional opinion during a site visit?

N/A

c) In your judgment, is there a sufficient distance separating the petroleum contaminated soil from the underlying aquifer to prevent contamination of the aquifer? ☐ **Yes** ☒ **No**

Please explain in detail. In your explanation, consider the site-specific geology, the data in this section, and the nature of the petroleum release (i.e., volume, age, released product type).

N/A

If **YES**, the **Aquifer Determination** is not necessary as part of the LSI.

If **NO**, complete the **Aquifer Determination** section below.

1.22 Is contaminated surface soil (0-2 feet) present at the site? ☐ *Yes* ☒ **No**

If **YES**, delineate the extent of contaminated surface soil, identify the extent(s) of contaminated surface soil on a Site Map, and propose a corrective action in Section 3 to mitigate the impacts. If borings were used to define the extent, complete Table 5. See Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil and Tank Removal Sampling* for more information regarding contaminated surface soil identification, delineation, and excavation.

Field screening activities, including olfactory and visual observations of collected soil samples from the surface to approximately two feet bgs in each advanced LSI soil boring did not identify petroleum impacts.

Aquifer Determination

Complete this section if ground water has been contaminated or may become contaminated based on questions 1.20 and 1.21. Aquifer determination is made during the LSI. It is based upon the stratigraphy and a hydraulic conductivity measurement calculated from grain size analyses. The site stratigraphy gives the context within which the hydraulic conductivity measurement can be interpreted. Please refer to Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations* for methods and requirements. Provide the results of grain size analyses, calculations, and other information used for the determination of hydraulic conductivity in Section 6. Determine the aquifer thickness (b) from geologic logs of soil borings, water well logs, and available published information.

1.23 Calculate an average hydraulic conductivity value (K).

GP-1 (30-34'): K = 28.17 ft/day

GP-3 (26-30'): K = 7.29 ft/day

GP-4 (30-34'): K = 7.79 ft/day

K = 14.42 ft/day (Average)

Indicate the calculation method (e.g. Hazen, Masch and Denny, Kozeny-Carmen, etc.).

Grain-size distribution approximations were conducted by Krumbien/Monk method.

1.24 Calculate a range for aquifer transmissivity (T) using the equation $T = Kb$, where b is the thickness of the aquifer.

$T_{\text{High}} = 323.96 \text{ ft}^2/\text{day}$ (b = 11.5 feet thick, K = 28.17 ft/day)

$T_{\text{Low}} = 36.45 \text{ ft}^2/\text{day}$ (b = 5 feet thick, K = 7.29 ft/day)

$T_{\text{Average}} = 118.97 \text{ ft}^2/\text{day}$ (b = 8.25 feet thick, K = 14.42 ft/day)

If the transmissivity of a contaminated hydrogeologic unit is greater than 50 ft²/day, it is considered an aquifer for the purpose of the Petroleum Remediation Program. If the hydrogeologic unit meets the definition of an aquifer, then monitoring wells are required if any of the following conditions are met: 1) ground water is impacted at or above Minnesota Department of Health (MDH) Health Risk Limits (HRLs) or 1,000 µg/L GRO or DRO; 2) ground water is impacted below the HRLs but levels are likely to reach the HRLs; or 3) there is an insufficient distance separating the petroleum contaminated soil (or an impacted non-aquifer) from an underlying aquifer. If monitoring wells were installed complete the **Aquifer Characterization** section below as part of an RI.

Aquifer Characterization

- 1.25** Discuss the drilling and installation of monitoring wells including the rationale for their locations. Summarize their construction in Table 9. Attach boring logs, well construction diagrams, and well logs in Section 6.

Monitoring wells were not installed at the Site as part of this recent LSI. However, monitoring well installation will be recommended for this Leak Site.

- 1.26** Is there a clean or nearly clean (below HRLs) downgradient monitoring well located along the longitudinal axis of the contaminant plume (approximately 20 degrees plus or minus the axis)? ☐ Yes ☐ No

- 1.27** Is there a worst case well completed through the source area(s) of the release? ☐ Yes ☐ No

If you answered **NO** to any of the above two questions, please explain why a well was not completed in the required location.

- 1.28** Provide an estimate of the longitudinal length of the dissolved contaminant plume: _____ feet

- 1.29** Calculate ground water flow velocity (based on Darcy's Law) using the average hydraulic conductivity (K), average horizontal hydraulic gradient (dh/dl), and effective porosity (n). Provide documentation and show calculations in Section 6.

Hydraulic conductivity (K) = _____ ft/day
(Method if different than that used in 1.23: _____)
Porosity (n) = _____ method/reference
Average horizontal gradient (dh/dl) = _____ (unitless)
Calculated ground water velocity (v) = _____ ft/day

- 1.30** Using the calculated ground water flow velocity from question 1.29, is there a receptor(s) located within a five-year travel time from the source area? ☐ Yes ☐ No

If **YES**, describe the location and type of receptor(s).

- 1.31** Were any deep monitoring wells completed at the site? ☐ Yes ☐ No

If **YES**, list them and indicate their depths:

Contact the MPCA project hydrologist before installing a deep monitoring well. A deep monitoring well **may** be necessary if: 1) contamination exists more than 10 feet below the

water table or 2) the impacted aquifer is a drinking water aquifer or is hydraulically connected to the aquifer(s) presently used by a water supply well located within 500 feet of the release source.

If contamination is present at depth in the aquifer or in deeper aquifers, additional deep wells may be required. Provide the following information if deep wells were installed:

Vertical gradient (dv/dl)

Inferred ground water flow direction

Provide the following information for the deep aquifer unit if it appears to be hydrogeologically distinct from the upper unit.

Porosity (n):

Hydraulic conductivity (K)

ft/day

Submit this RI report after completing a minimum of *two quarterly sampling events*. Quarterly ground water monitoring and sampling should continue until MPCA response is received.

Extent and Magnitude of Ground Water Contamination

- 1.32** Describe the extent and magnitude of ground water contamination based on the analytical results of samples collected as part of an LSI (Tables 6, 7, and 8) and, if applicable, monitoring well samples collected as part of an RI (Tables 10, 11, and 12). Provide Site Maps that illustrate both the laboratory analytical results and, if applicable, ground water gradients in Section 4.

Groundwater samples were collected from each LSI push probe boring (GP-1 through GP-5) and submitted for laboratory analysis. Each collected groundwater sample was submitted to a certified laboratory for DRO, GRO and volatile organic compound (VOC) analysis. The groundwater sample collected from soil boring GP-1, advanced within the former UST excavation basin, indicated concentrations of DRO, GRO benzene and toluene above laboratory detection limits. Laboratory analysis of the groundwater sample collected from soil boring GP-5, advanced to the east of the former UST basin, indicated elevated concentrations of GRO, DRO, benzene, toluene and ethylbenzene. Benzene concentrations were detected significantly above established Minnesota Department of Health (MDH) Health Risk Limits (HRLs) in each groundwater sample. In addition, the toluene concentration detected in the groundwater sample collected from GP-1 exceeded the established MDH HRL. Laboratory analysis of the groundwater samples collected from radial soil borings GP-2, GP-3 and GP-4 indicated constituents not present at concentrations above laboratory detection limits. Laboratory analytical reports are attached as Appendix F and summarized in Tables 7 and 8.

Based on laboratory analytical results of groundwater samples collected from LSI soil borings advanced throughout the Site, elevated groundwater contamination exists within the former tank basin and appears to have migrated to the east. Horizontally, DRO, GRO and toluene concentrations significantly decrease radially towards soil boring GP-5. However, benzene concentrations remain significantly above MDH HRLs and do not appear defined to the east of the former UST basin. The interpolated horizontal extent of GRO, DRO and benzene groundwater contamination is depicted on Figures 3a, 3b and 3c (GRO, DRO and Benzene Concentration Maps) and attached for reference.

- 1.33** If non-petroleum contaminants are present, discuss the possible sources of these compounds.

N/A

- 1.34** Provide a discussion on QA/QC, including information on the samples collected and laboratory analyses performed. Include laboratory analytical reports and ground water sampling methodology in Section 6.

The LSI groundwater samples were collected from a temporary well installed within each soil boring GP-1 through GP-5. The groundwater samples were collected from a screened interval intersecting the saturated, fine grained, poorly graded sand (SP) layer

encountered at depths between 25 and 28.5 feet bgs. A 5-foot long plastic screen was set to straddle the saturated sandy soil and collect the groundwater samples.

The collected groundwater samples were submitted to Pace Analytical for laboratory analysis of DRO, GRO and VOCs. Sample collection procedures, laboratory analysis conducted, and QA/QC information is attached as Appendix G.

1.35 Laboratory certification number:

Pace Laboratory Certification #MN027-053-137

Evaluation of Natural Attenuation

Refer to the Guidance Document 4-03 *Assessment of Natural Attenuation at Petroleum Release Sites*. **Note:** Evaluation of natural attenuation is not required unless requested by MPCA staff.

- 1.36** Discuss the results of the natural attenuation assessment (Table 13). Specifically, compare the concentrations of the inorganic parameters inside and outside the plume and whether the data indicate natural biodegradation is occurring at the site.

Natural attenuation parameters were not assessed. However, due to the significant decrease of petroleum constituent concentrations reported in the groundwater samples collected from LSI soil boring GP-1 (source area) and the interpolated down-gradient push-probe boring GP-5, bioremediation and natural attenuation may be occurring at the Site.

- 1.37** If active remediation is anticipated, discuss reasons why natural attenuation (including biodegradation) cannot adequately remediate the contaminants to acceptable risk levels.

N/A

Extent and Recovery of Free Product

If free product is encountered during the investigation, include Guidance Document 2-03 *Free Product Recovery Report Worksheet* in Section 6. See Guidance Document 2-02 *Free Product: Evaluation and Recovery* for additional information.

- 1.38** If free product was encountered during the site investigation, describe the work completed to delineate the extent of the free product zone and what efforts were or are being completed to recover it. Tabulate the volume of product recovered in Table 14. Illustrate the estimated horizontal extent of the free product zone on a Site Map in Section 4.

Free product was not documented during previous UST removal activities conducted by Thatcher on October 18, 2012. In addition, free product was not observed or encountered during recent LSI soil boring advancement conducted on March 13, 2014 and March 14, 2014.

Section 2: Risk Assessment

Well Receptors

List all properties located within 500 feet of the site in Table 15. Identify all properties listed in Table 15 on the Potential Receptor Map in Section 4.

List all wells located within 500 feet of the site and any municipal or industrial wells within ½ mile in Table 16. All water wells within 500 feet of the release source must be listed even if construction information was not obtained or available. Include all available water supply well logs obtained from Minnesota Geological Survey, MDH, drillers, or county well management authorities, and any other well construction documentation in Section 6. Identify all wells listed in Table 16 on the Well Receptor Survey Map in Section 4.

- 2.1 Were all property owners within 500 feet of the site successfully contacted to determine if water wells are present? ☒ Yes ☐ No

A total of 29 receptor survey letters were mailed to properties located within 500 feet of the Site. Receptor survey letters were not mailed to properties with buildings appearing vacant or with no property address (i.e. adjoining carwash building and Storage Stables property). A total of six completed survey letters were returned. In addition, Mr. Paul Teicher (City of St. Francis Public Works Director) returned the survey letter sent to him regarding nearby properties and their respective public water and sanitary sewer service. Active private water wells (domestic) were not identified at or within 500 feet of the Site during receptor survey activities with the exception of a private irrigation well located approximately 355 feet to the southwest of the release source area. Ms. Kim Murphy acknowledged on the returned survey letter that an irrigation well exists on her town home property.

Buried water and sanitary sewer service main lines were marked and/or identified along the east side of the Site building and transecting towards Highway 47. A buried water main was also marked along Cree Street Northwest. Mr. Teicher also provided City of St. Francis water and sanitary sewer service and main line construction information.

If NO, please explain.

N/A

- 2.2 Discuss any physical limitation to the inspection of properties within the 500-foot survey radius.

N/A

- 2.3** Discuss the results of the ground water receptor survey. Comment on the risks to water supply wells identified within 500 feet from the site as well as the risk posed by or to any municipal or industrial wells found within ½ mile. Specifically indicate whether identified water supply wells use the impacted aquifer. (Note: an impacted aquifer separated from another aquifer by a clay lens may not be considered a separate aquifer).

Information obtained during the water well survey activities (receptor survey walkthrough, returned survey letters, City of St. Francis Public Works correspondence and review of the MDH online CWI database) indicates that the properties in the area are connected to municipal water and sanitary services. Water supply wells were not observed or identified within 500 feet of the Site during receptor survey walkthrough activities or review of the MDH online CWI database. However, a returned receptor survey letter indicated that a private irrigation well exists on the Ms. Murphy residential property. Information about the irrigation well is limited (i.e. depth, construction, etc.). In addition, municipal or industrial wells were not acknowledged or identified within ½ mile of the Site with the exception of the City of St. Francis water tower located approximately 650 feet to the east of the Site (interpolated down-gradient direction).

Mr. Paul Teicher (City of St. Francis Public Works Director) confirmed that nearby properties are connected to City of St. Francis public water and sanitary sewer services. Mr. Teicher also acknowledged that water service lines are constructed of one-inch diameter copper. Sanitary sewer services are constructed of four-inch diameter polyvinyl chloride piping. Water and sanitary sewer mains are constructed of six-inch diameter PVC piping. Municipal service and main lines are buried between depths of 7 and 7.5 feet bgs throughout the area. Impacted soil does not appear in contact with buried utilities throughout the Site. Impacted groundwater appears at least 8.5 feet below the deepest identified utility line. In addition, the Site water service line is constructed of copper, a material considered to withstand direct petroleum contamination impacts.

The returned survey letters from nearby residential and commercial properties indicated that private water wells do not exist within 500 feet of the Site with the exception of an irrigation well located at the Kim Murphy residence. However, the irrigation well is located within the interpolated up-gradient direction from the Site release source area. In addition, soil borings GP-2 and GP-4 appear to define the contaminated groundwater plume towards the identified irrigation well. The absence of other returned receptor survey letters assumes that no other private water wells exist. Returned survey letters are attached in Appendix K for reference.

The nearest domestic and irrigation water wells (unique #562963, #503082 and #165996), located approximately 1,425 feet to the southeast; 1,955 feet to the northeast; and 2,110 feet to the southwest from the Site, respectively, have measured static water levels between depths of 3 and 15 feet bgs. The domestic well logs indicate that resource groundwater is obtained at depths between 55 and 251 feet bgs, within a Quaternary buried aquifer and the sandstone bedrock aquifer of the Eau Claire-Mt. Simon

Formations. The MDH well logs referenced for geologic and resource water information, for properties located beyond 500 feet from the Site, are attached as Appendix K. General well locations are visually depicted on Figure 7, attached.

- 2.4 If water samples were collected from nearby water wells, discuss the analytical results below and tabulate them in Tables 11 and 12.

N/A

- 2.5 Is municipal water available in the area? ☒ **Yes** ☐ **No**

- 2.6 Based on the public water supply risk assessment, is the site located in a Source Water Assessment Area or Drinking Water Supply Management Area (see Guidance Document 4-18 *Public Water Supply Risk Assessment at Petroleum Remediation Sites*)? ☐ **Yes** ☒ **No**

If **YES**, provide the name of the area and include the required documentation in Section 6.

N/A

- 2.7 Are there any plans for ground water development in the impacted aquifer within ½ mile of the site or one mile downgradient of the site if the aquifer is fractured? ☐ **Yes** ☒ **No**

Provide the name, title and telephone number of the person that was contacted for this information.

Name: **Mr. Paul Teicher**
Title: **City of St. Francis Public Works Director**
Telephone: **763-235-2304**

Surface Water Receptors

2.8 Are there any surface waters or wetlands located within ¼ mile of the site? ☒ **Yes** ☐ **No**

If **YES**, list them along with their distance and direction from the site in Table 17.

The nearest observed surface water feature is an unnamed pond located approximately 765 feet (0.14 mile) to the northwest of the Site release source area (former tank basin). Two relatively large wetland areas are located approximately 770 feet (0.14 mile) to the southwest and 1,230 feet (0.23 mile) to the northwest of the Site release source area. The Rum River is located approximately 2,080 feet (0.39 mile) to the northeast of the Site release source area.

Also, list below any potential pathways such as ditches, drain tiles, storm sewers, etc., that may lead to the identified surface water features.

Potential direct pathways for subsurface contamination impacting the nearest surface water features were not observed. Site and off-site utility trenches and nearby storm sewer corridors are considered potential pathways. However, residual subsurface contaminated soil and the impacted groundwater plume does not appear in contact with Site and off-site utility trenches. In addition, the vapor survey conducted in nearby off-site storm sewer grates did not identify petroleum odors, elevated PID detections or lower explosive level (LEL) readings within each open grate.

2.9 If surface water is present downgradient of the site, is there a clean downgradient soil boring or monitoring well located between the site and the surface water? ☐ **Yes**
☒ **No**
☐ **N/A**

If **YES**, identify the clean downgradient boring or well, distance to the surface water feature, and discuss the contamination risk potential.

If **NO**, and ground water from a downgradient boring or well is contaminated, we assume that contamination discharges to the surface water. Therefore, provide the following information:

N/A – soil boring GP-5, advanced within the interpolated down-gradient direction, indicated elevated petroleum contamination in the collected groundwater sample. However, the Rum River is the nearest identified water feature, located in a presumed down-gradient direction, and is located approximately 1,960 feet to the northeast from the contaminated groundwater plume extent.

Name of receiving water:

Plume width, (W):

Plume thickness, (H):

Hydraulic conductivity, (K):

Horizontal gradient, (dh/dl):

Discharge, (Q) = $H * W * K * (dh/dl) / 1440$

N/A – not within 500 feet of release
feet
feet
gal/day/ft²
(unitless)
gal/min

Utilities and Subsurface Structures

- 2.10** Compare the relationship between the distribution of contaminant phases (soil, ground water, vapor, and non-aqueous phase liquid) to the location of all underground utility lines, utility service lines, and nearby basements and sumps. Include all identified utilities in Table 18. Show all utilities, utility service lines, and other subsurface structures on applicable cross sections in Section 4.

Underground utilities identified at the Site consist of municipal water service, sanitary sewer service, private electric, telephone and gas lines. Underground storm sewer, water and sanitary sewer mains are located along Highway 47, 233rd Avenue Northwest and Cree Street Northwest. The Site water and sanitary sewer service lines transect from Highway 47 to the east side of the Site building. Buried electric lines transect between light poles, signs and the Site building. Site buried gas and telephone lines transect between the Site and 233rd Avenue Northwest and Cree Street Northwest. Telephone and gas lines enter the Site building along the west side. LSI soil and vapor borings advanced throughout the Site and between each identified buried utility location appear to provide evidence that impacted soil or impacted groundwater is not in contact with utilities and utility trenches are not acting as migration pathways. In addition, the Site water service line is constructed of copper, which is believed to resist corrosion from contact with petroleum contamination.

Furthermore, a total of seven open storm sewers were observed within 500 feet of the Site. Field screening activities conducted in each open storm sewer grate during the receptor survey walkthrough did not identify the presence of petroleum vapors. Utility locations are visually depicted on Figures 2a, 2b and 6.

- 2.11** Is there any evidence that free product or contaminated groundwater may be traveling off site within the utility corridors? ☐ Yes ☒ No

Soil borings advanced throughout the Site did not identify petroleum soil impacts in contact with buried utility corridors or trenches. In addition, utilities are at least 8.5 feet above the measured static level of the impacted groundwater unit.

If YES, a utility backfill investigation is required (refer to Guidance Document 4-01). Discuss the investigation rationale and results.

N/A

- 2.12** Is there a history of field-detectable vapor impacts in the vicinity of the site? ☐ Yes ☒ No

If YES, describe:

N/A

Conduct a vapor survey if the vapor receptor survey and risk evaluation indicate a risk of vapor impact or an infiltration risk from contaminated ground water or free product to utilities or subsurface structures. See Guidance Document 4-02 *Potential Receptor Surveys and Risk Evaluation Procedures at Petroleum Release Sites*. Identify all vapor monitoring locations on the Vapor Survey Map by labeling each monitoring location with a number that corresponds to vapor monitoring locations listed in Table 19. Vapor monitoring methods, including instruments used, must be discussed in Section 6.

2.13 Provide a detailed description of each vapor monitoring location and indicate if vapors were detected.

A limited vapor survey was conducted at a total of seven open storm sewer grates. Five storm sewer grates were observed to the south and southwest of the Site, along Cree Street Northwest and 233rd Avenue Northwest. In addition, two storm sewer grates were observed to the northwest of the Site along 234 Avenue Northwest. PID and LEL readings were obtained from each observed storm sewer grates. PID readings collected from the open storm sewer grates indicated 0.0 ppm, and LEL readings collected from the open storm sewer grates indicated 0%. Furthermore, petroleum odors were not observed within each storm sewer opening. Storm sewer grate locations are visually depicted on Figure 6, attached.

Vapor Intrusion Receptors

When vapor intrusion receptors are present, a preliminary vapor intrusion risk assessment must be completed (see Guidance Document 4-01a *Vapor Intrusion Assessments Performed during Site Investigations*). If completed, include the Vapor Intrusion Assessment Map in Section 4 that identifies all vapor intrusion samples and receptors at and within the 100-foot preliminary assessment area.

2.14 Was a preliminary vapor intrusion risk assessment completed? ☒ **Yes** ☐ **No**

If NO, explain why.

N/A

2.15 Do any of the soil gas samples from locations near inhabited buildings exceed the ISVs by ten times (10X) for petroleum related compounds? ☐ **Yes** ☒ **No**

The soil gas sample VP-3 (8'), collected from the vapor boring advanced along the west side of the uninhabited Site building did not indicate petroleum constituent concentrations exceeding the threshold values of ten times the MPCA's Intrusion Screening Values (ISVs) with the exception of 1,3 butadiene and TCE. The 1,3 butadiene concentration appears suspect as it was not detected above laboratory detection limits during VOC analysis of collected groundwater samples throughout the Site.

☐ **Yes** ☒ **No**

TCE is not generally considered a petroleum related compound; however, its presence warrants discussion. TCE exceeded its threshold value of ten times the ISV of 20 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) with a contamination of $54 \mu\text{g}/\text{m}^3$. A source area for the TCE has not been identified. Its presence may suggest a used oil UST/AST existed and/or the use of solvents on the property. In addition, low concentrations of tetrachloroethylene (PCE) were observed in all four of the soil vapor samples.

If you answered **YES**, is additional characterization of the vapor intrusion pathway needed for these buildings (e.g. sub-slab soil gas, an indoor building survey, or indoor air sampling)? **If YES**, complete question 3.4. **If NO**, explain why.

The threat for relatively low concentration detections of soil gas detected in each soil gas sample, which do not exceed threshold values of ten times the MPCA ISVs by ten times, to impact the Site or nearby buildings appears insignificant. A benzene concentration of $48.3 \mu\text{g}/\text{m}^3$, which slightly exceeds the threshold value of ten times its ISV (45

µg/m³), was detected in the soil gas sample (VP-1) collected within the former UST basin. This soil gas sample appears representative of the “worst-case” potential for potential vapor intrusion impacts to the Site building. Carbon tetrachloride observed in soil gas sample VP-2 was not observed in groundwater, leaving its actual presence suspect.

- 2.16** Have sufficient data been collected to propose a Conceptual Corrective Action Design for buildings that are likely to be impacted by petroleum vapors?

☐ Yes ☒ No

If YES, describe your justification for corrective action.

N/A

- 2.17** Based on the horizontal extent of impacted groundwater or free product from the release, is additional soil gas sampling required beyond the 100-foot preliminary assessment area near inhabited buildings?

☐ Yes ☒ No

If YES, describe your proposal for additional vapor intrusion sampling.

N/A

If NO, explain why.

Radial soil gas samples VP-2 (8'), VP-3 (8') and VP-4 (8'), collected from vapor borings advanced toward Site and off-site buildings located to the south, north and west of the Site release source area, respectively, identified low petroleum constituent concentrations, which do not exceed threshold values of ten times the MPCA ISVs, with the exception of carbon tetrachloride in VP-2 and, 1,3-butadiene and TCE in VP-3. TCE is not generally considered petroleum related and the 1,3-butadiene and carbon tetrachloride detections appear suspect. Assuming VP-3 represents the worst case vapor intrusion potential and its detections which are just over the threshold ISV, it is unlikely that petroleum vapors will impact inhabited buildings located over 100 feet from the source. Laboratory analysis of radial soil gas samples suggest that the risk of vapor intrusion from the former UST basin impacting off-site structures or utility corridors is insignificant. In addition, the nearest identified structure (St. Francis Municipal Liquor Store) to the east of the impacted groundwater plume is located an additional 275 feet.

- 2.18** Were recommended field sampling procedures and laboratory QA/QC from Guidance Document 4-01a followed? ☒ **Yes** ☐ *No*

Soil gas sampling was conducted following MPCA Guidance Document 4-01. The vapor borings were advanced at locations to assess the potential of vapor intrusion migration and accumulation towards Site and off-site structures.

If *NO*, explain why and discuss implications on data quality.

N/A

Site Conceptual Model Discussion

- 2.19** Provide a detailed site conceptual model (SCM). The SCM should integrate site-specific geology, hydrogeology, and the contaminant distribution with respect to identified exposure pathways (well receptors, surface water receptors, utilities and subsurface receptors, and vapor intrusion receptors). For additional information on SCM development, see Guidance Document 1-01 *Petroleum Remediation Program General Policy*.

Subsurface soil petroleum impacts observed and reported during UST excavation activities suggested an insignificant threat to impact nearby receptors. However, subsequent LSI activities identified soil contamination impacting the relatively shallow groundwater table. Laboratory analysis of collected groundwater samples indicated benzene and toluene concentrations remain above MDH HRLs within the release source area (former UST basin) and extending to the east. The eastern extent of the impacted groundwater plume is not currently defined.

The Site is currently abandoned, developed with a former retail store building and detached storage shed. An abandoned carwash building exists directly to the north of the Site building. The Site historically operated as a gas station, convenience store and carwash. A total of four underground storage tanks (USTs) and four fuel dispensers were previously operated at the Site. The Site is currently adjoined by commercial properties (undeveloped and storage lots) to the north; Highway 47 followed by commercial property to the east; 233rd Avenue Northwest followed by commercial and residential town-home properties to the south; and Cree Street Northwest followed by commercial properties to the west. The nearest observed surface water feature is an unnamed pond located approximately 765 feet (0.14 mile) to the northwest of the Site release source area (former tank basin). Two relatively large wetland areas are located approximately 770 feet (0.14 mile) to the southwest and 1,230 feet (0.23 mile) to the northwest of the Site release source area. The Rum River is located approximately 2,080 feet (0.39 mile) to the northeast of the Site release source area. The area of the Site is defined by generally flat topography.

The primary risks associated with remaining soil and groundwater contamination is the potential for horizontal migration and vapor intrusion towards nearby receptors (i.e. off-site property structures, presumed down-gradient surface water (Rum River), the City of St. Francis water tower and Site and off-site utility corridors). The contaminated groundwater plume is not defined to the east of soil boring GP-5. In addition, laboratory analysis of groundwater samples collected from soil borings GP-1 and GP-5 identified concentrations of benzene and toluene above MDH HRLs. Based on laboratory analytical results for the groundwater samples collected from soil borings GP-1 and GP-5, additional definition of the impacted groundwater plume and monitoring to confirm the magnitude the contaminated plume appears necessary.

Site groundwater was encountered within each advanced soil boring at depths between 25 and 28.5 feet bgs as indicated by saturated, poorly graded sand. The static water level

rose to depths ranging between 16.6 and 18.9 feet bgs throughout the Site. The static groundwater depths appear to closely reflect Site topography and the water level of nearby wetlands, ponds and the Rum River.

Based on LSI soil boring data, Site observations and review of the online Google Earth® database, regional groundwater is interpolated to flow to the east/northeast, towards the Rum River. Soil boring GP-5, advanced to the east of the petroleum release source area, identified elevated GRO, DRO, benzene, toluene and ethylbenzene concentrations in the collected groundwater sample. It appears the impacted groundwater plume has migrated towards soil boring GP-5. Furthermore, local groundwater appears to flow to the east/northeast, following the change of elevation towards the Rum River located approximately 2,080 feet (0.39 mile) to the northeast of the Site release source area. A change of elevation from approximately 921 NGVD at the Site to 903 feet NGVD along the shoreline of the Rum River was calculated. The interpolated groundwater flow direction reflects data from LSI soil boring data and the topography and natural drainage surrounding the Site. In addition, local groundwater flow direction was based on the assumption that groundwater flow closely parallels ground surface topography. This does not take into account any historic cut and fill activity, shallow bedrock or unobserved artificial conditions.

Grain size analysis was completed for three soil samples collected at depths intersecting the surficial groundwater table. Grain size analysis data was utilized to complete a hydraulic conductivity (K) estimate for the unit using the Krumbien & Monk Method. Grain size data evaluation and calculations are attached as Appendix I. The Krumbien & Monk Method uses grain size distribution to estimate K. The calculated values were averaged to provide an average K of 14.42 feet per day. The thickness of the shallow aquifer unit is estimated between 5 and 11.5 feet ("b" value), based on the thickness of the poorly graded sand seam encountered in each soil boring. Based on this data, the transmissivity value was estimated to range between 36.45 and 323.96 square feet per day. The average transmissivity calculated throughout the Site is 118.97 square feet per day. The groundwater unit is considered an aquifer for the purpose of the MPCA PRP.

The risk of vapor migration and/or accumulation at the Site appears to be very low. The soil gas sample collected from vapor boring VP-1 is considered the "worst case" sampling location. Benzene was the only petroleum constituent concentration exceeding the ISV threshold by 10 times the concentration. Radial soil gas samples VP-2 (8'), VP-3 (8') and VP-4 (8'), collected from vapor borings advanced toward Site and off-site buildings located to the south, north and west of the Site release source area, respectively, identified low petroleum constituent concentrations, which do not exceed threshold values of ten times the MPCA ISVs. Laboratory analysis of radial soil gas samples suggest that the risk of vapor intrusion from the former UST basin impacting the Site building, off-site structures or utility corridors is insignificant. In addition, the nearest identified structures, St. Francis Municipal Liquor Store and the Credit Union are located to the east of the impacted groundwater plume an additional 275 feet, and to the south of the impacted groundwater plume an additional 150 feet.

Underground utilities identified at the Site consist of municipal water service, sanitary sewer service, private electric, telephone and gas lines. Underground storm sewer, water and sanitary sewer mains are located along Highway 47, 233rd Avenue Northwest and Cree Street Northwest. The Site water and sanitary sewer service lines transect from Highway 47 to the east side of the Site building. Buried electric lines transect between light poles, signs and the Site building. Site buried gas and telephone lines transect between the Site and 233rd Avenue Northwest and Cree Street Northwest. Telephone and gas lines enter the Site building along the west side. LSI soil and vapor borings advanced throughout the Site and between each identified buried utility location appear to provide evidence that impacted soil, impacted groundwater and soil gas is not in contact with utilities and utility trenches are not acting as migration pathways. Mr. Paul Teicher (City of St. Francis Public Works Director) acknowledged that water service lines are constructed of one-inch diameter copper and municipal service and main lines are buried between depths of 7 and 7.5 feet bgs throughout the area. Impacted soil does not appear in contact with buried utilities throughout the Site. Impacted groundwater appears at least 8.5 feet below the deepest identified utility line. In addition, the Site and nearby properties water service lines are constructed of copper, which is believed to resist corrosion from contact with petroleum contamination. Furthermore, a total of seven open storm sewers were observed within 500 feet of the Site. Field screening activities conducted in each open storm sewer grate during the receptor survey walkthrough did not identify the presence of petroleum vapors.

Information obtained during the water well survey activities (receptor survey walkthrough, returned survey letters, City of St. Francis Public Works correspondence and review of the MDH online CWI database) indicates that the properties in the area are connected to municipal water and sanitary services. Water supply wells were not observed or identified within 500 feet of the Site during receptor survey walkthrough activities or review of the MDH online CWI database. The returned survey letters from nearby residential and commercial properties indicated that private water wells do not exist within 500 feet of the Site with the exception of an irrigation well located at the Kim Murphy residence. Information about the irrigation well is limited (i.e. depth, construction, etc.). However, the irrigation well is located within the interpolated up-gradient direction from the Site release source area. In addition, soil borings GP-2 and GP-4 appear to define the contaminated groundwater plume towards the identified irrigation well. The absence of other returned receptor survey letters assumes that no other private water wells exist. Furthermore, municipal or industrial wells were not acknowledged or identified within ½ mile of the Site with the exception of the City of St. Francis water tower located approximately 650 feet to the east of the Site release source area (interpolated down-gradient direction). It should be noted that the impacted groundwater plume is not defined toward the water tower.

2.20 Discuss any other site concerns not included in the above discussion

PCE and TCE were observed in soil vapor samples. The presence of these constituents may suggest that there is an additional source area. However, since these compounds are not generally considered petroleum related, they were not discussed or evaluated as part of this project.

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 gas/vapor intrusion investigation
 - ☐ corrective action

- 3.2 If closure is recommended, summarize significant investigative events and describe how site-specific exposure pathways identified in question 2.19 have been adequately addressed.

Carlson McCain recommends additional remedial investigation activities at the Site. A petroleum release was notified to the Minnesota State Duty Officer on October 24, 2012 subsequent to UST removal activities and review of laboratory analysis of collected tank basin bottom soil samples. Because a responsible party (RP) was not established, the MPCA accepted the Site into the Fund Financed Multi-Site Program. The MPCA contracted Carlson McCain to complete a standard scope of work LSI to potentially define the horizontal and vertical extents of soil contamination and assess the potential for impacted groundwater and soil vapor impacts to the Site, buried utilities and adjoining property structures. In addition, the MPCA requested Carlson McCain to conduct a background review of the Site, which included reviewing and gathering information about UST removal activities, tank sizes, location and subsequent completion of the UST excavation report (Guidance Document 3-02). Review of photographs taken during UST removal and laboratory analysis of confirmatory tank basin soil samples, provided by Thather and the MCPA, assisted the completion of the UST excavation report and subsequent LSI assessment activities. A total of five direct push-probe borings (GP-1 through GP-5) and four soil vapor borings (VP-1 through VP-4) were advanced within and around the release source area (former UST basin) in an attempt to delineate soil, assess potential groundwater impacts and soil gas contamination in respect to potential receptors. LSI activities suggest that the encountered petroleum release (gasoline and diesel fuel) is associated with the poor condition of removed USTs #001 through #003.

The request for additional remedial investigation is based on confirmatory information regarding the MPCA general policy.

- ***Impacted groundwater that has or may affect human health:*** The City of St. Francis provides municipal water to the Site and nearby properties. The nearest private water well identified during receptor survey activities is an irrigation well located approximately 355 feet to the southwest from the Site. However, the irrigation well is located within the interpolated up-gradient direction from the Site release source area. In addition, soil borings GP-2 and GP-4 appear to define

the contaminated groundwater plume towards the identified irrigation well. Municipal or industrial wells were not acknowledged or identified within ½ mile of the Site with the exception of the City of St. Francis water tower, located approximately 650 feet to the east of the Site release source area. The water tower is located within the down-gradient direction from the Site. LSI soil boring GP-5 did not define the eastern extent of the contaminated groundwater plume. LSI soil borings advanced throughout the Site and between each identified buried utility location appear to provide evidence that impacted soil and groundwater is not in contact with municipal water main and service lines and they are not acting as migration pathways. In addition, the Site water service line is constructed of copper, which is believed to resist corrosion associated with petroleum impacted soil.

- ***Led or may lead to dangerous conditions due to petroleum vapor:*** The risk of vapor migration and/or accumulation at the Site appears to be very low. The soil gas sample collected from vapor boring VP-1, advanced within the former UST basin, is considered the “worst case” sampling location. Benzene was the only petroleum constituent concentration exceeding the ISV threshold by 10 times the concentration. Radial soil gas samples VP-2 (8’), VP-3 (8’) and VP-4 (8’), collected from vapor borings advanced toward Site and off-site buildings located to the south, north and west of the Site release source area, respectively, identified low petroleum constituent concentrations, which do not exceed threshold values of ten times the MPCA ISVs. Laboratory analysis of radial soil gas samples suggest that the risk of vapor intrusion from the former UST basin impacting the Site building, off-site structures or utility corridors is insignificant. Furthermore, a limited vapor survey was conducted within seven nearby, off-site storm sewer grates. Petroleum odors, elevated PID or LEL readings were not identified within each storm sewer grate.
- ***Affect or may affect surface water quality:*** The nearest observed surface water feature is an unnamed pond located approximately 765 feet (0.14 mile) to the northwest of the Site release source area (former tank basin). Two relatively large wetland areas are located approximately 770 feet (0.14 mile) to the southwest and 1,230 feet (0.23 mile) to the northwest of the Site release source area. The Rum River is located approximately 2,080 feet (0.39 mile) to the northeast of the Site release source area. Field screening activities and laboratory analysis of the soil samples collected from soil borings GP-2, GP-3 and GP-4, advanced to the south, northwest and west of the release source area, respectively, did not indicate the presence of petroleum contamination. These soil borings appear to define the presumed up-gradient and side-gradient extent of the impacted groundwater plume. However, soil boring GP-5, advanced within the interpolated down-gradient direction indicated elevated petroleum constituent concentrations. The detected benzene concentration exceeds MDH HRLs. The contaminated groundwater plume is not defined to the east of soil boring GP-5.

Although petroleum constituents decrease in concentration to the east of the release source area, VOCs were reported significantly above MDH HRLs.

- ***Caused or may cause dermal contact:*** Field screening activities, including olfactory and visual observations of collected soil samples from the surface to approximately two feet bgs in each advanced soil boring did not indicate the presence of petroleum impacts. Recent soil boring and past tank removal activities suggest petroleum contamination present below the former tank basin.

- 3.3** If additional groundwater or field-detectable vapor monitoring is recommended, indicate the proposed monitoring locations, sampling frequency, and target analytes. Conduct quarterly ground water monitoring and sampling until the MPCA responds to this report.

As mentioned above, Carlson McCain is recommending additional remedial investigation activities at the Site. Two additional soil borings are recommended for the collection of groundwater samples to assess and potentially define the extent of groundwater contamination to the east and northeast of soil boring GP-5 (interpolated down-gradient directions). In addition, the installation of three monitoring wells with subsequent quarterly groundwater sampling is recommended to confirm groundwater flow direction, contamination plume characteristics and assess the magnitude of remaining petroleum constituent concentrations in groundwater. The monitoring wells are proposed to be installed within the release source area (former UST basin), to the west of the release source area (up-gradient direction) and to the east/northeast of the former UST basin (down-gradient direction).

LSI groundwater sample analysis indicated elevated concentrations of GRO, DRO, benzene, toluene, ethylbenzene and xylenes. Benzene and toluene concentrations were reported above MDH HRLs in groundwater samples collected from the release source area and within the interpolated down-gradient direction. No other VOCs were present at concentrations above laboratory detection limits. Thus, Carlson McCain recommends that soil and groundwater samples collected during additional remedial investigation should be analyzed for GRO, DRO and BTEX.

- 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: MPCA staff will review this report at a higher-than-normal priority to determine if corrective action is required.)

N/A

Section 4: Figures

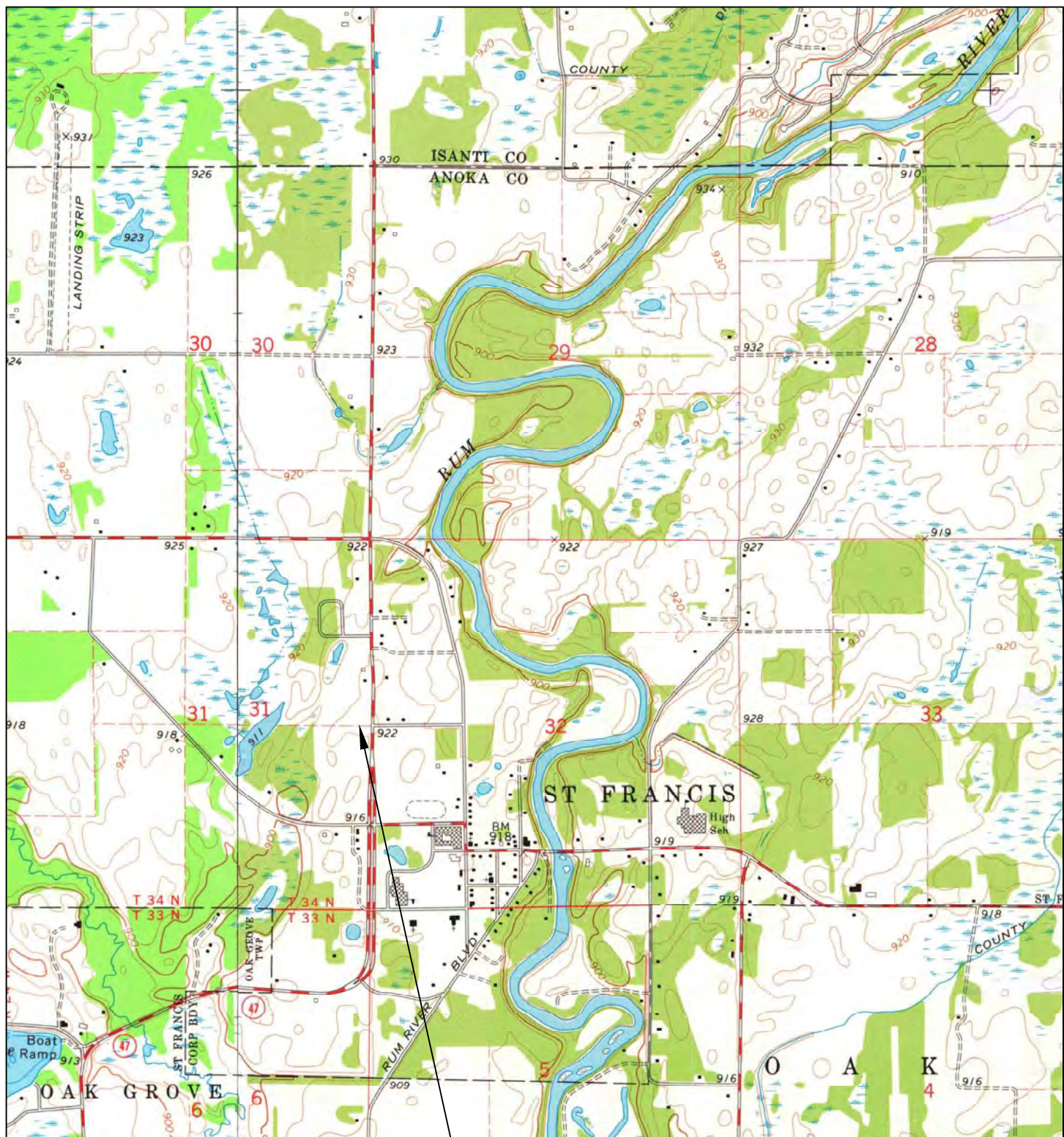
Attach the following figures in order of discussion in the text. All figures must include a north arrow, scale, and legend. Approximate scales are not acceptable.

- ☒ Site Location Map using a U.S. Geological Survey 7.5 minute quadrangle map.
- ☒ Aerial photos and Sanborn Fire Insurance Maps™ (if available) of the immediate area.
- ☒ 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

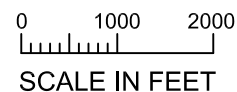
Distinguish sequential elements of investigations by dates, symbols, etc. in the key.

- ☒ At least two (2) geologic cross sections depicting stratigraphy, soil headspace results, laboratory analytical results, water table elevation, and underground utilities.
- ☐ Ground water gradient contour maps (for sites with monitoring wells) for each gauging event.
- ☒ 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.
- ☒ Well Receptor Survey Map showing ½-mile radius, 500-foot radius, water supply wells, and other potential sources of contamination on a U.S. Geological Survey 7.5 minute quadrangle map.
- ☐ 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



SITE LOCATION



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



LIMITED SITE INVESTIGATION
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925

FIGURE 1
SITE LOCATION



SOIL VAPOR BORING LOCATION

SOIL BORING LOCATION

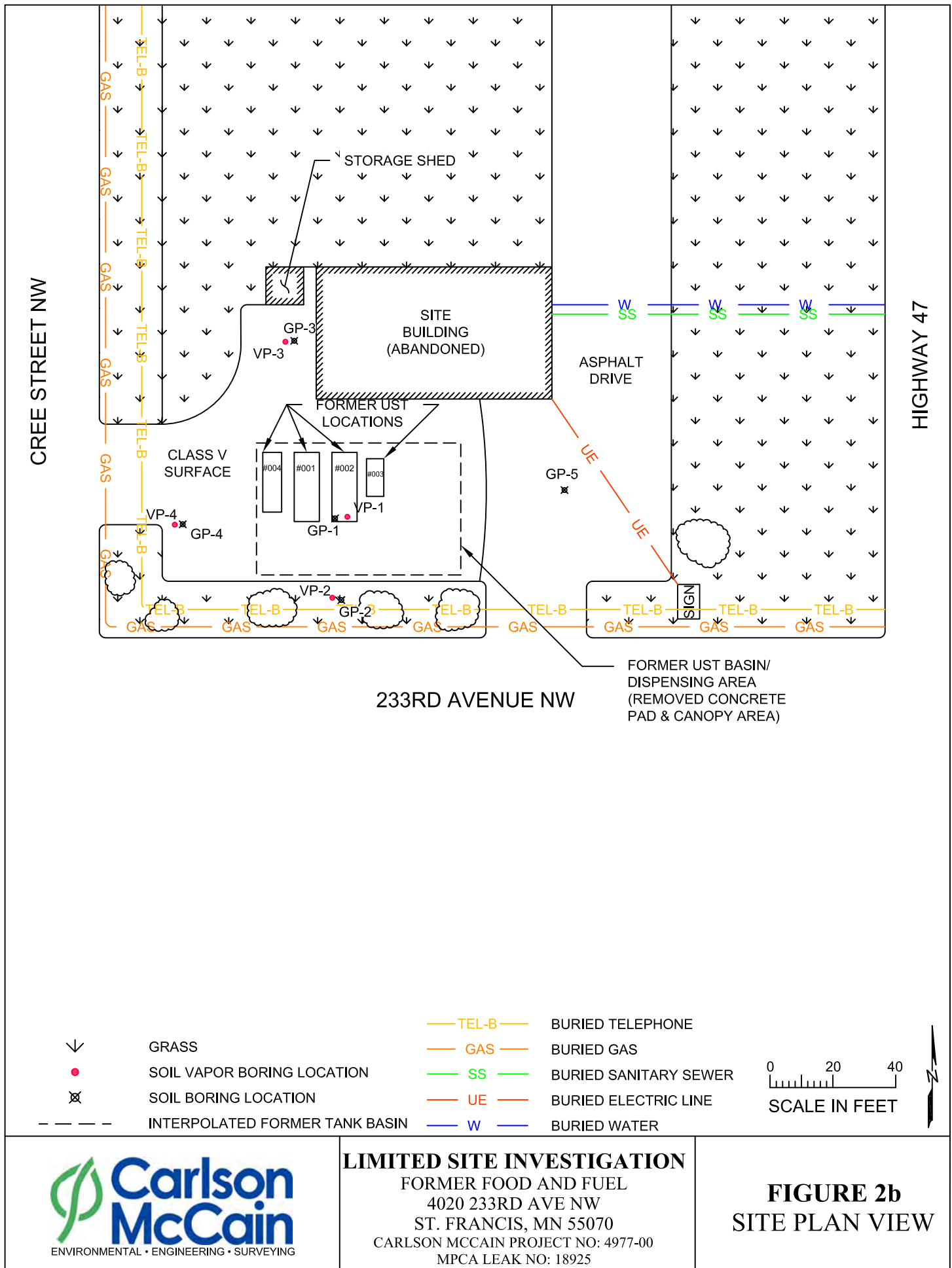
0 20 40
SCALE IN FEET

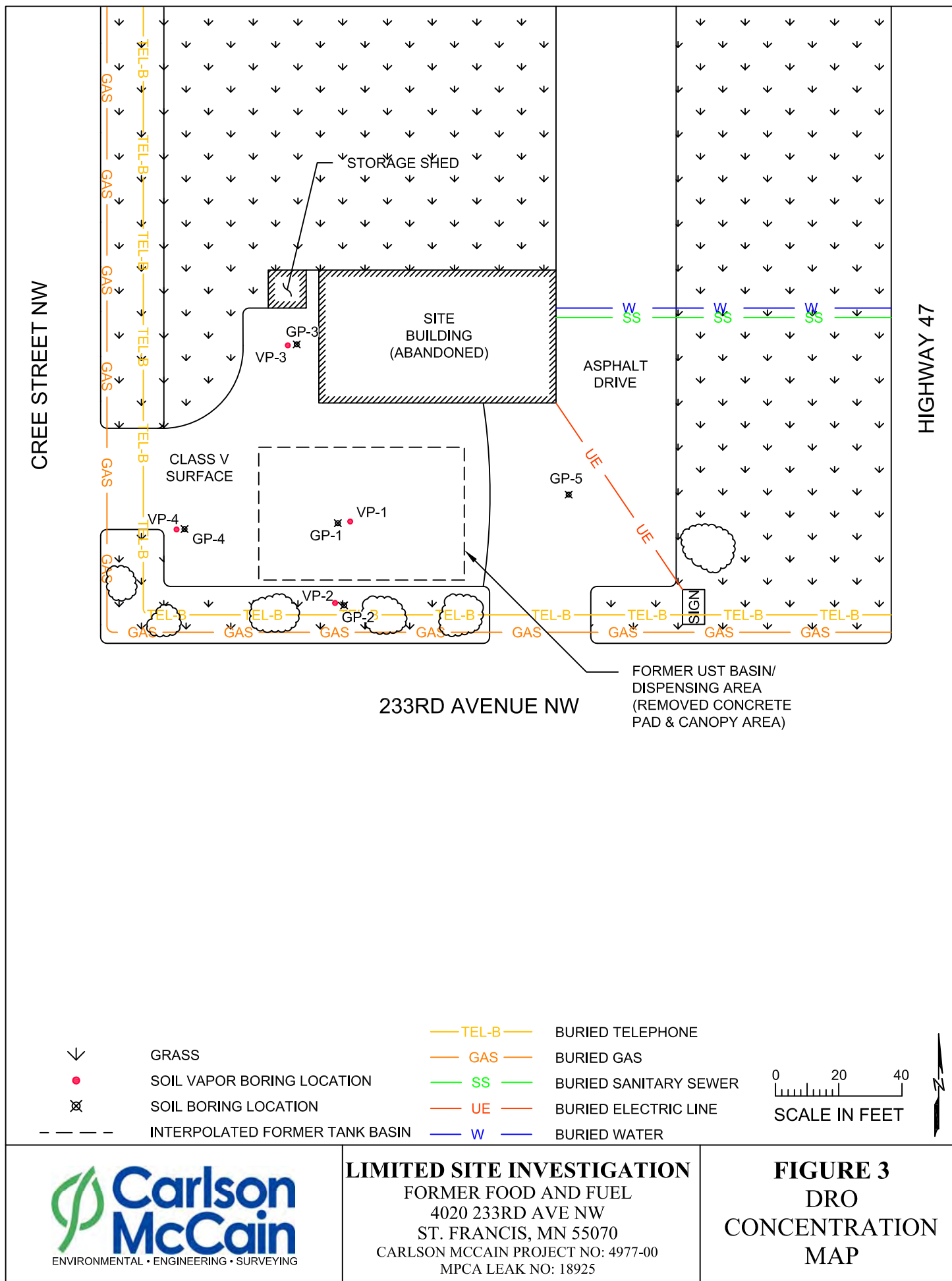
SOURCE: GOOGLE EARTH

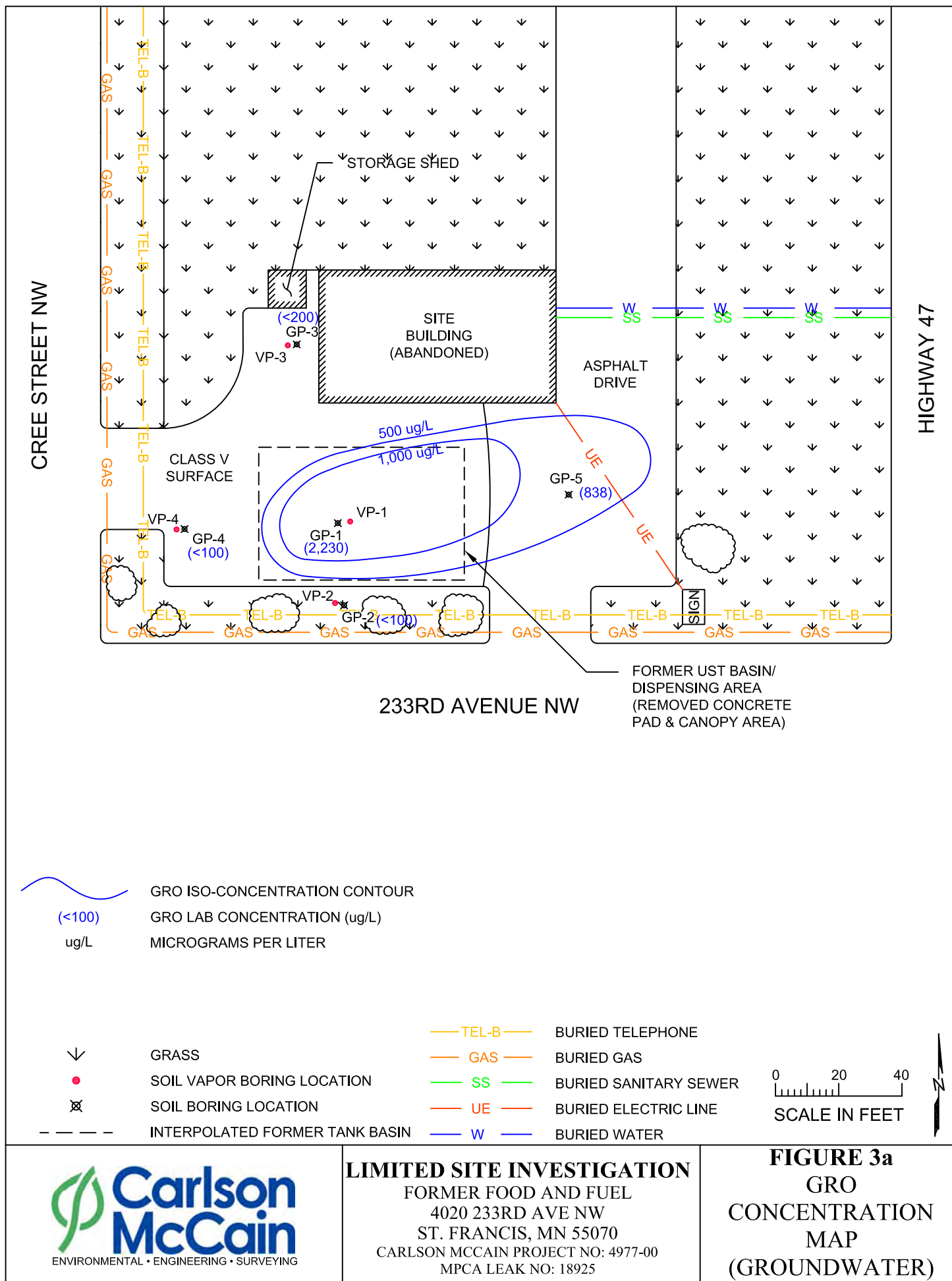


LIMITED SITE INVESTIGATION
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
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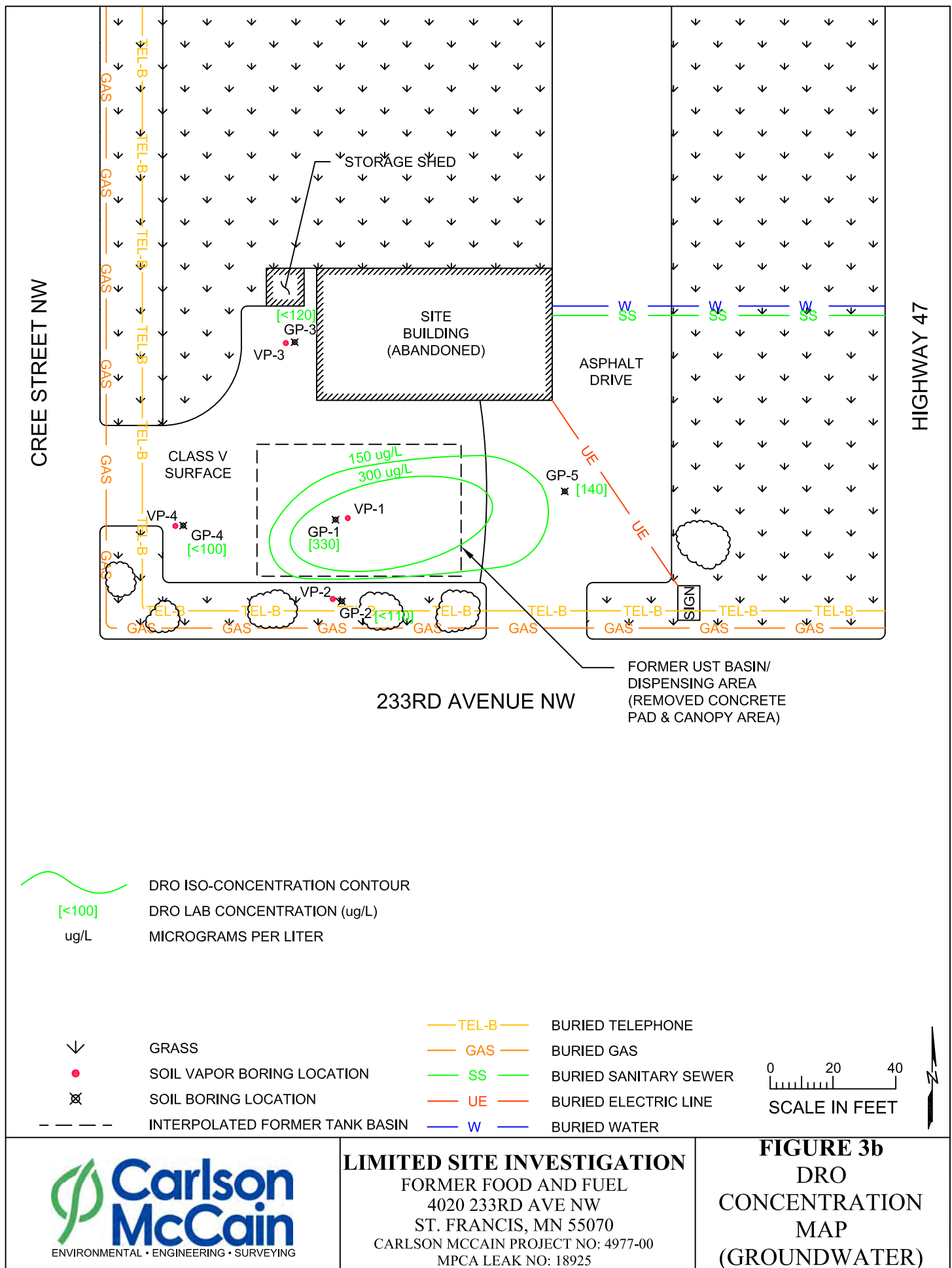
FIGURE 2a
AERIAL PLAN
VIEW

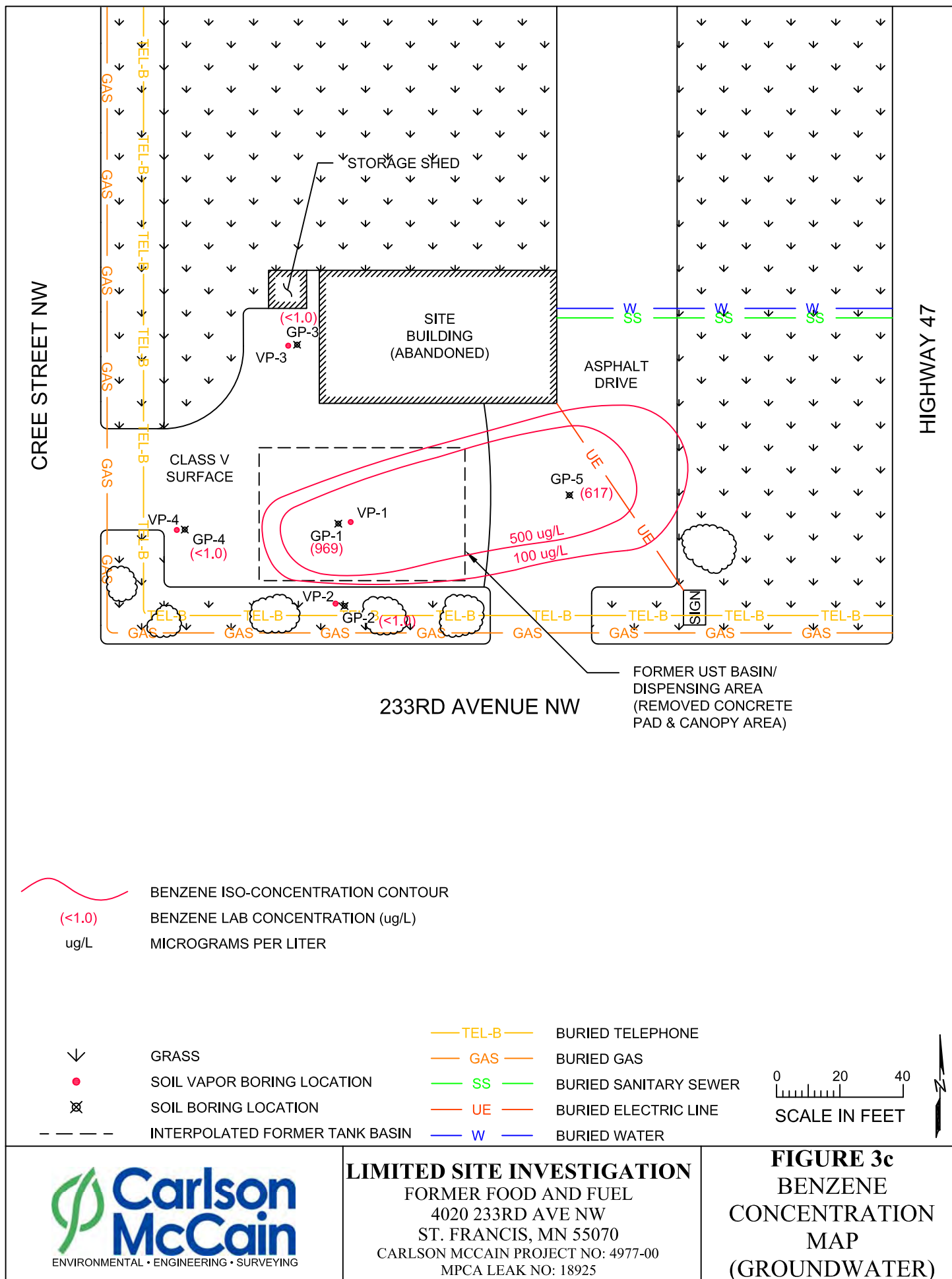


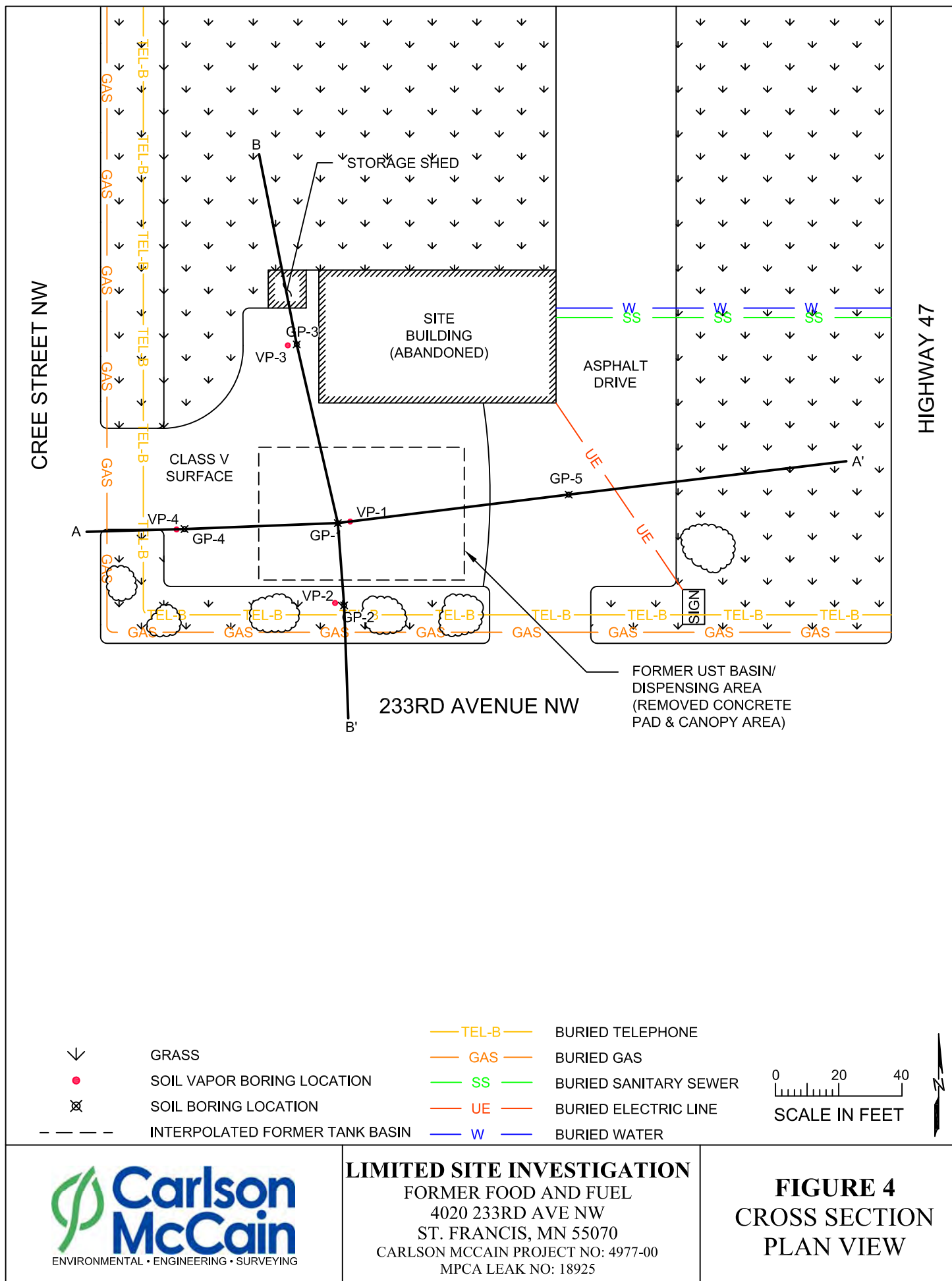


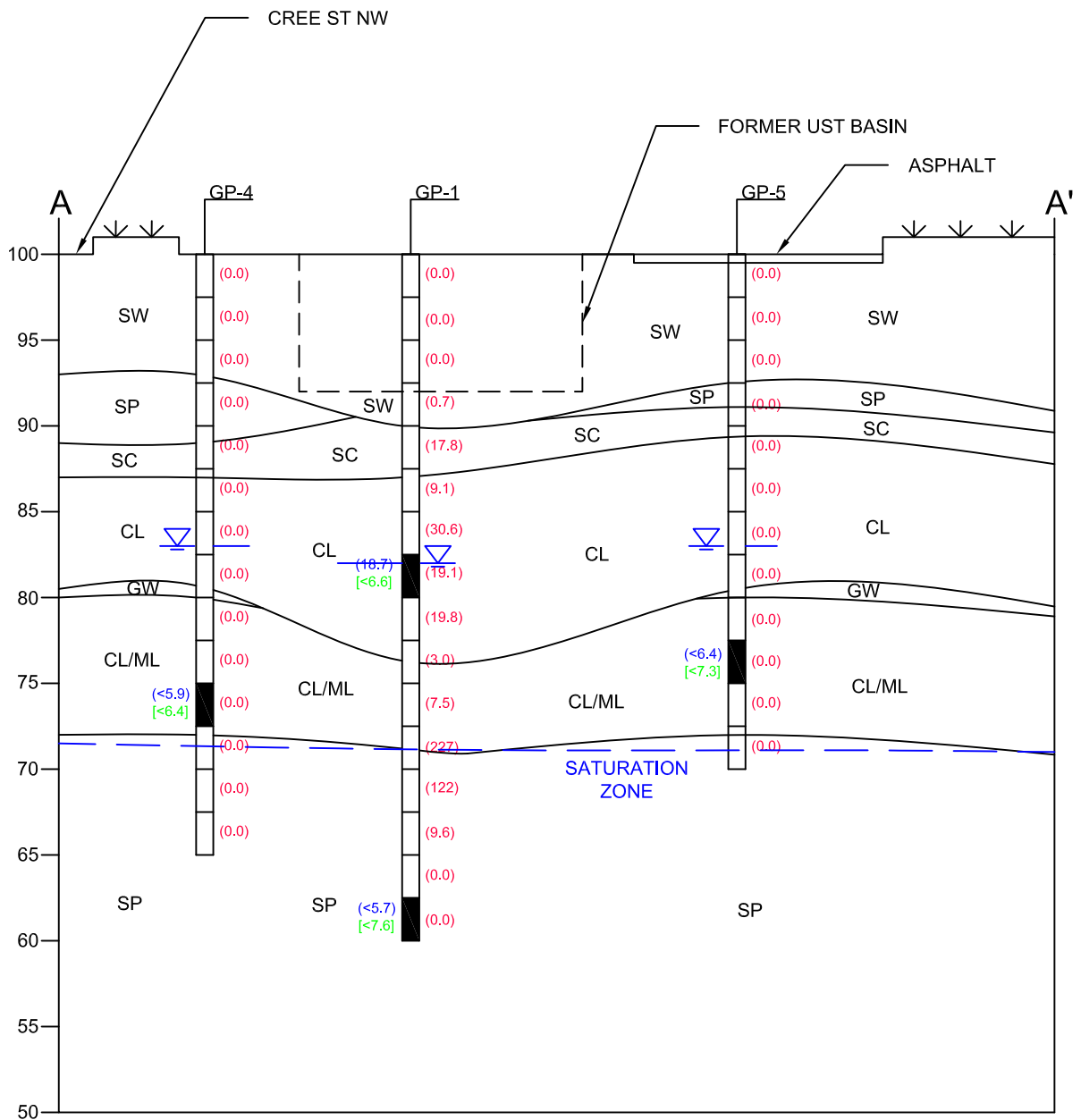


LIMITED SITE INVESTIGATION
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925









*SURFACE FEATURES
NOT DRAWN TO SCALE

HORIZONTAL SCALE: 1"=40'
VERTICAL SCALE: 1"=10'



GRASS

SOIL SAMPLE INTERVAL

(0.0)

PID READING (ppm)

(<5.8)

GRO LAB CONCENTRATION (ug/L)

[<5.4]

DRO LAB CONCENTRATION (ug/L)

ug/L

MICROGRAMS PER LITER

SW - WELL GRADED SAND

CL/ML - CLAYEY SILT

CL - LEAN CLAY

SP - POORLY GRADED SAND

GW - WELL GRADED SANDY GRAVEL

SC -CLAYEY SAND



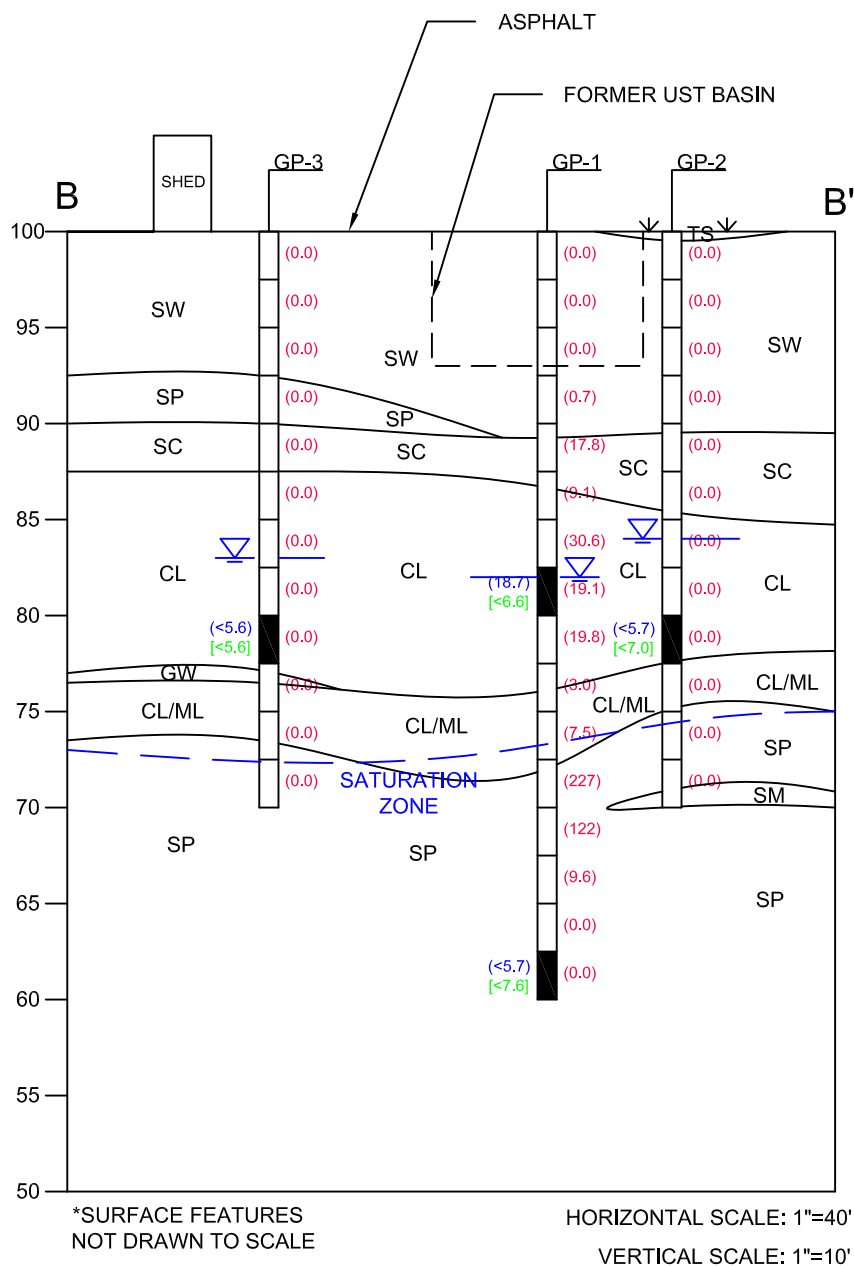
STATIC WATER LEVELS (3/13/14 AND 3/14/14)



LIMITED SITE INVESTIGATION

FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925

FIGURE 5a
GEOLOGIC
CROSS-SECTION
A-A'



(0.0)
(<5.8)
[<5.4]
ug/L

GRASS

SOIL SAMPLE INTERVAL

PID READING (ppm)

GRO LAB CONCENTRATION (ug/L)

DRO LAB CONCENTRATION (ug/L)

MICROGRAMS PER LITER

SW - WELL GRADED SAND

CL/ML - CLAYEY SILT

CL - LEAN CLAY

SP - POORLY GRADED SAND

SC -CLAYEY SAND



STATIC WATER LEVELS (3/13/14 AND 3/14/14)



LIMITED SITE INVESTIGATION

FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925

FIGURE 5b
GEOLOGIC CROSS
SECTIONAL VIEW
B-B'



PROPERTY IDs CORRESPONDS PROPERTIES LISTED IN TABLE 15



STORM SEWER GRATE



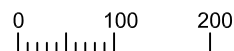
BURIED WATER MAIN



BURIED SANITARY SEWER LINE



SURFACE WATER CORRESPONDS WITH TABLE 17



SCALE IN FEET

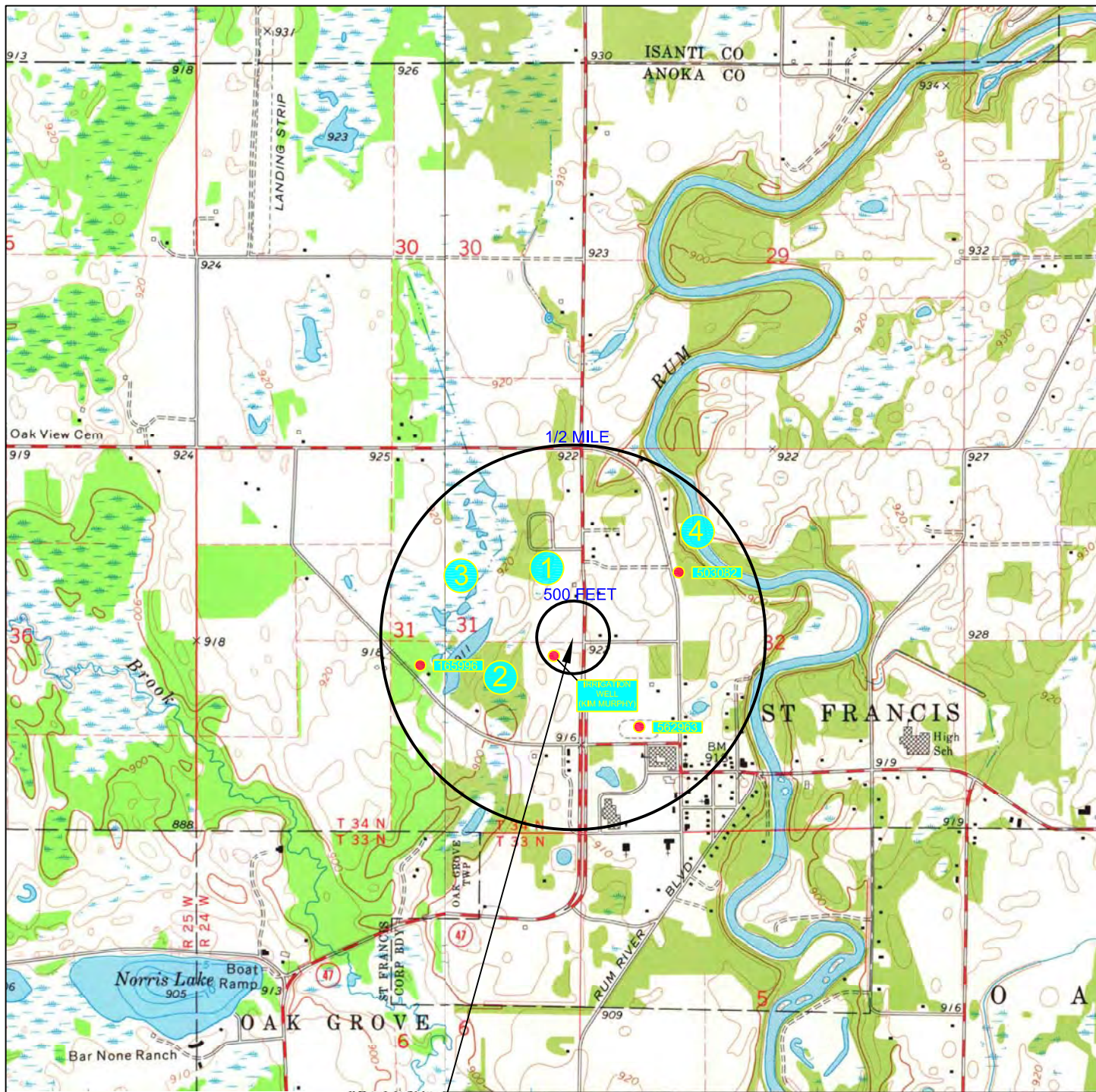


SOURCE: GOOGLE EARTH



LIMITED SITE INVESTIGATION
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925

FIGURE 6
RECEPTOR
SURVEY MAP



SITE LOCATION



SURFACE WATER ID CORRESPONDS TO TABLE 17



DENOTES MN COUNTY WELL INDEX NUMBER & LOCATION (TABLE 16)

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

0 1000 2000
SCALE IN FEET



LIMITED SITE INVESTIGATION
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925

FIGURE 7
WELL RECEPTOR
MAP

Tables

Section 5: Tables

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	6	7	8	9	10
0-2.5'	0.0	0.0	0.0	0.0	0.0					
2.5-5.0'	0.0	0.0	4.1	0.0	0.0					
5.0-7.5'	0.0	0.0	12.8	0.0	0.0					
7.5-10.0'	0.7	0.0	0.0	0.0	0.0					
10.0-12.5'	17.8	0.0	0.0	0.0	0.0					
12.5-15.0'	9.1	0.0	0.0	0.0	0.0					
15.0-17.5'	30.6	0.0	0.0	0.0	0.0					
17.5-20.0'	19.1	0.0	0.0	0.0	0.0					
20.0-22.5'	19.8	0.0	0.0	0.0	0.0					
22.5-25.0'	3.0	0.0	0.0	0.0	0.0					
25.0-27.5'	7.5	0.0	0.0	0.0	0.0					
27.5-30.0'	227	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 Samples¹

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
MeOH Blank		03/14/14	<0.050	<0.050	<0.050	<0.15	<0.25	<5.0	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
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')	No (0.0 ppm)	No
GP-2 (0-2')	No (0.0 ppm)	No
GP-3 (0-2')	No (0.0 ppm)	No
GP-4 (0-2')	No (0.0 ppm)	No
GP-5 (0-2')	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	6	7	8	9
Static Water Level Depth ¹ (ft)	18.9'	16.6'	16.7'	16.9'	17.1'				
Sampled Depth (ft)	28-33'	25-30'	25-30'	28-33'	26-31'				
Sampling Method ²	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 Borings¹

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
Trip Blank	03/13/14	--	<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.

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
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 Information¹

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 Wells¹

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 Wells¹

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 ₂ S, 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 233 rd 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 - 233 rd Lane	285' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
8	233329 - 233 rd Lane	300' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
9	233333 - 233 rd 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 - 233 rd Lane	395' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
14	4088 - 233 rd Lane	430' W	No	Assumed	N/A	Yes	Yes	No	Unk.	No	Residential home
15	4087 - 233 rd 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 233 rd 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 233 rd 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.

Notes:

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 233 rd Ave NW and Cree Street NW)	03/13/14	0.0	0%
2	Storm sewer (SW corner of 233 rd 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 Screening¹

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/m³.

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

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

Add additional rows as needed, and copy the entire table if more columns are needed.

Notes:

Table 20
Results of Soil Gas Sampling for Vapor Intrusion Screening

Sample Location	VP-1		VP-2		VP-3		VP-4		Intrusion Screening Values (ISVs)	Acute Intrusion Screening Values (ISVs)
Date	3/13/2014		3/13/2014		3/14/2014		3/14/2014			
Depth (ft)	8.0'		8.0'		8.0'		8.0'			
PID Reading (PPM)	0.0		0.0		0.0		0.0		--	--
COMPOUNDS	Result (ug/m³)	Report Limit	Result (ug/m³)	Report Limit	Result (ug/m³)	Report Limit	Result (ug/m³)	Report Limit	(ug/m³)	(ug/m³)
Acetone	41.8	36	74.2	32.3	54.8	32.3	<422	422	31,000	60,000
Benzene	48.3	0.48	2.5	0.44	3.1	0.44	1.5	0.76	4.5	1,000
Benzyl chloride	<1.6	1.6	<1.4	1.4	<1.4	1.4	<2.5	2.5	1.0	240
Bromodichloromethane	<2.0	2	<1.8	1.8	<1.8	1.8	<3.2	3.2	NE	NE
Bromoform	<3.1	3.1	<2.8	2.8	<2.8	2.8	<4.9	4.9	9	NE
Bromomethane (Methyl bromide)	<1.2	1.2	<1.1	1.1	<1.1	1.1	<1.9	1.9	5	2,000
1,3-Butadiene	<0.67	0.67	<0.60	0.6	5.3	0.60	<1.1	1.1	0.3	NE
2-Butanone (Methyl ethyl ketone, MEK)	4.5	0.89	16.7	0.8	10.9	0.80	23.7	1.4	5,000	10,000
Carbon disulfide	10.8	0.94	2.6	0.84	1.3	0.84	5.4	1.5	700	6,000
Carbon tetrachloride	<0.95	0.95	9.7	0.86	<0.86	0.86	<1.5	1.5	0.7	1,900
Chlorobenzene	<1.4	1.4	<1.3	1.3	<1.3	1.3	<2.2	2.2	50	NE
Chloroethane (Ethyl chloride)	<0.8	0.8	<0.72	0.72	<0.72	0.72	<1.3	1.3	10,000	100,000
Chloroform	<1.5	1.5	85.4	1.3	<1.3	1.3	<2.3	2.3	100	150
Chloromethane (Methyl chloride)	<0.63	0.63	<0.56	0.56	<0.56	0.56	1.4	0.99	90	1,000
Cyclohexane	1.3	1.0	<0.94	0.94	<0.94	0.94	<1.6	1.6	6,000	NE
Dibromochloromethane	<2.6	2.6	<2.3	2.3	<2.3	2.3	<1.4	1.4	NE	NE
1,2-Dibromoethane (Ethylene dibromide)	<2.3	2.3	<2.1	2.1	<2.1	2.1	<3.7	3.7	0.02	NE
1,2-Dichlorobenzene	<1.8	1.8	<1.6	1.6	<1.6	1.6	<2.9	2.9	200	NE
1,3-Dichlorobenzene	<1.8	1.8	<1.6	1.6	<1.6	1.6	<2.9	2.9	NE	NE
1,4-Dichlorobenzene	<1.8	1.8	<1.6	1.6	<1.6	1.6	<2.9	2.9	60	10,000
1,1-Dichloroethane	<1.2	1.2	<1.1	1.1	<1.1	1.1	<1.9	1.9	500	NE
1,2-Dichloroethane	<0.61	0.61	<0.55	0.55	<0.55	0.55	<0.96	0.96	0.4	NE
1,1-Dichloroethene (DCE)	<1.2	1.2	<1.1	1.1	<1.1	1.1	<1.9	1.9	200	NE
cis-1,2-Dichloroethene	<1.2	1.2	<1.1	1.1	1.7	1.1	<1.9	1.9	60	NE
trans-1,2-Dichloroethene	<1.2	1.2	<1.1	1.1	<1.1	1.1	<1.9	1.9	60	800
Dichlorodifluoromethane (Freon 12)	5.3	1.5	3.3	1.4	17.2	1.4	3.6	2.4	200	NE
1,2-Dichloropropane	<1.4	1.4	<1.3	1.3	<1.3	1.3	<2.2	2.2	4	200
cis-1,3-Dichloropropene	<1.4	1.4	<1.2	1.2	<1.2	1.2	<2.2	2.2	20	NE
trans-1,3-Dichloropropene	<1.4	1.4	<1.2	1.2	<1.2	1.2	<2.2	2.2	20	NE
1,2-Dichlorotetrafluoroethane	<2.1	2.1	<1.9	1.9	<1.9	1.9	<3.3	3.3	NE	NE
Ethanol	6.3	0.57	9.2	0.51	8.8	0.51	43.2	0.89	15,000	180,000
Ethylbenzene	10.7	1.3	14.1	1.2	10.3	1.2	4.6	2.1	1,000	10,000
4-Ethyltoluene	4.2	1.5	5.3	1.3	1.8	1.3	6.5	2.4	NE	NE
Heptane	2.8	1.2	4.8	1.1	16.2	1.1	2.2	2.0	NE	NE
Hexachloro-1,3-butadiene	<3.3	3.3	<2.9	2.9	<2.9	2.9	<5.2	5.2	0.5	NE
n-Hexane	3.2	1.1	5.3	0.96	7.2	0.96	159	1.7	2,000	NE
Methyl Butyl Ketone (2 Hexanone)	<1.2	1.2	<1.1	1.1	<1.1	1.1	<2.0	2.0	NE	NE
4-Methyl-2-pentanone (Methyl isobutyl ketone)	<1.2	1.2	1.4	1.1	1.8	1.1	<2.0	2.0	3,000	NE
Methylene Chloride (Dichloromethane)	1.6	1.1	2.0	0.95	3.6	0.95	154	12.4	20	10,000
Methyl-tert-butyl ether (MTBE)	<1.1	1.1	<0.98	0.98	<0.98	0.98	<1.7	1.7	3,000	7,000
Naphthalene	<1.6	1.6	<1.4	1.4	<1.4	1.4	5.1	2.5	9.0	NE
2-Propanol (Isopropyl alcohol)	10.1	0.74	45.8	0.67	10.9	0.67	4.0	1.2	7,000	3,200
Propylene	47.4	0.52	19.2	0.47	31.2	0.47	<0.82	0.82	3,000	NE
Styrene	<1.3	1.3	<1.2	1.2	<1.2	1.2	<2.0	2.0	1,000	21,000
1,1,1,2,2-Tetrachloroethane	<1.0	1.0	<0.94	0.94	<0.94	0.94	<1.6	1.6	0.2	NE
Tetrachloroethylene (PCE)	6.7	<1.0	6.4	0.92	1.9	0.92		1.6	20	20,000
Tetrahydrofuran	<0.89	0.89	2.2	0.8	3.0	0.80	<1.4	1.4	NE	NE
Toluene (Methylbenzene)	115.0	<1.1	80.0	1.0	54.0	1.0	199	1.8	5,000	37,000
1,2,4-Trichlorobenzene	<2.2	2.2	<2.0	2.0	<2.0	2.0	<3.5	3.5	4	NE
1,1,1-Trichloroethane (Methyl chloroform)	<1.7	1.7	<1.5	1.5	<1.5	1.5	<2.6	2.6	5,000	140,000
1,1,2-Trichloroethane	<0.82	0.82	<0.74	0.74	<0.74	0.74	<1.3	1.3	0.6	NE
Trichloroethylene (TCE)	<0.82	0.82	<0.74	0.74	54.0	0.74	<1.3	1.3	2	2,000
Trichlorofluoromethane (Freon 11)	<1.7	1.7	<1.5	1.5	<1.5	1.5	<2.7	2.7	700	NE
Freon TF	<2.4	2.4	<2.1	2.1	<2.1	2.1	<3.8	3.8	30,000	NE
1,2,4-Trimethylbenzene	8.4	1.5	10.2	1.3	3.4	1.3	18.9	2.3	7	NE
1,3,5-Trimethylbenzene	2.0	1.5	2.5	1.3	<1.3	1.3	4.5	2.3	6	NE
Vinyl acetate	<1.1	1.1	2.3	0.96	1.7	0.96	<1.7	1.7	200	NE
Ethyl acetate	<1.1	1.1	<0.98	0.98	1.0	0.98	<1.7	1.7	3,000	40,000
Vinyl chloride	<0.39	0.39	<0.35	0.35	<0.35	0.35	<0.61	0.61	1.0	180,000
m&p-Xylene	47.5	<2.6	70.9	2.4	49.1	2.4	17.3	4.1	100	43,000
o-Xylene	12.5	<1.3	16.7	1.2	13.2	1.2	8.2	2.1	100	43,000

Notes:

NE = Not Established/NA = not analyzed

Shaded indicates exceedance of 10x the ISVs

ISV = Minnesota Pollution Control Agency (MPCA) Interim Intrusion Screening Values

Bold indicates concentration above laboratory reporting limit

* indicates exceedance of Acute ISVs

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. All reproduced data must be legible. Reports missing required documentation are subject to rejection.

- | | | |
|-------------------------------------|-------------------|---|
| ☒ | <i>Appendix A</i> | Guidance Document 3-02 <i>General Excavation Report Worksheet</i> . |
| ☒ | <i>Appendix B</i> | Guidance Document 1-03a <i>Spatial Data Reporting Form</i> . |
| ☒ | <i>Appendix C</i> | Guidance Document 2-05 <i>Release Information Worksheet</i> . |
| ☐ | <i>Appendix D</i> | Copies of applicable Phase I and Phase II reports or supplemental sampling information such as aboveground storage tank (AST) upgrading and decommissioning sampling. |
| ☒ | <i>Appendix E</i> | Geologic Logs of Soil Borings, Including Construction Diagrams of Temporary and Permanent Wells, and Copies of the Minnesota Department of Health Well Record. |
| ☒ | <i>Appendix F</i> | Laboratory Analytical Reports for Soil, Soil Gas/Sub-slab Vapor/Indoor Air/Ambient Air, and Ground Water. Include laboratory QA/QC data, Chromatograms, and laboratory certification number. |
| ☒ | <i>Appendix G</i> | Methodologies and Procedures, Including Field Screening of Soil, Other Field Analyses, Soil Boring, Soil Sampling, Soil Gas/Sub-Slab/Indoor air/Ambient Air Sampling, Vapor Monitoring, Well Installation, and Water Sampling. |
| ☐ | <i>Appendix H</i> | Field or sampling data sheets (sampling forms, field crew notes, etc.). |
| ☒ | <i>Appendix I</i> | Grain Size Analysis, Hydraulic Conductivity Measurements, and Other Calculations. |
| ☐ | <i>Appendix J</i> | Guidance Document 2-03 <i>Free Product Recovery Report Worksheet</i> . |
| ☒ | <i>Appendix K</i> | Copies of Water Supply Well Logs with Legible Unique Numbers. |
| ☐ | <i>Appendix L</i> | Results of the Public Water Supply Risk Assessment. If the site is within a designated source water protection area, include a copy of the MDH Source Water Assessment and a map from the MPCA Petroleum Remediation Program Maps Online website. |
| ☐ | <i>Appendix M</i> | Guidance Document 4-19 <i>Conceptual Corrective Action Design Worksheet</i> . |

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 http://www.health.state.mn.us/divs/eh/groundwater/hrltable.html
MDH HRLs	
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

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 651/282-5332 or Greater Minnesota 1-800-657-3864 (voice/TTY).

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Appendix A

GENERAL EXCAVATION REPORT WORKSHEET (MPCA GUIDANCE DOCUMENT 3-02)

Former Food & Fuel
4020 - 233rd Avenue NW
St. Francis, MN 55070
Carlson McCain Project #4977-00
MPCA Leak #18925
Contract ID#73951/P.O. #3000009814

Prepared for:

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

April 7, 2014



PO Box 429, 5300 Highway 12
Maple Plain, MN 55359
Tel 952-346-3900
Fax 952-346-3901
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Minnesota Pollution Control Agency

General Excavation Report Worksheet

Guidance Document 3-02

Complete the worksheet below to document excavation and treatment of petroleum contaminated soil removed **prior to** a Site Investigation and/or during tank removals and/or upgrades. If soil is excavated as an MPCA-approved corrective action **after** a Site Investigation is conducted, complete Guidance Document 3-02a *Corrective Action Excavation Report Worksheet*. Conduct excavations in accordance with Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*. Please type or print clearly. Do not revise or delete text or questions from this report form.

The excavation worksheet 3-02 deadline is 10 months from the date of receipt of the MPCA “Petroleum Storage Tank Release Investigation and Corrective Action” letter. MPCA staff may establish a shorter deadline for high priority sites.

PART I: BACKGROUND

A. Site: **Former Food & Fuel**

MPCA Site ID#: **18925**

Street: **4020 – 233rd Avenue Northwest**
City, Zip: **St. Francis, MN 55070**
County: **Anoka**

B. Tank Owner/Operator: **MPCA Fund Finance Multi-Site Program**

Mailing Address: **Attn: Ms. Kathryn Serier**

Street/Box: **520 Lafayette Road**
City, Zip: **St. Paul, MN 55155**
Telephone: **(651) 231-6043**

C. Excavating Contractor: **Zahl Petroleum**

Contact: **Dan Larson**
Telephone: **612-331-8550**
Tank Contractor Certification Number: **37**

D. Consultant: **Carlson McCain, Inc.**

Contact: **Chris Loch**
Street/Box: **P.O. Box 429**
City, Zip: **Maple Plain, 55359**
Telephone: **(952) 346-3913**

E. Others on-site during site work (e.g., fire marshal, local officials, MPCA staff, etc.):

Thatcher Engineering, Inc. (Thatcher) conducted underground storage tank (UST) removal oversight and sampling activities.

- F. Site Location Information: Attach Guidance Document 1-03a *Spatial Data Reporting Form* if it has not already been submitted or will not be submitted as part of Guidance Document 4-06 *Investigation Report Form*.

MPCA Guidance Document 1-03a (*Spatial Data Reporting Form*) is attached as Appendix A.

Note: If person other than tank owner and/or operator is conducting the cleanup, provide name, address, and relationship to site on a separate attached sheet.

PART II: DATES

A. Date release reported to MPCA: **October 24, 2012**

B. Dates site work performed (tanks removed, piping removed, soil excavation, soil borings, etc.):

Work Performed	Date
Thatcher and Zahl Petroleum Company (Zahl) personnel were on-site for UST and fuel dispenser removal activities at the former Food & Fuel service station (Site). Thatcher personnel collected a total of 4 soil samples from below the removed USTs and submitted them for laboratory analysis. Thatcher also took a total of 12 photographs of tank removal activities. Thatcher provided the MPCA with the laboratory analytical report and photographs. However, information about field screening activities, sampling depths, excavation basin extents, sampling locations, etc. were not provided. It should be noted that Carlson McCain, Inc. (Carlson McCain) was not on-site during tank removal activities and information included with this report was assembled during background review/historical research activities. Tank removal photographs are attached as Appendix B.	October 18, 2012
Carlson McCain conducted a background review of UST excavation activities previously conducted at the Site. The review was requested and conducted as part of the MPCA Fund Finance Multi-Site Program. The background review included examination results of the photographs and laboratory analytical report provided by the MPCA. In addition, the MPCA leaking underground storage tank (LUST) and Tank Sites online databases were reviewed for UST information (i.e. installation and removal dates, sizes, tank contents, tank type, etc.). Furthermore, Thatcher was contacted about any additional information about the removed USTs and the certified tank removal contractor. Background review information was used to complete this UST excavation report.	February 25, 2014

PART III: SITE AND RELEASE INFORMATION

- A. Describe the land use and pertinent geographic features within 1,000 feet of the site.
(i.e. residential property, industrial, wetlands, etc.)

The Site is located at 4020 – 233rd Avenue Northwest in St. Francis, Minnesota. The Site is currently abandoned, developed with a former retail store building and detached storage shed. An abandoned carwash building is located to the north of the Site building. The Site historically operated as a gas station. A total of four USTs (#001 through #004), previously located directly to the south of the Site building, were removed from the Site (Figure 2). The USTs were located within one tank basin. A total of four fuel dispensers, previously located above the USTs, were also removed from the Site. The Site is adjoined by commercial properties (undeveloped and storage lots) to the north; Highway 47 followed by commercial property to the east; 233rd Avenue Northwest followed by commercial and town home properties to the south; and Cree Street Northwest followed by commercial properties to the west. The nearest observed surface water is an unnamed pond located approximately 765 feet (0.14 mile) to the northwest of the Site release source area (former tank basin). Two relatively large wetland areas are located approximately 770 feet (0.14 mile) to the southwest and 1,230 feet (0.23 mile) to the northwest from the former tank basin. The Rum River is located approximately 2,080 feet (0.39 mile) to the northeast of the Site.

- B. Provide the following information for all tanks removed and any remaining at the site:

Table 1.

Tank #	Tank ** Material	UST or AST	Capacity (gallons)	Contents (product type)	Year installed	Tank Status*	Condition of Tank
001	Steel	UST	8,000- gallons	Gasoline	5/15/84	Removed (10/18/12)	Poor condition, pitting and rusting ¹
002	Steel	UST	8,000- gallons	Gasoline	5/15/84	Removed (10/18/12)	Poor condition, pitting and rusting ¹
003	Steel	UST	2,000- gallons	Diesel fuel	5/15/84	Removed (10/18/12)	Poor condition, pitting and holes ¹
004	Composite	UST	4,000- gallons	Gasoline	11/6/97	Removed (10/18/12)	Good, no pitting or rusting ¹

*Indicate: removed (date), abandoned in place (date), or currently used, upgraded tank, installation of new tank. ** F for fiberglass or S for Steel

Notes: UST = underground storage tank; AST = aboveground storage tank. ¹ indicates observations from photographs provided by Thatcher and the MPCA.

Piping Material (check all that apply): ☒ Steel, ☐ Fiberglass, ☐ Flexible Plastic, ☐ Copper, ☐ Other

- C. Describe the location and status of the other components of the tank system(s) (i.e., transfer locations, valves, piping and dispensers) for those tanks listed above.

Information about the valves and tank piping is unknown. A total of four fuel dispensers were located directly above the former tank basin. The condition of the fuel dispensers were also not documented.

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

☐ Piping, ☒ **Tank**, ☒ **Dispenser**, ☐ Pump/Turbine, ☐ Delivery Problem, ☐ Other

E. Identify the cause of the release (tank and/or piping).

Check all that apply: ☒ **Corrosion**, ☐ Install Problem, ☐ Spill, ☐ Unknown,
☐ Mechanical or Physical Damage, ☐ Other

F. Identify the method the release was detected.

Check all that apply: ☒ **Removal**, ☐ Line Leak Detection, ☐ Tank Leak Detection,
☒ **Visual/Olfactory**, ☐ Site Assessment, ☐ Other:

G. Identify any surface soil contamination. **N/A**

H. What was the volume of the release? (if known): **Unknown gallons**

I. Historic contamination present (unknown origin?). ☐ Yes, ☒ **No**

J. When did the release occur? (if known): **Unknown**

K. Describe source of on-site drinking water.

The City of St. Francis provides municipal water to the Site.

L. Has the site ever, at any point had an E-85 tank? ☐ Yes, ☒ **No**

PART IV: EXCAVATION INFORMATION

A. Dimensions of excavation(s):

From the photographs taken during UST removal activities, the four USTs appeared to be located within one tank basin. The tank excavation basin appears to extend several feet beyond the largest UST extents. Exact dimensions of the former excavation basin are unknown. The interpolated UST excavation basin extent is visually depicted on Figure 2, attached.

B. Original tank backfill material (sand, gravel, etc.), if applicable:

From review of attached photographs, brown well graded sand (SW) appears to exist within the former tank basin.

C. Native soil type (clay, sand, etc.):

From review of available photographs, light brown sand appears to exist below the removed USTs. Subsequent Limited Site Investigation (LSI) activities, conducted by Carlson McCain, identified clayey sand followed by lean clay till below the sand layer.

D. Quantity of contaminated soil removed for treatment (cubic yards): **None**
(Indicate on the site map where the petroleum contaminated soil was excavated)

How many cubic yards of the removed soil was petroleum saturated? **N/A**
(Indicate on the site map where the petroleum saturated soil was excavated)

[**Note:** If the volume removed is more than allowed in Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*, please document MPCA staff approval.]

- E. Were new tanks and/or piping and dispensers installed? (yes/**no**) If yes, what volume of contaminated soil was excavated to accommodate the installation of the new tanks and piping?

New tanks, piping and dispensers were not installed.

- F. If contaminated soil was removed to accommodate the installation of new tanks and/or piping, show your calculations for the amount of soil removal allowed using Table 3 in Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*.

N/A

- G. Was groundwater encountered or a suspected perched water layer or was there evidence of a seasonally high groundwater table (i.e. mottling)? (yes/**no**) At what depth? **N/A**

Photographs taken during UST removal activities did not indicate the presence of groundwater within the former tank basin. Photographs are attached as Appendix B.

- H. If groundwater was not encountered during the excavation, what is the expected depth of ground water?

Subsequent LSI drilling activities conducted by Carlson McCain encountered groundwater, as indicated by wet to saturated poorly graded sand, at depths between 25 and 28.5 feet below ground surface (bgs) throughout the Site.

- I. Additional investigation to determine the need for a Limited Site Investigation is necessary at sites with sandy or silty sandy soil, a water table within 25 feet of the ground surface, and visual or other evidence of soil remaining contamination. See Table 2 in Guidance Document 3-01 *Excavation of Petroleum Contaminated Soil*. If a soil boring is necessary, describe the soil screening and analytical results. Attach the boring logs and laboratory results to this report.
- J. If no soil boring was performed, explain.

A soil boring was not advanced within the UST basin during tank removal activities. It is assumed that impacted soil discovered within sandy soil suggested an LSI was necessary to assess the vertical extent of soil contamination and potential impacts to shallow groundwater.

- K. If groundwater was encountered or if a soil boring was conducted, was there evidence of groundwater contamination? (yes/**no**) Describe this evidence of contamination, e.g., free product (specify thickness), product sheen, ground water in contact with petroleum contaminated soil, water analytical results, etc. **Note:** If you observe free product, contact MPCA staff immediately, as outlined in Guidance Document 2-02 *Free Product: Evaluation and Recovery*.

L. Was bedrock encountered in the excavation? (☐yes/ ☒**no**) At what depth? **N/A**

M. Were other unique conditions associated with this site? (☐yes/ ☒**no**) If so, explain. **N/A**

PART V: SAMPLING INFORMATION

- A. Briefly describe the field screening methods used to distinguish contaminated from uncontaminated soil:

Not applicable (N/A). Carlson McCain was not on-site for tank removal field screening and soil sample collection activities. In addition, Thatcher did not provide information about UST removal field screening or soil sampling with the exception of tank removal photographs and the laboratory analytical report.

- B. List soil vapor headspace analysis results collected during excavation of tanks, lines and dispensers, valves, and transfer locations. (i.e., soils left in place when excavation is complete). Code the samples with sampling depths in parentheses as follows: sidewall samples S-1 (8 feet), S-2 (4 feet), etc.; bottom samples B-1 (13 feet), B-2 (14 feet), removed soil R-1 (4 feet), R-1 (8 feet), etc.; stockpile samples SP-1, etc; line samples L-1, L2, etc.; transfer locations T-1 (4 feet), T-1 (8 feet), etc.; dispensers D-1 (4 feet), etc. **Be sure the sample codes correspond with the site map in part VI, below.**

Sample Code	Soil Type	Reading ppm	Sample Code	Soil Type	Reading ppm
N/A					

- C. Was the “removed soil” placed back into the excavation basin? (☒yes/ ☐no)
If no, please complete Part VIII: Soil Treatment Information section. If yes, a Limited Site Investigation is necessary (see Guidance Document 4-01 *Soil and Ground Water Assessments Performed during Site Investigations*).

- D. Briefly describe the soil analytical sampling and handling procedures used:

Soil samples Tank 1 through Tank 4 were collected beneath USTs #001; #002; #003 and #004, respectively. The former UST locations are visually depicted on Figure 2, attached. The soil samples collected by Thatcher personnel were submitted to Pace Analytical Services (Pace) for laboratory analysis of benzene, toluene, ethylbenzene, xylenes (BTEX), methyl-tert-butyl-ether (MTBE), gasoline range organics (GRO) and diesel range organics (DRO).

Handling and sampling procedures conducted by Thatcher were not provided.

- E. List below all soil sample analytical results from bottom and side wall samples collected after excavation of tanks, lines and dispensers, valves, and transfer locations (i.e., soils left in place when excavation is complete). Code the samples with sampling depths in parentheses as follows: sidewall samples S-1 (8 feet), S-2 (4 feet), etc.; bottom samples B-1 (13 feet), B-2 (14 feet), removed soil R-1 (4 feet), R-1 (8 feet), etc.; stockpile samples SP-1, etc; line samples L-1, L2, etc.; transfer locations T-1 (4 feet), T-1 (8 feet), etc.; dispensers D-1 (4 feet), etc.; **Be sure the sample codes correspond to the site map required in part VI.**

Sample Code	GRO/ DRO mg/kg	Benzene mg/kg	Ethyl- benzene mg/kg	Toluene mg/kg	Xylenes mg/kg	MTBE mg/kg	Lead mg/kg
Tank 1	617/68.8	<0.64	6.2	2.8	56.1	<3.2	NA
Tank 2	5,490/447	<3.2	116	358	872	<15.8	NA
Tank 3	<5.3/ 19.1	<0.053	<0.053	<0.053	<0.16	<0.27	NA
Tank 4	<6.0/NA	<0.060	<0.060	<0.060	<0.18	<0.30	NA
MeOH Blank	<5.0/NA	<0.050	<0.050	<0.050	<0.15	<0.25	NA

Note: Attach copies of laboratory reports and chain of custody forms.

The laboratory analytical report is attached as Appendix D. GRO = gasoline range organics; DRO = diesel range organics; MTBE = methyl-tert-butyl-ether; NA = not analyzed; and mg/kg = milligrams per kilogram.

PART VI: FIGURES

Attach the following figures to this report:

1. Site location map.
2. Site map(s) drawn to scale illustrating the following:
 - a. Location of all present and former tanks, piping, and dispensers;
 - b. Location of surface soil contamination
 - c. Location of other structures (buildings, canopies, etc.);
 - d. Adjacent city, township, or county roadways;
 - e. Dimensions of excavation(s), including contour lines (maximum 2-foot contour intervals) to represent the depths of the final excavation(s);
 - f. Location of soil screening samples (e.g. R-1), soil analytical samples (e.g., S-1 or B-1), and any soil borings (e.g., SB-1). Also, attach all boring logs.
 - g. North arrow, bar scale and map legend.
 - h. Provide location of any on-site water wells. If on-site water wells exist, please provide well logs and/or construction diagrams.
 - i. Locations of new tanks, piping and dispensers, if installed.

PART VII: CONCLUSIONS AND RECOMMENDATIONS

Recommendation for site: ☐ site closure
☒ **additional investigation**

Justify the recommendations for the site. If no further action is necessary, the MPCA staff will review this report following notification of soil treatment.

The Site is currently under direction of the MPCA Fund Finance Multi-Site Program. The MPCA recently contracted Carlson McCain to complete a standard scope of work LSI to assess the extents of soil contamination and potential impacts to groundwater. In addition, the LSI will evaluate potential vapor intrusion impacts to the Site building, utility corridors and off-site property structures.

Because a tank removal report was not previously submitted, the MPCA requested Carlson McCain to complete the excavation report (Guidance Document 3-02) and include with the subsequent LSI report (Guidance Document 4-06).

PART VIII: SOIL TREATMENT INFORMATION

- A. Soil treatment method used (thermal, land application, composting, other). If you choose "other" specify treatment method: N/A
- B. Location of treatment site/facility: N/A
- C. Date MPCA approved soil treatment (if thermal treatment was used, indicate date that the MPCA-permitted thermal treatment facility agreed to accept soil): N/A
- D. Identify the location of stockpiled contaminated soil:

N/A

PART IX: CONSULTANT (OR OTHER) PREPARING THIS REPORT

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 reduction of reimbursement awards. 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 (1994) or Minn. 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 excavation reports or if the report form has been altered.

Name and Title:

Signature:

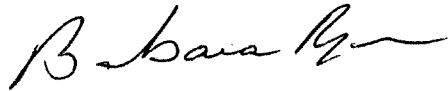
Date signed:

Christopher J. Loch
Environmental Project Manager



4/7/14

Barbara A. Ryan, P.G.
Project Geologist



4/7/14

Company and mailing address:

Carlson McCain, Inc.
P.O. Box 429
Maple Plain, MN 55359
Phone: 952-346-3913
Fax: 952-346-3901

If additional investigation is not necessary, please mail this form and all necessary attachments to the MPCA project manager. If additional investigation is necessary, include this form as an appendix to Guidance Document 4-06 *Investigation Report Form*. **MPCA staff will not review excavation reports indicating a limited site investigation is necessary unless the limited site investigation has been completed.**

Web pages and phone numbers

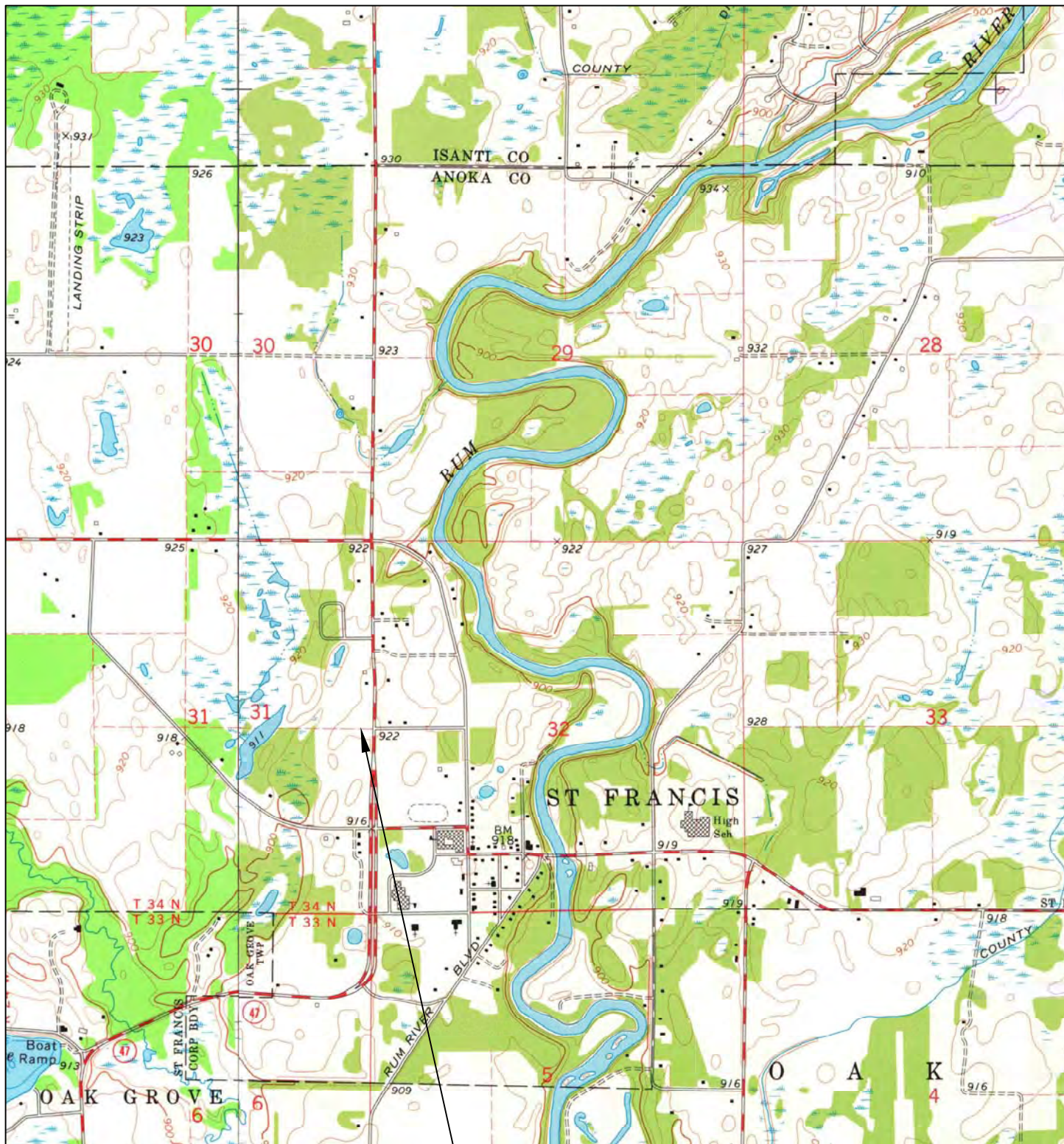
MPCA staff	http://pca.state.mn.us/pca/staff/index.cfm
MPCA toll free	1-800-657-3864
Petroleum Remediation Program web page	http://www.pca.state.mn.us/programs/lust_p.html
MPCA Infor. Request	http://www.pca.state.mn.us/about/inforequest.html
MPCA Petroleum Brownfields Program	http://www.pca.state.mn.us/programs/vpic_p.html
PetroFund Web Page	http://www.state.mn.us/cgi-bin/portal/mn/jsp/content.do?id=-536881377&agency=Commerce
PetroFund Phone	651-297-1119, or 1-800-638-0418
State Duty Officer	651-649-5451 or 1-800-422-0798

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TTY users call 651/282-5332 or 1-800-657-3864 (voice/TTY).

Printed on recycled paper containing at least 10 percent fibers from paper recycled by consumers.

Guidance Document c-prp3-02: February 2010
Petroleum Remediation Program
Minnesota Pollution Control Agency

Figures



SITE LOCATION

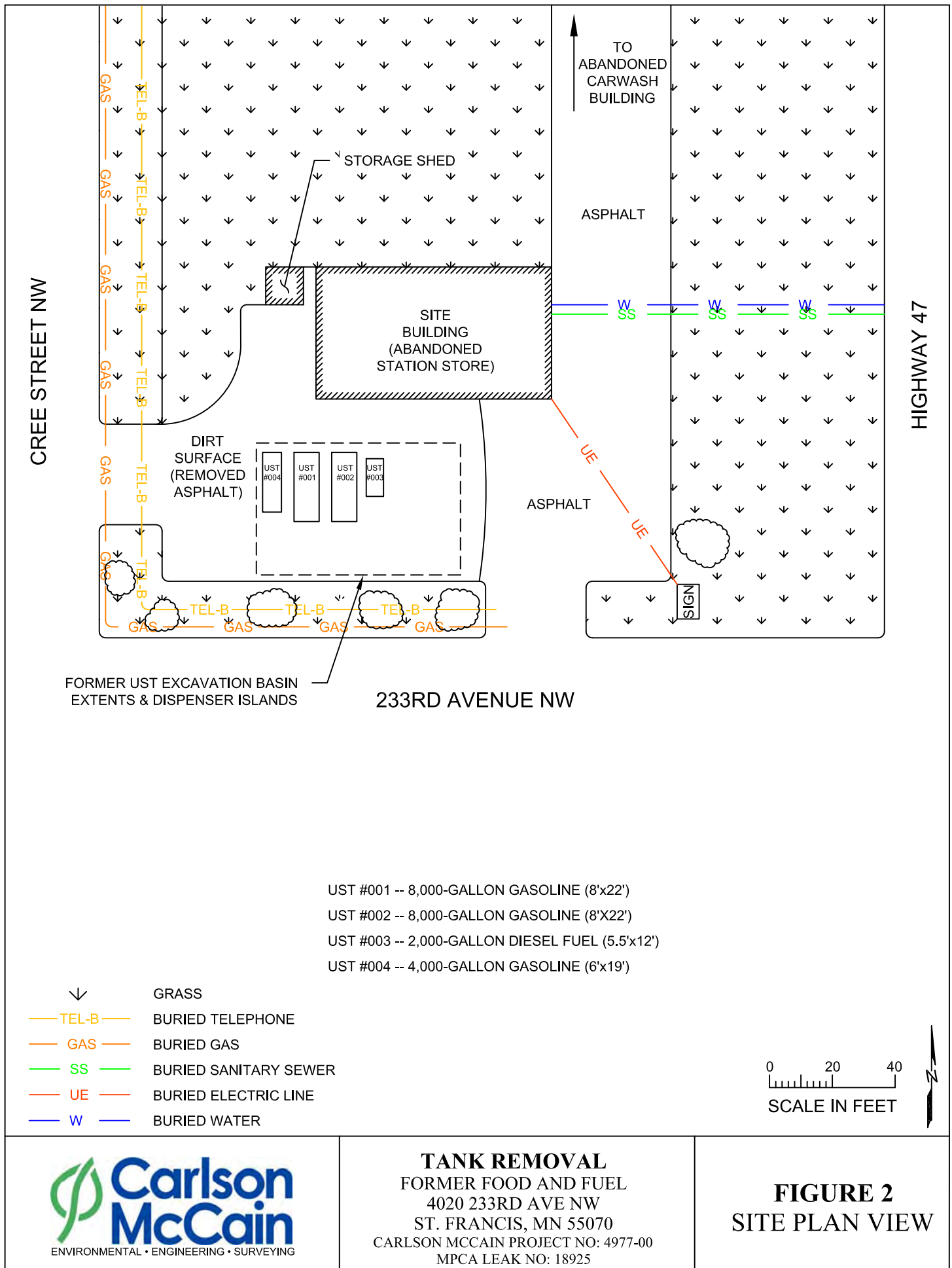
0 1000 2000
SCALE IN FEET

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



TANK REMOVAL
FORMER FOOD AND FUEL
4020 233RD AVE NW
ST. FRANCIS, MN 55070
CARLSON MCCAIN PROJECT NO: 4977-00
MPCA LEAK NO: 18925

FIGURE 1
SITE LOCATION



Appendix A



Petroleum Remediation Program

Minnesota Pollution Control Agency

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

Spatial Data Reporting Form

Guidance Document 1-03a

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

Part 1. Background

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

MPCA Site ID: **LEAK00018925**

Site Name: **Former Food & Fuel**

Data Collection Date: **April 3, 2014**

Name of Person Who Collected Data: **Chris Loch**

Organization Name: **Carlson McCain, Inc.**

Organization Type: **Environmental Consulting Firm**

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

Point Description: **Center of former underground storage tank (UST) basin**

Collection Method: **Map Interpolation**

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

1) **Longitude (dd mm ss.ss): 93° 22' 07.06"**

Latitude (dd mm ss.ss): 45° 23' 31.62"

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Part 3. Other Site Features

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Appendix B





Slim Tool Institute

ACT-100-U









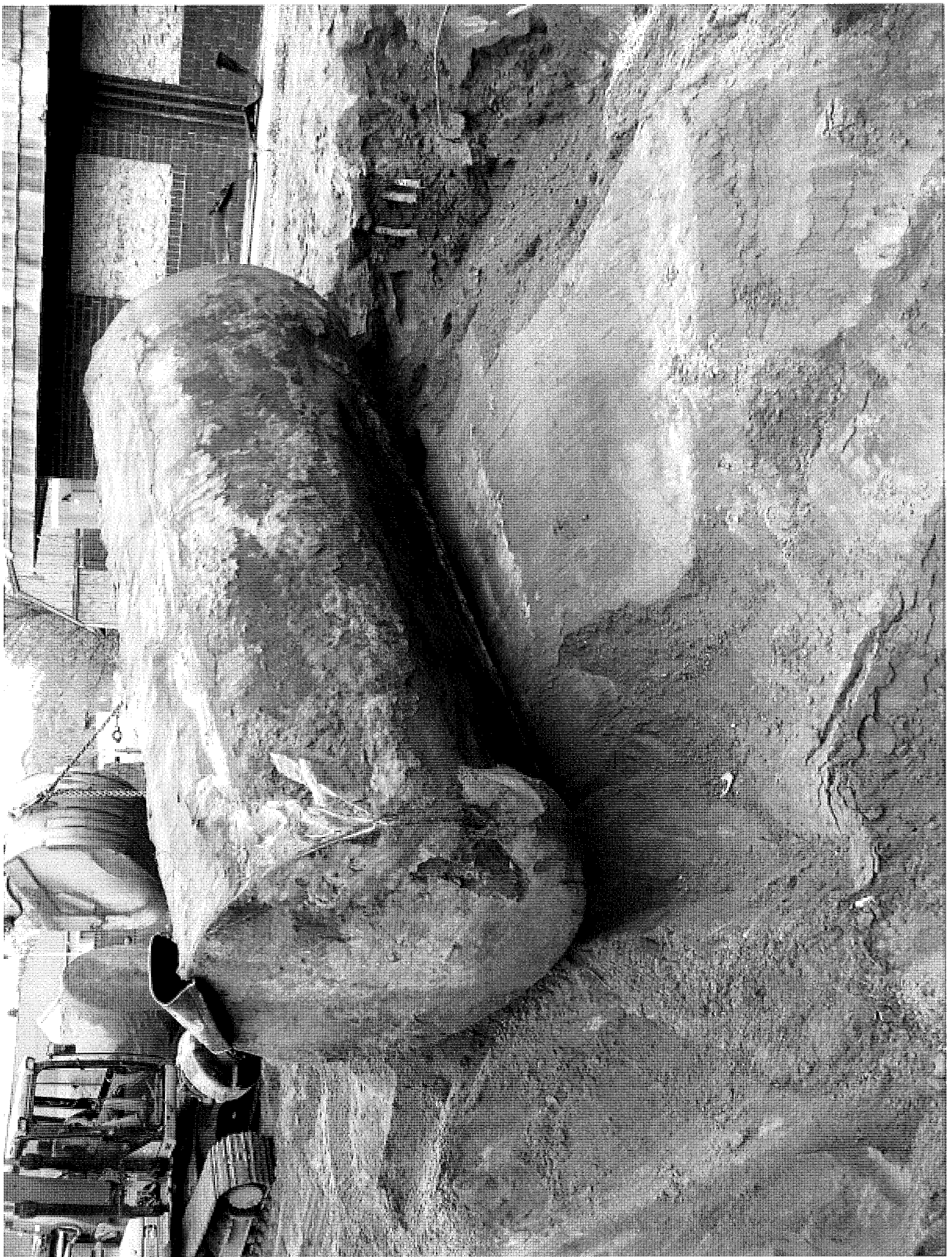












Appendix C



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

November 01, 2012

Mr. Dennis McComas
Thatcher Engineering
3055 Old Highway 8
Suite 103
Minneapolis, MN 55418

RE: Project: St.Francis
Pace Project No.: 10209237

Dear Mr. McComas:

Enclosed are the analytical results for sample(s) received by the laboratory on October 18, 2012. The results relate only to the samples included in this report. Results reported herein conform to the most current TNI standards and the laboratory's Quality Assurance Manual, where applicable, unless otherwise noted in the body of the report.

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

Sincerely,

Andrea Opland

andrea.opland@pacelabs.com
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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Page 1 of 14

CERTIFICATIONS

Project: St. Francis
Pace Project No.: 10209237

Minnesota Certification IDs

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

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

REPORT OF LABORATORY ANALYSIS

Page 2 of 14

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SAMPLE SUMMARY

Project: St.Francis
Pace Project No.: 10209237

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10209237001	Tank 1	Solid	10/18/12 00:00	10/18/12 16:24
10209237002	Tank 2	Solid	10/18/12 00:00	10/18/12 16:24
10209237003	Tank 3	Solid	10/18/12 00:00	10/18/12 16:24
10209237004	Tank 4	Solid	10/18/12 00:00	10/18/12 16:24
10209237005	Trip Blank	Solid	10/18/12 00:00	10/18/12 16:24

REPORT OF LABORATORY ANALYSIS

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

SAMPLE ANALYTE COUNT

Project: St.Francis
Pace Project No.: 10209237

Lab ID	Sample ID	Method	Analysts	Analytes Reported
10209237001	Tank 1	WI MOD DRO	MT	2
		WI MOD GRO	KT1	7
		ASTM D2974	JDL	1
10209237002	Tank 2	WI MOD DRO	JRH	2
		WI MOD GRO	KT1	7
		ASTM D2974	JDL	1
10209237003	Tank 3	WI MOD DRO	MT	2
		WI MOD GRO	KT1	7
		ASTM D2974	JDL	1
10209237004	Tank 4	WI MOD GRO	KT1	7
		ASTM D2974	JDL	1
		WI MOD GRO	KT1	7

REPORT OF LABORATORY ANALYSIS

Page 4 of 14

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ANALYTICAL RESULTS

Project: St. Francis
Pace Project No.: 10209237

Sample: Tank 1 Lab ID: 10209237001 Collected: 10/18/12 00:00 Received: 10/18/12 16:24 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	68.8	mg/kg	7.2	1	10/23/12 12:49	10/25/12 14:50		L2
Surrogates								
n-Triacontane (S)	81	%	50-150	1	10/23/12 12:49	10/25/12 14:50		P2
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	0.64	10	10/24/12 14:46	10/26/12 15:04	71-43-2	
Ethylbenzene	6.2	mg/kg	0.64	10	10/24/12 14:46	10/26/12 15:04	100-41-4	
Gasoline Range Organics	617	mg/kg	63.7	10	10/24/12 14:46	10/26/12 15:04		
Methyl-tert-butyl ether	ND	mg/kg	3.2	10	10/24/12 14:46	10/26/12 15:04	1634-04-4	
Toluene	2.8	mg/kg	0.64	10	10/24/12 14:46	10/26/12 15:04	108-88-3	
Xylene (Total)	56.1	mg/kg	1.9	10	10/24/12 14:46	10/26/12 15:04	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	83	%	80-125	10	10/24/12 14:46	10/26/12 15:04	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	21.2	%	0.10	1		10/24/12 00:00		

Sample: Tank 2 Lab ID: 10209237002 Collected: 10/18/12 00:00 Received: 10/18/12 16:24 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	447	mg/kg	53.8	10	10/23/12 12:49	10/26/12 10:39		L2,T7
Surrogates								
n-Triacontane (S)	82	%	50-150	10	10/23/12 12:49	10/26/12 10:39		P2
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	3.2	50	10/24/12 14:46	10/26/12 16:06	71-43-2	
Ethylbenzene	116	mg/kg	3.2	50	10/24/12 14:46	10/26/12 16:06	100-41-4	
Gasoline Range Organics	5490	mg/kg	316	50	10/24/12 14:46	10/26/12 16:06		
Methyl-tert-butyl ether	ND	mg/kg	15.8	50	10/24/12 14:46	10/26/12 16:06	1634-04-4	
Toluene	358	mg/kg	3.2	50	10/24/12 14:46	10/26/12 16:06	108-88-3	
Xylene (Total)	872	mg/kg	9.5	50	10/24/12 14:46	10/26/12 16:06	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	90	%	80-125	50	10/24/12 14:46	10/26/12 16:06	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	19.2	%	0.10	1		10/24/12 00:00		

ANALYTICAL RESULTS

Project: St. Francis
Pace Project No.: 10209237

Sample: Tank 3 Lab ID: 10209237003 Collected: 10/18/12 00:00 Received: 10/18/12 16:24 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	19.1 mg/kg		7.5	1	10/23/12 12:49	10/25/12 14:42		L2
Surrogates								
n-Triacontane (S)	89 %		50-150	1	10/23/12 12:49	10/25/12 14:42		P2
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND mg/kg		0.053	1	10/24/12 14:46	10/26/12 13:41	71-43-2	
Ethylbenzene	ND mg/kg		0.053	1	10/24/12 14:46	10/26/12 13:41	100-41-4	
Gasoline Range Organics	ND mg/kg		5.3	1	10/24/12 14:46	10/26/12 13:41		
Methyl-tert-butyl ether	ND mg/kg		0.27	1	10/24/12 14:46	10/26/12 13:41	1634-04-4	
Toluene	ND mg/kg		0.053	1	10/24/12 14:46	10/26/12 13:41	108-88-3	
Xylene (Total)	ND mg/kg		0.16	1	10/24/12 14:46	10/26/12 13:41	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	100 %		80-125	1	10/24/12 14:46	10/26/12 13:41	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	7.6 %		0.10	1		10/24/12 00:00		

Sample: Tank 4 Lab ID: 10209237004 Collected: 10/18/12 00:00 Received: 10/18/12 16:24 Matrix: Solid

Results reported on a "dry-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		0.060	1	10/24/12 14:46	10/25/12 16:46	71-43-2	
Ethylbenzene	ND mg/kg		0.060	1	10/24/12 14:46	10/25/12 16:46	100-41-4	
Gasoline Range Organics	ND mg/kg		6.0	1	10/24/12 14:46	10/25/12 16:46		
Methyl-tert-butyl ether	ND mg/kg		0.30	1	10/24/12 14:46	10/25/12 16:46	1634-04-4	
Toluene	ND mg/kg		0.060	1	10/24/12 14:46	10/25/12 16:46	108-88-3	
Xylene (Total)	ND mg/kg		0.18	1	10/24/12 14:46	10/25/12 16:46	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	100 %		80-125	1	10/24/12 14:46	10/25/12 16:46	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	14.3 %		0.10	1		10/25/12 00:00		

Sample: Trip Blank Lab ID: 10209237005 Collected: 10/18/12 00:00 Received: 10/18/12 16:24 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	10/24/12 14:46	10/25/12 14:01	71-43-2	
Ethylbenzene	ND mg/kg		0.050	1	10/24/12 14:46	10/25/12 14:01	100-41-4	
Gasoline Range Organics	ND mg/kg		5.0	1	10/24/12 14:46	10/25/12 14:01		

Date: 11/01/2012 01:57 PM

REPORT OF LABORATORY ANALYSIS

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

ANALYTICAL RESULTS

Project: St.Francis
Pace Project No.: 10209237

Sample: Trip Blank Lab ID: 10209237005 Collected: 10/18/12 00:00 Received: 10/18/12 16:24 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.								
Methyl-tert-butyl ether	ND	mg/kg	0.25	1	10/24/12 14:46	10/25/12 14:01	1634-04-4	
Toluene	ND	mg/kg	0.050	1	10/24/12 14:46	10/25/12 14:01	108-88-3	
Xylene (Total)	ND	mg/kg	0.15	1	10/24/12 14:46	10/25/12 14:01	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	101	%	80-125	1	10/24/12 14:46	10/25/12 14:01	98-08-8	



QUALITY CONTROL DATA

Project: St.Francis
Pace Project No.: 10209237

QC Batch: GCV/9934 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10209237001, 10209237002, 10209237003, 10209237004, 10209237005

METHOD BLANK: 1317664 Matrix: Solid
Associated Lab Samples: 10209237001, 10209237002, 10209237003, 10209237004, 10209237005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/kg	ND	0.050	10/25/12 12:59	
Ethylbenzene	mg/kg	ND	0.050	10/25/12 12:59	
Gasoline Range Organics	mg/kg	ND	5.0	10/25/12 12:59	
Methyl-tert-butyl ether	mg/kg	ND	0.25	10/25/12 12:59	
Toluene	mg/kg	ND	0.050	10/25/12 12:59	
Xylene (Total)	mg/kg	ND	0.15	10/25/12 12:59	
a,a,a-Trifluorotoluene (S)	%	101	80-125	10/25/12 12:59	

LABORATORY CONTROL SAMPLE & LCSD: 1317665		1317666								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	mg/kg	5	5.3	5.3	107	106	80-120	.8	20	
Ethylbenzene	mg/kg	5	5.4	5.3	109	106	80-120	2	20	
Gasoline Range Organics	mg/kg	50	52.3	50.8	105	102	80-120	3	20	
Methyl-tert-butyl ether	mg/kg	5	4.7	4.9	94	97	80-120	3	20	
Toluene	mg/kg	5	5.4	5.4	109	107	80-120	2	20	
Xylene (Total)	mg/kg	15	16.5	16.1	110	108	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%				95	98	80-125			

MATRIX SPIKE SAMPLE: 1317667		10209782001	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Parameter	Units	Result					
Benzene	mg/kg	ND	6.3	8.2	131	80-120	M1
Ethylbenzene	mg/kg	ND	6.3	8.3	132	80-120	M1
Gasoline Range Organics	mg/kg	ND	62.6	83.4	133	80-120	M1
Methyl-tert-butyl ether	mg/kg	ND	6.3	7.7	124	80-120	M1
Toluene	mg/kg	ND	6.3	8.3	133	80-120	M1
Xylene (Total)	mg/kg	ND	18.8	24.6	131	80-120	ES
a,a,a-Trifluorotoluene (S)	%				99	80-125	

SAMPLE DUPLICATE: 1317668		10209782002	Dup Result	RPD	Max RPD	Qualifiers
Parameter	Units	Result				
Benzene	mg/kg	ND	ND		20	
Ethylbenzene	mg/kg	ND	ND		20	
Gasoline Range Organics	mg/kg	ND	ND		20	
Methyl-tert-butyl ether	mg/kg	ND	ND		20	
Toluene	mg/kg	ND	ND		20	

Date: 11/01/2012 01:57 PM

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: St.Francis
Pace Project No.: 10209237

SAMPLE DUPLICATE: 1317668

Parameter	Units	10209782002 Result	Dup Result	RPD	Max RPD	Qualifiers
Xylene (Total)	mg/kg	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%	100	101	4		

QUALITY CONTROL DATA

Project: St. Francis
Pace Project No.: 10209237

QC Batch: MPRP/35963 Analysis Method: ASTM D2974
QC Batch Method: ASTM D2974 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 10209237001, 10209237002, 10209237003

SAMPLE DUPLICATE: 1317745

Parameter	Units	10209528004 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	10.6	11.3	6	30	

SAMPLE DUPLICATE: 1317746

Parameter	Units	10209237003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	7.6	8.3	9	30	

QUALITY CONTROL DATA

Project: St.Francis
Pace Project No.: 10209237

QC Batch:	MPRP/35985	Analysis Method:	ASTM D2974
QC Batch Method:	ASTM D2974	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	10209237004		

SAMPLE DUPLICATE: 1318477

Parameter	Units	10209347002 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	19.1	19.1	.3	30	

SAMPLE DUPLICATE: 1318478

Parameter	Units	10209378008 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	32.0	29.0	10	30	

QUALITY CONTROL DATA

Project: SL.Francis
Pace Project No.: 10209237

QC Batch: OEXT/20057 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10209237001, 10209237002, 10209237003

METHOD BLANK: 1316303 Matrix: Solid
Associated Lab Samples: 10209237001, 10209237002, 10209237003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	10/25/12 13:44	
n-Triacontane (S)	%	96	50-150	10/25/12 13:44	

LABORATORY CONTROL SAMPLE & LCSD: 1316304

1316305

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	54.0	67.7	67	85	70-120	23	20	D6,L0
n-Triacontane (S)	%				88	105	50-150			

QUALIFIERS

Project: St. Francis
Pace Project No.: 10209237

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to changes in sample preparation, dilution of the sample aliquot, or moisture content.
ND - Not Detected at or above adjusted reporting limit.
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PRL - Pace Reporting Limit.
RL - Reporting Limit.
S - Surrogate
1,2-Diphenylhydrazine (8270 listed analyte) decomposes to Azobenzene.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The NELAC Institute.

ANALYTE QUALIFIERS

D6	The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.
ES	The reported result is estimated because one or more of the constituent results are qualified as such.
L0	Analyte recovery in the laboratory control sample (LCS) was outside QC limits.
L2	Analyte recovery in the laboratory control sample (LCS) was below QC limits. Results may be biased low.
M1	Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.
P2	Re-extraction or re-analysis could not be performed due to insufficient sample amount.
T7	Low boiling point hydrocarbons are present in the sample.

QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: St. Francis
Pace Project No.: 10209237

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10209237001	Tank 1	WI MOD DRO	OEXT/20057	WI MOD DRO	GCSV/10348
10209237002	Tank 2	WI MOD DRO	OEXT/20057	WI MOD DRO	GCSV/10348
10209237003	Tank 3	WI MOD DRO	OEXT/20057	WI MOD DRO	GCSV/10348
10209237001	Tank 1	TPH GRO/PVOC WI ext.	GCV/9934	WI MOD GRO	GCV/9935
10209237002	Tank 2	TPH GRO/PVOC WI ext.	GCV/9934	WI MOD GRO	GCV/9935
10209237003	Tank 3	TPH GRO/PVOC WI ext.	GCV/9934	WI MOD GRO	GCV/9935
10209237004	Tank 4	TPH GRO/PVOC WI ext.	GCV/9934	WI MOD GRO	GCV/9935
10209237005	Trip Blank	TPH GRO/PVOC WI ext.	GCV/9934	WI MOD GRO	GCV/9935
10209237001	Tank 1	ASTM D2974	MPRP/35963		
10209237002	Tank 2	ASTM D2974	MPRP/35963		
10209237003	Tank 3	ASTM D2974	MPRP/35963		
10209237004	Tank 4	ASTM D2974	MPRP/35985		

	Document Name: Sample Condition Upon Receipt Form	Document Revised: 22Aug2012 Page 1 of 1
	Document No.: F-MN-L-213-rev.04	Issuing Authority: Pace Minnesota Quality Office

Sample Condition
Upon Receipt

Client Name:

Thatcher

Project #:

WO#: 10209237

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



Tracking Number:

Custody Seal on Cooler/Box Present? ☐ Yes ☒ No

Seals Intact? ☐ Yes ☒ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other:

Temp Blank? ☐ Yes ☒ No

Thermometer Used: ☐ B88A912167504 ☒ B0512447 Type of Ice: ☐ Wet ☐ Blue ☒ None ☐ Samples on ice, cooling process has begun

Cooler Temperature: 19.2 Biological Tissue Frozen? ☐ Yes ☐ No Date and Initials of Person Examining Contents: JS 10/11/12
Temp should be above freezing to 6°C

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?	☒ Yes ☐ No ☐ N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>62</u>		
All containers needing acid/base preservation have been checked? Noncompliances are noted in 13.	☐ Yes ☐ No ☒ N/A	13.
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12)	☐ Yes ☐ No ☒ N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water)	☐ Yes ☒ No	
Headspace in VOA Vials (>6mm)?	☐ Yes ☒ No ☐ N/A	14.
Trip Blank Present?	☒ Yes ☐ No ☐ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes ☒ No ☐ N/A	
Pace Trip Blank Lot # (if purchased): <u>NO PAC BLANK</u>		

CLIENT NOTIFICATION/RESOLUTION

Person Contacted:

Dennis McCanal

Date/Time:

Field Data Required? ☐ Yes ☐ No

10/19/12 0926

Comments/Resolution:

Out of Temp

Project Manager Review:

Qiao

Date:

10/19/12

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

Appendix B



Petroleum Remediation Program

Minnesota Pollution Control Agency

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

Spatial Data Reporting Form

Guidance Document 1-03a

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

Part 1. Background

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

MPCA Site ID: **LEAK00018925**

Site Name: **Former Food & Fuel**

Data Collection Date: **April 3, 2014 and June 24, 2014**

Name of Person Who Collected Data: **Chris Loch**

Organization Name: **Carlson McCain, Inc.**

Organization Type: **Environmental Consulting Firm**

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

Point Description: **Center of former underground storage tank (UST) basin**

Collection Method: **Map Interpolation**

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

1) **Longitude (dd mm ss.ss): 93° 22' 07.06"**

Latitude (dd mm ss.ss): 45° 23' 31.62"

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Part 3. Other Site Features

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Point Description:

Collection Method:

Datum (circle/highlight): WGS84 NAD83

1) Longitude (dd mm ss.ss):

Latitude (dd mm ss.ss):

2) Longitude (dd.dddddd):

Latitude (dd.dddddd):

3) UTM - X (Easting):

UTM - Y (Northing):

UTM Zone:

Appendix C



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

A. General information

Site name/city: Former Food & Fuel MPCA Site ID#: LEAK000 18925

B. Tank material (check all that apply):

☒ Steel ☐ Fiberglass

C. Piping material (check all that apply):

☒ Steel ☐ Fiberglass ☐ Flexible plastic ☐ Copper ☐ Other (specify): _____

D. Identify the known or suspected source(s) of the release or contamination encountered (check all that apply):

☐ Piping ☒ Tank ☐ Dispenser ☐ Submersible turbine pump ☐ Delivery problem

☐ Other (specify): _____

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

☐ Overfill ☐ Mechanical or physical damage ☐ Install problem ☒ Corrosion ☐ Spill ☐ Unknown

☐ Other (specify): _____

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

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

☐ Other (specify): _____

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

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

Web pages and phone numbers:

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

Appendix E



BORING NUMBER GP-1

PAGE 1 OF 2

CLIENT MPCA	PROJECT NAME Former Food and Fuel
PROJECT NUMBER 4977-00	PROJECT LOCATION St. Francis, Minnesota
DATE STARTED 3/13/14	COMPLETED 3/13/14
DRILLING CONTRACTOR Thein Well Company	GROUND ELEVATION
DRILLING METHOD Direct Push	HOLE SIZE 2 inch
LOGGED BY C. Loch	CHECKED BY C. Loch
NOTES Within former tank basin.	GROUND WATER LEVELS:
	▽ AT TIME OF DRILLING 28.4 ft
	▼ AT END OF DRILLING 18.9 ft
	AFTER DRILLING ---

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0					Brown (7.5YR 3/3) fine to medium-grained SAND, well graded, no odor or stains, dry, FILL.		
		MAC 1	100				09:42	0.0
	5			SW			09:42	0.0
		MAC 2	100				09:48	0.0
	10			SW		9.5 Brown (7.5YR 3/3) gravelly SAND, slight petroleum odor, mottling present, moist.	09:48	0.7
		MAC 3	100	SC		11.0 Light gray stained CLAYEY SAND, slight odor, transition to clay.	10:08	17.8
						13.2 Light gray (7.5YR 4/1) SANDY LEAN CLAY with gravel, non-plastic, moist, very slight odor, TILL.	10:08	9.1
	15						10:18	30.6
		MAC 4	80	CL		Petroleum odor and moist.	10:18	19.1
	20					Slight odor, moist, less sand and gravel.	10:35	19.8
		MAC 5	100				10:35	3.0
	25			CL-ML		23.5 Gray (7.5YR 4/1) CLAYEY SILT, slight odor and no stains, moist.	10:45	7.5
		MAC 6	90					
	30			SP		28.5 Gray (7.5YR 4/1) fine-grained SAND, poorly graded, slight odor and no stains, saturated.		

(Continued Next Page)

**BORING NUMBER GP-1**

PAGE 2 OF 2

CLIENT MPCA

PROJECT NAME Former Food and Fuel

PROJECT NUMBER 4977-00

PROJECT LOCATION St. Francis, Minnesota

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	30							
		MAC 7	83	SP		Gray (7.5YR 4/1) fine-grained SAND, poorly graded, slight odor and no stains, saturated. <i>(continued)</i> Petroleum odor (saturated). Very hard to push (clay expansion from above).	10:45	227
						No odors or petroleum impacts observed from 32' to 35'.	11:14	122
	35					More brown (7.5yr 4/3)	11:14	9.6
		MAC 8	100			No odor or stains, saturated.	11:59	0.0
	40				40.0		11:59	0.0
						Sampled soil from 17.5' to 20' bgs. and 37.5' to 40' bgs. Set 5' PVC screen from 28' to 33' bgs. End of boring at 40.0 feet.		



BORING NUMBER GP-2

PAGE 1 OF 1

CLIENT	MPCA	PROJECT NAME	Former Food and Fuel
PROJECT NUMBER	4977-00	PROJECT LOCATION	St. Francis, Minnesota
DATE STARTED	3/13/14	COMPLETED	3/13/14
DRILLING CONTRACTOR	Thein Well Company	GROUND ELEVATION	
DRILLING METHOD	Direct Push	HOLE SIZE	2 inch
LOGGED BY	C. Loch	CHECKED BY	C. Loch
NOTES	South of former tank basin and dispenser.		
GROUND WATER LEVELS:		∇ AT TIME OF DRILLING 16.6 ft AT END OF DRILLING --- AFTER DRILLING ---	

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0							
		MAC 1	100	TS	0.5	6 inches of black TOPSOIL. Brown (7.5YR 4/3) fine-grained SAND, well graded, no odors or stains, dry.	14:04	0.0
	5	MAC 2	100	SW		No odors or stains, lighter brown.	14:04	0.0
	10	MAC 3	100	SC	10.8	Brown (7.5YR 4/3) CLAYEY SAND, no odors or stains, no plasticity, dry to moist.	14:08	0.0
	15	MAC 4	83	CL	14.1	Brown (7.5YR 4/3) SANDY LEAN CLAY with gravel, non-plastic, moist, no odors or stains. Slightly plastic and pebbles present.	14:15	0.0
	20	MAC 5	80	CL-ML	22.5	Grayish in color at 19' bgs. No odor or stains, moist.	14:24	0.0
	25	MAC 6	100	SP	25.0	Gray (7.5YR 4/1) CLAYEY SILT, no odor or stains, moist.	14:41	0.0
	30			SM	29.0	Brown fine-grained SAND, poorly graded, no odor or stains, wet to saturated.	14:41	0.0
					30.0	Light gray (7.5YR 4/1) SILTY SAND, no odors or stains, wet.	15:02	0.0
						Sampled soil @ 22.5' to 25' bgs. Set 5' PVC screen from 25' to 30' bgs.		

End of boring at 30.0 feet.

**BORING NUMBER GP-3**

PAGE 1 OF 1

CLIENT MPCAPROJECT NAME Former Food and FuelPROJECT NUMBER 4977-00PROJECT LOCATION St. Francis, MinnesotaDATE STARTED 3/13/14 COMPLETED 3/13/14GROUND ELEVATION _____ HOLE SIZE 2 inchDRILLING CONTRACTOR Thein Well Company

GROUND WATER LEVELS:

DRILLING METHOD Direct Push▽ AT TIME OF DRILLING 16.7 ftLOGGED BY C. LochCHECKED BY C. LochAT END OF DRILLING ---NOTES North of tank basin and west of building.AFTER DRILLING ---

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0							
		MAC 1	80	SW		Brown (7.5YR 3/3) fine-grained SAND, well graded, no odors or stains, dry.	16:33	0.0
	5					No odors or stains, dry.	16:33	0.0
		MAC 2	60	SP		7.5 Light brown (7.5YR 4/3) fine-grained SAND, well graded, no odors or stains.	16:42	0.0
	10					10.0 Brown (7.5YR 4/3) CLAYEY SAND, no odors or stains.	16:42	0.0
		MAC 3	80	SC		12.5 SANDY LEAN CLAY with gravel and rock fragments, non-plastic, no odors or stains, moist.	16:49	0.0
	15						16:49	0.0
		MAC 4	100	CL		▽ No odors, no stains throughout, 4" moist sand seam, poorly graded at 16.5' bgs.	16:57	0.0
	20					No odor or stains throughout, slightly plastic, moist.	16:57	0.0
		MAC 5	100	GW		23.0 Brown sandy well graded GRAVEL, moist to wet.	17:11	0.0
	25			CL-ML		23.5 Gray (7.5YR 4/1) CLAYEY SILT, no odor or stains, moist to wet.	17:11	0.0
		MAC 6	100	SP		26.5 Light gray (7.5YR 4/1) SAND, poorly graded, no odors or stains, saturated.	17:39	0.0
	30					30.0 Sampled soil @ 22.5' to 25' bgs. Set 5' PVC screen from 25' to 30' bgs.	17:39	0.0

End of boring at 30.0 feet.

TEST 4977-00 GPJ GINT US GDT 6/26/14



BORING NUMBER GP-4

PAGE 1 OF 2

CLIENT MPCA	PROJECT NAME Former Food and Fuel
PROJECT NUMBER 4977-00	PROJECT LOCATION St. Francis, Minnesota
DATE STARTED 3/14/14	COMPLETED 3/14/14
DRILLING CONTRACTOR Thein Well Company	GROUND ELEVATION
DRILLING METHOD Direct Push	HOLE SIZE 2 inch
LOGGED BY C. Loch	CHECKED BY C. Loch
NOTES West of former tank basin.	GROUND WATER LEVELS:
	▽ AT TIME OF DRILLING 27.4 ft
	▼ AT END OF DRILLING 16.9 ft
	AFTER DRILLING ---

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0							
		MAC 1	100	SW		Brown (7.5YR 3/3) fine-grained SAND, well graded, no odors or stains, dry throughout.	07:45	0.0
	5					No odors or stains, dry.	07:45	0.0
		MAC 2	100	SP		6.8 Light brown (7.5YR 4/3) very fine-grained SAND, poorly graded, no odors or stains.	07:51	0.0
	10						07:51	0.0
		MAC 3	100	SC		11.1 Brown (7.5YR 4/3) CLAYEY SAND, no odors or stains, dry to moist.	08:05	0.0
	15					13.0 Brown (7.5YR 4/3) SANDY LEAN CLAY with some gravel and pebbles, non-plastic, no odors or stains, moist.	08:05	0.0
		MAC 4	100	CL		More gray (7.5YR 4/1) and slightly plastic, no odor or stains, moist at 15' bgs.	08:29	0.0
	20			GW		19.3 Brown SANDY GRAVEL and some silt, well graded, moist to wet.	08:29	0.0
		MAC 5	100			20.0 Gray (7.5YR 4/1) CLAYEY SILT, no odor or stains throughout, moist.	08:46	0.0
	25			CL-ML		More of a silt at 22.5' bgs., moist to wet.	08:46	0.0
		MAC 6	100				09:10	0.0
	30			SP		28.0 Light gray (7.5YR 4/1) very fine-grained SAND, poorly graded, no odors or stains, saturated.		

(Continued Next Page)

**BORING NUMBER GP-4**

PAGE 2 OF 2

CLIENT MPCA

PROJECT NAME Former Food and Fuel

PROJECT NUMBER 4977-00

PROJECT LOCATION St. Francis, Minnesota

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	30							
		MAC 7	100	SP		Light gray (7.5YR 4/1) very fine-grained SAND, poorly graded, no odors or stains, saturated. (continued)	09:10	0.0
	35					35.0	09:38	0.0
						Sampled soil @ 25' to 27.5' bgs. Set 5' stainless steel screen from 28' to 33' bgs. End of boring at 35.0 feet.	09:38	0.0



BORING NUMBER GP-5

PAGE 1 OF 1

CLIENT MPCA	PROJECT NAME Former Food and Fuel
PROJECT NUMBER 4977-00	PROJECT LOCATION St. Francis, Minnesota
DATE STARTED 3/14/14	COMPLETED 3/14/14
DRILLING CONTRACTOR Thein Well Company	GROUND ELEVATION
DRILLING METHOD Direct Push	HOLE SIZE 2 inch
LOGGED BY C. Loch	CHECKED BY C. Loch
NOTES East of former tank basin.	GROUND WATER LEVELS:
	▽ AT TIME OF DRILLING 25.3 ft
	▽ AT END OF DRILLING 17.1 ft
	AFTER DRILLING ---

FORMATION	DEPTH (ft)	SAMPLE TYPE NUMBER	RECOVERY %	U.S.C.S.	GRAPHIC LOG	MATERIAL DESCRIPTION	TIME	PID (ppm)
	0					0.3 4" of asphalt.		
		MAC 1	100	SW		Brown (7.5YR 3/3) fine to medium-grained SAND, well graded, no odors or stains, dry throughout.	10:42	0.0
	5					No odors or stains, dry.	10:42	0.0
		MAC 2	100	SP		7.6 Light brown (7.5YR 4/3) fine-grained SAND, poorly graded, no odors or stains, dry.	10:47	0.0
						9.0 Brown (7.5YR 4/3) CLAYEY SAND, no odors or stains, moist.	10:47	0.0
	10			SC			10:47	0.0
		MAC 3	77			11.6 Brown SANDY LEAN CLAY with some gravel and pebbles, slightly plastic, no odors or stains, moist.	10:52	0.0
	15			CL		No odors or stains throughout.	10:52	0.0
		MAC 4	100			More gray color.	10:59	0.0
	20			GW		20.0 Brown SANDY GRAVEL (10" thick), moist to wet.	10:59	0.0
		MAC 5	100	CL-ML		20.5 Light gray (7.5YR 4/1) clayey silt, moist to wet, no odors or stains.	11:10	0.0
	25					More of a silt at 24.5' bgs., moist to wet.	11:10	0.0
		MAC 6	100	SP		26.0 Light brownish gray (7.5YR 4/1) very fine, poorly graded SAND, saturated, no odors or stains.	11:31	0.0
	30					30.0 Sampled soil @ 22.5' to 25' bgs. Set 5' PVC screen from 26' to 31' bgs.	11:31	0.0

End of boring at 30.0 feet.

Appendix F

March 31, 2014

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

RE: Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

Dear Chris Loch:

Enclosed are the analytical results for sample(s) received by the laboratory on March 17, 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alabama Certification #40770

Alabama Certification #40770

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #: Pace

Georgia Certification #: 959

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

Montana Certification #: MT0092

Nebraska Certification #: Pace

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

Washington Certification #: C486

Wisconsin Certification #: 999407970

West Virginia Certification #: 382

West Virginia TO-15 Approval

West Virginia DHHR #:9952C

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10260546001	GP-1 (17.5-20')	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	7	PASI-M
		ASTM D2974	CMB	1	PASI-M
10260546002	GP-1 (37.5-40')	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	7	PASI-M
		ASTM D2974	CMB	1	PASI-M
10260546003	GP-2 (22.5-25')	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	7	PASI-M
		ASTM D2974	CMB	1	PASI-M
10260546004	GP-3 (22.5-25')	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	7	PASI-M
		ASTM D2974	CMB	1	PASI-M
10260546005	GP-4 (25-27.5')	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	7	PASI-M
		ASTM D2974	CMB	1	PASI-M
10260546006	GP-5 (22.5-25')	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	7	PASI-M
		ASTM D2974	CMB	1	PASI-M
10260546007	TRIP BLANK (SL)	WI MOD GRO	MS2	7	PASI-M
10260546011	GP-1W	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M
10260546012	GP-2W	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M
10260546013	GP-3W	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M
10260546014	GP-4W	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M
10260546015	GP-5W	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M
10260546016	GP-10W	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10260546017	TRIP BLANK (WT)	WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

Sample: GP-1 (17.5-20') **Lab ID:** 10260546001 **Collected:** 03/13/14 11:25 **Received:** 03/17/14 14:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO								
Diesel Range Organics	ND	mg/kg	6.6	1	03/17/14 14:24	03/18/14 12:19		
Surrogates								
n-Triacontane (S)	100	%	50-150	1	03/17/14 14:24	03/18/14 12:19	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	0.31	mg/kg	0.060	1	03/18/14 13:54	03/21/14 02:26	71-43-2	
Ethylbenzene	2.2	mg/kg	0.060	1	03/18/14 13:54	03/21/14 02:26	100-41-4	
Gasoline Range Organics	18.7	mg/kg	6.0	1	03/18/14 13:54	03/21/14 02:26		
Methyl-tert-butyl ether	ND	mg/kg	0.30	1	03/18/14 13:54	03/21/14 02:26	1634-04-4	
Toluene	3.3	mg/kg	0.060	1	03/18/14 13:54	03/21/14 02:26	108-88-3	
Xylene (Total)	5.6	mg/kg	0.18	1	03/18/14 13:54	03/21/14 02:26	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	94	%	80-125	1	03/18/14 13:54	03/21/14 02:26	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	16.5	%	0.10	1		03/18/14 00:00		

Sample: GP-1 (37.5-40') **Lab ID:** 10260546002 **Collected:** 03/13/14 12:15 **Received:** 03/17/14 14:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO								
Diesel Range Organics	ND	mg/kg	7.6	1	03/17/14 14:24	03/18/14 12:26		
Surrogates								
n-Triacontane (S)	96	%	50-150	1	03/17/14 14:24	03/18/14 12:26	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	0.057	1	03/18/14 13:54	03/21/14 02:06	71-43-2	
Ethylbenzene	ND	mg/kg	0.057	1	03/18/14 13:54	03/21/14 02:06	100-41-4	
Gasoline Range Organics	ND	mg/kg	5.7	1	03/18/14 13:54	03/21/14 02:06		
Methyl-tert-butyl ether	ND	mg/kg	0.29	1	03/18/14 13:54	03/21/14 02:06	1634-04-4	
Toluene	ND	mg/kg	0.057	1	03/18/14 13:54	03/21/14 02:06	108-88-3	
Xylene (Total)	ND	mg/kg	0.17	1	03/18/14 13:54	03/21/14 02:06	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	100	%	80-125	1	03/18/14 13:54	03/21/14 02:06	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	13.5	%	0.10	1		03/18/14 00:00		

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-2 (22.5-25') **Lab ID:** 10260546003 **Collected:** 03/13/14 15:15 **Received:** 03/17/14 14:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO								
Diesel Range Organics	ND	mg/kg	7.0	1	03/17/14 14:24	03/18/14 12:33		
Surrogates								
n-Triacontane (S)	87	%	50-150	1	03/17/14 14:24	03/18/14 12:33	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	0.057	1	03/20/14 08:01	03/27/14 04:47	71-43-2	
Ethylbenzene	ND	mg/kg	0.057	1	03/20/14 08:01	03/27/14 04:47	100-41-4	
Gasoline Range Organics	ND	mg/kg	5.7	1	03/20/14 08:01	03/27/14 04:47		
Methyl-tert-butyl ether	ND	mg/kg	0.28	1	03/20/14 08:01	03/27/14 04:47	1634-04-4	
Toluene	ND	mg/kg	0.057	1	03/20/14 08:01	03/27/14 04:47	108-88-3	
Xylene (Total)	ND	mg/kg	0.17	1	03/20/14 08:01	03/27/14 04:47	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	100	%	80-125	1	03/20/14 08:01	03/27/14 04:47	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	13.3	%	0.10	1		03/18/14 00:00		

Sample: GP-3 (22.5-25') **Lab ID:** 10260546004 **Collected:** 03/13/14 17:45 **Received:** 03/17/14 14:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO								
Diesel Range Organics	ND	mg/kg	5.6	1	03/17/14 14:24	03/18/14 11:58		
Surrogates								
n-Triacontane (S)	89	%	50-150	1	03/17/14 14:24	03/18/14 11:58	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	0.056	1	03/20/14 08:01	03/27/14 05:07	71-43-2	
Ethylbenzene	ND	mg/kg	0.056	1	03/20/14 08:01	03/27/14 05:07	100-41-4	
Gasoline Range Organics	ND	mg/kg	5.6	1	03/20/14 08:01	03/27/14 05:07		
Methyl-tert-butyl ether	ND	mg/kg	0.28	1	03/20/14 08:01	03/27/14 05:07	1634-04-4	
Toluene	ND	mg/kg	0.056	1	03/20/14 08:01	03/27/14 05:07	108-88-3	
Xylene (Total)	ND	mg/kg	0.17	1	03/20/14 08:01	03/27/14 05:07	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	101	%	80-125	1	03/20/14 08:01	03/27/14 05:07	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	12.0	%	0.10	1		03/18/14 00:00		

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-4 (25-27.5') **Lab ID:** 10260546005 **Collected:** 03/14/14 09:40 **Received:** 03/17/14 14:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO								
Diesel Range Organics	ND	mg/kg	6.4	1	03/17/14 14:24	03/18/14 12:12		
Surrogates								
n-Triacontane (S)	97 %		50-150	1	03/17/14 14:24	03/18/14 12:12	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	0.059	1	03/20/14 08:01	03/27/14 06:06	71-43-2	
Ethylbenzene	ND	mg/kg	0.059	1	03/20/14 08:01	03/27/14 06:06	100-41-4	
Gasoline Range Organics	ND	mg/kg	5.9	1	03/20/14 08:01	03/27/14 06:06		
Methyl-tert-butyl ether	ND	mg/kg	0.30	1	03/20/14 08:01	03/27/14 06:06	1634-04-4	
Toluene	ND	mg/kg	0.059	1	03/20/14 08:01	03/27/14 06:06	108-88-3	
Xylene (Total)	ND	mg/kg	0.18	1	03/20/14 08:01	03/27/14 06:06	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	102 %		80-125	1	03/20/14 08:01	03/27/14 06:06	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	14.1 %		0.10	1		03/18/14 00:00		

Sample: GP-5 (22.5-25') **Lab ID:** 10260546006 **Collected:** 03/14/14 11:40 **Received:** 03/17/14 14:20 **Matrix:** Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIDRO GCS Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO								
Diesel Range Organics	ND	mg/kg	7.3	1	03/17/14 14:24	03/18/14 12:05		
Surrogates								
n-Triacontane (S)	95 %		50-150	1	03/17/14 14:24	03/18/14 12:05	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext.								
Benzene	ND	mg/kg	0.064	1	03/20/14 08:01	03/27/14 05:46	71-43-2	
Ethylbenzene	ND	mg/kg	0.064	1	03/20/14 08:01	03/27/14 05:46	100-41-4	
Gasoline Range Organics	ND	mg/kg	6.4	1	03/20/14 08:01	03/27/14 05:46		
Methyl-tert-butyl ether	ND	mg/kg	0.32	1	03/20/14 08:01	03/27/14 05:46	1634-04-4	
Toluene	ND	mg/kg	0.064	1	03/20/14 08:01	03/27/14 05:46	108-88-3	
Xylene (Total)	ND	mg/kg	0.19	1	03/20/14 08:01	03/27/14 05:46	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	102 %		80-125	1	03/20/14 08:01	03/27/14 05:46	98-08-8	
Dry Weight Analytical Method: ASTM D2974								
Percent Moisture	21.1 %		0.10	1		03/18/14 00:00		

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: TRIP BLANK (SL) **Lab ID:** 10260546007 **Collected:** 03/14/14 00:00 **Received:** 03/17/14 14:20 **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	03/20/14 08:01	03/27/14 04:27	71-43-2	
Ethylbenzene	ND	mg/kg	0.050	1	03/20/14 08:01	03/27/14 04:27	100-41-4	
Gasoline Range Organics	ND	mg/kg	5.0	1	03/20/14 08:01	03/27/14 04:27		
Methyl-tert-butyl ether	ND	mg/kg	0.25	1	03/20/14 08:01	03/27/14 04:27	1634-04-4	
Toluene	ND	mg/kg	0.050	1	03/20/14 08:01	03/27/14 04:27	108-88-3	
Xylene (Total)	ND	mg/kg	0.15	1	03/20/14 08:01	03/27/14 04:27	1330-20-7	
Surrogates								
a,a,a-Trifluorotoluene (S)	102	%.	80-125	1	03/20/14 08:01	03/27/14 04:27	98-08-8	

Sample: GP-1W **Lab ID:** 10260546011 **Collected:** 03/13/14 12:30 **Received:** 03/17/14 14:20 **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	0.33	mg/L	0.10	1	03/17/14 17:14	03/19/14 09:44		
Surrogates								
n-Triacontane (S)	91	%.	50-150	1	03/17/14 17:14	03/19/14 09:44	638-68-6	
WIGRO GCV Analytical Method: WI MOD GRO								
Gasoline Range Organics	2230	ug/L	100	1		03/19/14 17:42		
Surrogates								
a,a,a-Trifluorotoluene (S)	95	%.	80-125	1		03/19/14 17:42	98-08-8	

8260 VOC Analytical Method: EPA 8260

Acetone	ND	ug/L	200	10		03/21/14 12:21	67-64-1	
Allyl chloride	ND	ug/L	40.0	10		03/21/14 12:21	107-05-1	
Benzene	969	ug/L	10.0	10		03/21/14 12:21	71-43-2	
Bromobenzene	ND	ug/L	10.0	10		03/21/14 12:21	108-86-1	
Bromochloromethane	ND	ug/L	10.0	10		03/21/14 12:21	74-97-5	
Bromodichloromethane	ND	ug/L	10.0	10		03/21/14 12:21	75-27-4	
Bromoform	ND	ug/L	40.0	10		03/21/14 12:21	75-25-2	
Bromomethane	ND	ug/L	40.0	10		03/21/14 12:21	74-83-9	
2-Butanone (MEK)	ND	ug/L	50.0	10		03/21/14 12:21	78-93-3	
n-Butylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	104-51-8	
sec-Butylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	135-98-8	
tert-Butylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	98-06-6	
Carbon tetrachloride	ND	ug/L	10.0	10		03/21/14 12:21	56-23-5	
Chlorobenzene	ND	ug/L	10.0	10		03/21/14 12:21	108-90-7	
Chloroethane	ND	ug/L	10.0	10		03/21/14 12:21	75-00-3	
Chloroform	ND	ug/L	10.0	10		03/21/14 12:21	67-66-3	
Chloromethane	ND	ug/L	40.0	10		03/21/14 12:21	74-87-3	
2-Chlorotoluene	ND	ug/L	10.0	10		03/21/14 12:21	95-49-8	
4-Chlorotoluene	ND	ug/L	10.0	10		03/21/14 12:21	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	40.0	10		03/21/14 12:21	96-12-8	
Dibromochloromethane	ND	ug/L	10.0	10		03/21/14 12:21	124-48-1	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-1W		Lab ID: 10260546011	Collected: 03/13/14 12:30	Received: 03/17/14 14:20	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	10.0	10		03/21/14 12:21	106-93-4	
Dibromomethane	ND	ug/L	40.0	10		03/21/14 12:21	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:21	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:21	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:21	106-46-7	
Dichlorodifluoromethane	ND	ug/L	10.0	10		03/21/14 12:21	75-71-8	
1,1-Dichloroethane	ND	ug/L	10.0	10		03/21/14 12:21	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	10		03/21/14 12:21	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	10		03/21/14 12:21	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	10.0	10		03/21/14 12:21	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	10		03/21/14 12:21	156-60-5	
Dichlorofluoromethane	ND	ug/L	10.0	10		03/21/14 12:21	75-43-4	
1,2-Dichloropropane	ND	ug/L	40.0	10		03/21/14 12:21	78-87-5	
1,3-Dichloropropane	ND	ug/L	10.0	10		03/21/14 12:21	142-28-9	
2,2-Dichloropropane	ND	ug/L	40.0	10		03/21/14 12:21	594-20-7	
1,1-Dichloropropene	ND	ug/L	10.0	10		03/21/14 12:21	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	40.0	10		03/21/14 12:21	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	40.0	10		03/21/14 12:21	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	40.0	10		03/21/14 12:21	60-29-7	
Ethylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	10		03/21/14 12:21	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	10.0	10		03/21/14 12:21	98-82-8	
p-Isopropyltoluene	ND	ug/L	10.0	10		03/21/14 12:21	99-87-6	
Methylene Chloride	ND	ug/L	40.0	10		03/21/14 12:21	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	10		03/21/14 12:21	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	10		03/21/14 12:21	1634-04-4	
Naphthalene	ND	ug/L	40.0	10		03/21/14 12:21	91-20-3	
n-Propylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	103-65-1	
Styrene	ND	ug/L	10.0	10		03/21/14 12:21	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	10.0	10		03/21/14 12:21	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	10		03/21/14 12:21	79-34-5	
Tetrachloroethene	ND	ug/L	10.0	10		03/21/14 12:21	127-18-4	
Tetrahydrofuran	ND	ug/L	100	10		03/21/14 12:21	109-99-9	
Toluene	694	ug/L	10.0	10		03/21/14 12:21	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:21	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:21	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	10.0	10		03/21/14 12:21	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	10.0	10		03/21/14 12:21	79-00-5	
Trichloroethene	ND	ug/L	4.0	10		03/21/14 12:21	79-01-6	
Trichlorofluoromethane	ND	ug/L	10.0	10		03/21/14 12:21	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	40.0	10		03/21/14 12:21	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	10.0	10		03/21/14 12:21	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	10.0	10		03/21/14 12:21	108-67-8	
Vinyl chloride	ND	ug/L	4.0	10		03/21/14 12:21	75-01-4	
Xylene (Total)	ND	ug/L	30.0	10		03/21/14 12:21	1330-20-7	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-1W		Lab ID: 10260546011		Collected: 03/13/14 12:30		Received: 03/17/14 14:20		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)		103 %.		75-125	10		03/21/14 12:21	17060-07-0	
Toluene-d8 (S)		101 %.		75-125	10		03/21/14 12:21	2037-26-5	
4-Bromofluorobenzene (S)		104 %.		75-125	10		03/21/14 12:21	460-00-4	

Sample: GP-2W		Lab ID: 10260546012	Collected: 03/13/14 16:00	Received: 03/17/14 14:20	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		0.11	1	03/17/14 17:14	03/19/14 09:51		
Surrogates								
n-Triacontane (S)	71 %.		50-150	1	03/17/14 17:14	03/19/14 09:51	638-68-6	P4
WIGRO GCV		Analytical Method: WI MOD GRO						
Gasoline Range Organics	ND ug/L		100	1		03/19/14 14:03		
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %.		80-125	1		03/19/14 14:03	98-08-8	

8260 VOC		Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	1		03/21/14 12:05	67-64-1	
Allyl chloride	ND ug/L		4.0	1		03/21/14 12:05	107-05-1	
Benzene	ND ug/L		1.0	1		03/21/14 12:05	71-43-2	
Bromobenzene	ND ug/L		1.0	1		03/21/14 12:05	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		03/21/14 12:05	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		03/21/14 12:05	75-27-4	
Bromoform	ND ug/L		4.0	1		03/21/14 12:05	75-25-2	
Bromomethane	ND ug/L		4.0	1		03/21/14 12:05	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	1		03/21/14 12:05	78-93-3	
n-Butylbenzene	ND ug/L		1.0	1		03/21/14 12:05	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	1		03/21/14 12:05	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		03/21/14 12:05	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	1		03/21/14 12:05	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		03/21/14 12:05	108-90-7	
Chloroethane	ND ug/L		1.0	1		03/21/14 12:05	75-00-3	
Chloroform	ND ug/L		1.0	1		03/21/14 12:05	67-66-3	
Chloromethane	ND ug/L		4.0	1		03/21/14 12:05	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	1		03/21/14 12:05	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	1		03/21/14 12:05	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		03/21/14 12:05	96-12-8	
Dibromochloromethane	ND ug/L		1.0	1		03/21/14 12:05	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		03/21/14 12:05	106-93-4	
Dibromomethane	ND ug/L		4.0	1		03/21/14 12:05	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	1		03/21/14 12:05	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	1		03/21/14 12:05	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	1		03/21/14 12:05	106-46-7	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-2W		Lab ID: 10260546012	Collected: 03/13/14 16:00	Received: 03/17/14 14:20	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		03/21/14 12:05	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	1		03/21/14 12:05	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	1		03/21/14 12:05	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	1		03/21/14 12:05	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		03/21/14 12:05	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		03/21/14 12:05	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	1		03/21/14 12:05	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	1		03/21/14 12:05	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	1		03/21/14 12:05	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	1		03/21/14 12:05	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	1		03/21/14 12:05	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	1		03/21/14 12:05	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	1		03/21/14 12:05	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	1		03/21/14 12:05	60-29-7	
Ethylbenzene	ND ug/L		1.0	1		03/21/14 12:05	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		03/21/14 12:05	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		03/21/14 12:05	98-82-8	
p-Isopropyltoluene	ND ug/L		1.0	1		03/21/14 12:05	99-87-6	
Methylene Chloride	ND ug/L		4.0	1		03/21/14 12:05	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		03/21/14 12:05	108-10-1	
Methyl-tert-butyl ether	ND ug/L		1.0	1		03/21/14 12:05	1634-04-4	
Naphthalene	ND ug/L		4.0	1		03/21/14 12:05	91-20-3	
n-Propylbenzene	ND ug/L		1.0	1		03/21/14 12:05	103-65-1	
Styrene	ND ug/L		1.0	1		03/21/14 12:05	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		03/21/14 12:05	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		03/21/14 12:05	79-34-5	
Tetrachloroethene	ND ug/L		1.0	1		03/21/14 12:05	127-18-4	
Tetrahydrofuran	ND ug/L		10.0	1		03/21/14 12:05	109-99-9	
Toluene	ND ug/L		1.0	1		03/21/14 12:05	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		03/21/14 12:05	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		03/21/14 12:05	120-82-1	
1,1,1-Trichloroethane	ND ug/L		1.0	1		03/21/14 12:05	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	1		03/21/14 12:05	79-00-5	
Trichloroethene	ND ug/L		0.40	1		03/21/14 12:05	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		03/21/14 12:05	75-69-4	
1,2,3-Trichloropropane	ND ug/L		4.0	1		03/21/14 12:05	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		1.0	1		03/21/14 12:05	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	1		03/21/14 12:05	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		1.0	1		03/21/14 12:05	108-67-8	
Vinyl chloride	ND ug/L		0.40	1		03/21/14 12:05	75-01-4	
Xylene (Total)	ND ug/L		3.0	1		03/21/14 12:05	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	105 %.		75-125	1		03/21/14 12:05	17060-07-0	HS
Toluene-d8 (S)	102 %.		75-125	1		03/21/14 12:05	2037-26-5	
4-Bromofluorobenzene (S)	107 %.		75-125	1		03/21/14 12:05	460-00-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-3W		Lab ID: 10260546013	Collected: 03/13/14 18:15	Received: 03/17/14 14:20	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		0.12	1	03/17/14 17:14	03/19/14 09:59		
Surrogates								
n-Triacontane (S)	89 %.		50-150	1	03/17/14 17:14	03/19/14 09:59	638-68-6	P4
WIGRO GCV		Analytical Method: WI MOD GRO						
Gasoline Range Organics	ND ug/L		200	2		03/19/14 17:22		
Surrogates								
a,a,a-Trifluorotoluene (S)	100 %.		80-125	2		03/19/14 17:22	98-08-8	1M
8260 VOC		Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	1		03/20/14 22:27	67-64-1	
Allyl chloride	ND ug/L		4.0	1		03/20/14 22:27	107-05-1	
Benzene	ND ug/L		1.0	1		03/20/14 22:27	71-43-2	
Bromobenzene	ND ug/L		1.0	1		03/20/14 22:27	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		03/20/14 22:27	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		03/20/14 22:27	75-27-4	
Bromoform	ND ug/L		4.0	1		03/20/14 22:27	75-25-2	
Bromomethane	ND ug/L		4.0	1		03/20/14 22:27	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	1		03/20/14 22:27	78-93-3	
n-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:27	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:27	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:27	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	1		03/20/14 22:27	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		03/20/14 22:27	108-90-7	
Chloroethane	ND ug/L		1.0	1		03/20/14 22:27	75-00-3	
Chloroform	ND ug/L		1.0	1		03/20/14 22:27	67-66-3	
Chloromethane	ND ug/L		4.0	1		03/20/14 22:27	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	1		03/20/14 22:27	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	1		03/20/14 22:27	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		03/20/14 22:27	96-12-8	
Dibromochloromethane	ND ug/L		1.0	1		03/20/14 22:27	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		03/20/14 22:27	106-93-4	
Dibromomethane	ND ug/L		4.0	1		03/20/14 22:27	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:27	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:27	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:27	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	1		03/20/14 22:27	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	1		03/20/14 22:27	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	1		03/20/14 22:27	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:27	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:27	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:27	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	1		03/20/14 22:27	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 22:27	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	1		03/20/14 22:27	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 22:27	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	1		03/20/14 22:27	563-58-6	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

Sample: GP-3W		Lab ID: 10260546013	Collected: 03/13/14 18:15	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
cis-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 22:27	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 22:27	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	1		03/20/14 22:27	60-29-7	
Ethylbenzene	ND ug/L		1.0	1		03/20/14 22:27	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		03/20/14 22:27	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		03/20/14 22:27	98-82-8	
p-Isopropyltoluene	ND ug/L		1.0	1		03/20/14 22:27	99-87-6	
Methylene Chloride	ND ug/L		4.0	1		03/20/14 22:27	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		03/20/14 22:27	108-10-1	
Methyl-tert-butyl ether	ND ug/L		1.0	1		03/20/14 22:27	1634-04-4	
Naphthalene	ND ug/L		4.0	1		03/20/14 22:27	91-20-3	
n-Propylbenzene	ND ug/L		1.0	1		03/20/14 22:27	103-65-1	
Styrene	ND ug/L		1.0	1		03/20/14 22:27	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		03/20/14 22:27	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		03/20/14 22:27	79-34-5	
Tetrachloroethene	ND ug/L		1.0	1		03/20/14 22:27	127-18-4	
Tetrahydrofuran	ND ug/L		10.0	1		03/20/14 22:27	109-99-9	
Toluene	ND ug/L		1.0	1		03/20/14 22:27	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		03/20/14 22:27	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		03/20/14 22:27	120-82-1	
1,1,1-Trichloroethane	ND ug/L		1.0	1		03/20/14 22:27	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	1		03/20/14 22:27	79-00-5	
Trichloroethene	ND ug/L		0.40	1		03/20/14 22:27	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		03/20/14 22:27	75-69-4	
1,2,3-Trichloropropane	ND ug/L		4.0	1		03/20/14 22:27	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		1.0	1		03/20/14 22:27	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	1		03/20/14 22:27	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		1.0	1		03/20/14 22:27	108-67-8	
Vinyl chloride	ND ug/L		0.40	1		03/20/14 22:27	75-01-4	
Xylene (Total)	ND ug/L		3.0	1		03/20/14 22:27	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	105 %.		75-125	1		03/20/14 22:27	17060-07-0	
Toluene-d8 (S)	101 %.		75-125	1		03/20/14 22:27	2037-26-5	
4-Bromofluorobenzene (S)	103 %.		75-125	1		03/20/14 22:27	460-00-4	

Sample: GP-4W		Lab ID: 10260546014	Collected: 03/14/14 09:50	Received: 03/17/14 14:20	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	03/17/14 17:14	03/19/14 10:07		
Surrogates								
n-Triacontane (S)	87 %.		50-150	1	03/17/14 17:14	03/19/14 10:07	638-68-6	
WIGRO GCV		Analytical Method: WI MOD GRO						
Gasoline Range Organics	ND ug/L		100	1		03/19/14 16:22		

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-4W		Lab ID: 10260546014	Collected: 03/14/14 09:50	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
WIGRO GCV		Analytical Method: WI MOD GRO						
Surrogates								
a,a,a-Trifluorotoluene (S)	99 %.		80-125	1		03/19/14 16:22	98-08-8	
8260 VOC		Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	1		03/20/14 22:43	67-64-1	
Allyl chloride	ND ug/L		4.0	1		03/20/14 22:43	107-05-1	
Benzene	ND ug/L		1.0	1		03/20/14 22:43	71-43-2	
Bromobenzene	ND ug/L		1.0	1		03/20/14 22:43	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		03/20/14 22:43	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		03/20/14 22:43	75-27-4	
Bromoform	ND ug/L		4.0	1		03/20/14 22:43	75-25-2	
Bromomethane	ND ug/L		4.0	1		03/20/14 22:43	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	1		03/20/14 22:43	78-93-3	
n-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:43	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:43	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:43	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	1		03/20/14 22:43	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		03/20/14 22:43	108-90-7	
Chloroethane	ND ug/L		1.0	1		03/20/14 22:43	75-00-3	
Chloroform	ND ug/L		1.0	1		03/20/14 22:43	67-66-3	
Chloromethane	ND ug/L		4.0	1		03/20/14 22:43	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	1		03/20/14 22:43	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	1		03/20/14 22:43	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		03/20/14 22:43	96-12-8	
Dibromochloromethane	ND ug/L		1.0	1		03/20/14 22:43	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		03/20/14 22:43	106-93-4	
Dibromomethane	ND ug/L		4.0	1		03/20/14 22:43	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:43	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:43	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:43	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	1		03/20/14 22:43	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	1		03/20/14 22:43	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	1		03/20/14 22:43	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:43	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:43	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:43	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	1		03/20/14 22:43	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 22:43	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	1		03/20/14 22:43	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 22:43	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	1		03/20/14 22:43	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 22:43	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 22:43	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	1		03/20/14 22:43	60-29-7	
Ethylbenzene	ND ug/L		1.0	1		03/20/14 22:43	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		03/20/14 22:43	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		03/20/14 22:43	98-82-8	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

Sample: GP-4W		Lab ID: 10260546014	Collected: 03/14/14 09:50	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
p-Isopropyltoluene	ND ug/L		1.0	1		03/20/14 22:43	99-87-6	
Methylene Chloride	ND ug/L		4.0	1		03/20/14 22:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		03/20/14 22:43	108-10-1	
Methyl-tert-butyl ether	ND ug/L		1.0	1		03/20/14 22:43	1634-04-4	
Naphthalene	ND ug/L		4.0	1		03/20/14 22:43	91-20-3	
n-Propylbenzene	ND ug/L		1.0	1		03/20/14 22:43	103-65-1	
Styrene	ND ug/L		1.0	1		03/20/14 22:43	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		03/20/14 22:43	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		03/20/14 22:43	79-34-5	
Tetrachloroethene	ND ug/L		1.0	1		03/20/14 22:43	127-18-4	
Tetrahydrofuran	ND ug/L		10.0	1		03/20/14 22:43	109-99-9	
Toluene	ND ug/L		1.0	1		03/20/14 22:43	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		03/20/14 22:43	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		03/20/14 22:43	120-82-1	
1,1,1-Trichloroethane	ND ug/L		1.0	1		03/20/14 22:43	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	1		03/20/14 22:43	79-00-5	
Trichloroethene	ND ug/L		0.40	1		03/20/14 22:43	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		03/20/14 22:43	75-69-4	
1,2,3-Trichloropropane	ND ug/L		4.0	1		03/20/14 22:43	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		1.0	1		03/20/14 22:43	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	1		03/20/14 22:43	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		1.0	1		03/20/14 22:43	108-67-8	
Vinyl chloride	ND ug/L		0.40	1		03/20/14 22:43	75-01-4	
Xylene (Total)	ND ug/L		3.0	1		03/20/14 22:43	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	101 %.		75-125	1		03/20/14 22:43	17060-07-0	
Toluene-d8 (S)	101 %.		75-125	1		03/20/14 22:43	2037-26-5	
4-Bromofluorobenzene (S)	104 %.		75-125	1		03/20/14 22:43	460-00-4	

Sample: GP-5W		Lab ID: 10260546015	Collected: 03/14/14 11:55	Received: 03/17/14 14:20	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	0.14 mg/L		0.11	1	03/17/14 17:14	03/19/14 10:15		
Surrogates								
n-Triacontane (S)	86 %.		50-150	1	03/17/14 17:14	03/19/14 10:15	638-68-6	P4
WIGRO GCV		Analytical Method: WI MOD GRO						
Gasoline Range Organics	838 ug/L		100	1		03/19/14 14:23		
Surrogates								
a,a,a-Trifluorotoluene (S)	103 %.		80-125	1		03/19/14 14:23	98-08-8	
8260 VOC		Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	1		03/20/14 22:58	67-64-1	
Allyl chloride	ND ug/L		4.0	1		03/20/14 22:58	107-05-1	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-5W		Lab ID: 10260546015	Collected: 03/14/14 11:55	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
Benzene	617 ug/L		10.0	10		03/21/14 14:23	71-43-2	
Bromobenzene	ND ug/L		1.0	1		03/20/14 22:58	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		03/20/14 22:58	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		03/20/14 22:58	75-27-4	
Bromoform	ND ug/L		4.0	1		03/20/14 22:58	75-25-2	
Bromomethane	ND ug/L		4.0	1		03/20/14 22:58	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	1		03/20/14 22:58	78-93-3	
n-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:58	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:58	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		03/20/14 22:58	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	1		03/20/14 22:58	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		03/20/14 22:58	108-90-7	
Chloroethane	ND ug/L		1.0	1		03/20/14 22:58	75-00-3	
Chloroform	ND ug/L		1.0	1		03/20/14 22:58	67-66-3	
Chloromethane	ND ug/L		4.0	1		03/20/14 22:58	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	1		03/20/14 22:58	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	1		03/20/14 22:58	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		03/20/14 22:58	96-12-8	
Dibromochloromethane	ND ug/L		1.0	1		03/20/14 22:58	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		03/20/14 22:58	106-93-4	
Dibromomethane	ND ug/L		4.0	1		03/20/14 22:58	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:58	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:58	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 22:58	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	1		03/20/14 22:58	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	1		03/20/14 22:58	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	1		03/20/14 22:58	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:58	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:58	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 22:58	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	1		03/20/14 22:58	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 22:58	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	1		03/20/14 22:58	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 22:58	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	1		03/20/14 22:58	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 22:58	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 22:58	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	1		03/20/14 22:58	60-29-7	
Ethylbenzene	1.6 ug/L		1.0	1		03/20/14 22:58	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		03/20/14 22:58	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		03/20/14 22:58	98-82-8	
p-Isopropyltoluene	ND ug/L		1.0	1		03/20/14 22:58	99-87-6	
Methylene Chloride	ND ug/L		4.0	1		03/20/14 22:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		03/20/14 22:58	108-10-1	
Methyl-tert-butyl ether	ND ug/L		1.0	1		03/20/14 22:58	1634-04-4	
Naphthalene	ND ug/L		4.0	1		03/20/14 22:58	91-20-3	
n-Propylbenzene	ND ug/L		1.0	1		03/20/14 22:58	103-65-1	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

Sample: GP-5W		Lab ID: 10260546015	Collected: 03/14/14 11:55	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
Styrene	ND	ug/L	1.0	1		03/20/14 22:58	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	1		03/20/14 22:58	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	1		03/20/14 22:58	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	1		03/20/14 22:58	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	1		03/20/14 22:58	109-99-9	
Toluene	5.1	ug/L	1.0	1		03/20/14 22:58	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	1		03/20/14 22:58	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	1		03/20/14 22:58	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	1		03/20/14 22:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	1		03/20/14 22:58	79-00-5	
Trichloroethene	ND	ug/L	0.40	1		03/20/14 22:58	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	1		03/20/14 22:58	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1		03/20/14 22:58	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	1		03/20/14 22:58	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	1		03/20/14 22:58	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	1		03/20/14 22:58	108-67-8	
Vinyl chloride	ND	ug/L	0.40	1		03/20/14 22:58	75-01-4	
Xylene (Total)	ND	ug/L	3.0	1		03/20/14 22:58	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	104	%	75-125	1		03/20/14 22:58	17060-07-0	
Toluene-d8 (S)	102	%	75-125	1		03/20/14 22:58	2037-26-5	
4-Bromofluorobenzene (S)	104	%	75-125	1		03/20/14 22:58	460-00-4	

Sample: GP-10W		Lab ID: 10260546016	Collected: 03/13/14 12:40	Received: 03/17/14 14:20	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	0.31	mg/L	0.10	1	03/17/14 17:14	03/19/14 10:23		
Surrogates								
n-Triacontane (S)	90	%	50-150	1	03/17/14 17:14	03/19/14 10:23	638-68-6	
WIGRO GCV		Analytical Method: WI MOD GRO						
Gasoline Range Organics	1900	ug/L	100	1		03/19/14 14:43		
Surrogates								
a,a,a-Trifluorotoluene (S)	101	%	80-125	1		03/19/14 14:43	98-08-8	
8260 VOC		Analytical Method: EPA 8260						
Acetone	ND	ug/L	200	10		03/21/14 12:36	67-64-1	
Allyl chloride	ND	ug/L	40.0	10		03/21/14 12:36	107-05-1	
Benzene	1050	ug/L	10.0	10		03/21/14 12:36	71-43-2	
Bromobenzene	ND	ug/L	10.0	10		03/21/14 12:36	108-86-1	
Bromochloromethane	ND	ug/L	10.0	10		03/21/14 12:36	74-97-5	
Bromodichloromethane	ND	ug/L	10.0	10		03/21/14 12:36	75-27-4	
Bromoform	ND	ug/L	40.0	10		03/21/14 12:36	75-25-2	
Bromomethane	ND	ug/L	40.0	10		03/21/14 12:36	74-83-9	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: GP-10W		Lab ID: 10260546016	Collected: 03/13/14 12:40	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
2-Butanone (MEK)	ND	ug/L	50.0	10		03/21/14 12:36	78-93-3	
n-Butylbenzene	ND	ug/L	10.0	10		03/21/14 12:36	104-51-8	
sec-Butylbenzene	ND	ug/L	10.0	10		03/21/14 12:36	135-98-8	
tert-Butylbenzene	ND	ug/L	10.0	10		03/21/14 12:36	98-06-6	
Carbon tetrachloride	ND	ug/L	10.0	10		03/21/14 12:36	56-23-5	
Chlorobenzene	ND	ug/L	10.0	10		03/21/14 12:36	108-90-7	
Chloroethane	ND	ug/L	10.0	10		03/21/14 12:36	75-00-3	
Chloroform	ND	ug/L	10.0	10		03/21/14 12:36	67-66-3	
Chloromethane	ND	ug/L	40.0	10		03/21/14 12:36	74-87-3	
2-Chlorotoluene	ND	ug/L	10.0	10		03/21/14 12:36	95-49-8	
4-Chlorotoluene	ND	ug/L	10.0	10		03/21/14 12:36	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/L	40.0	10		03/21/14 12:36	96-12-8	
Dibromochloromethane	ND	ug/L	10.0	10		03/21/14 12:36	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/L	10.0	10		03/21/14 12:36	106-93-4	
Dibromomethane	ND	ug/L	40.0	10		03/21/14 12:36	74-95-3	
1,2-Dichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:36	95-50-1	
1,3-Dichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.0	10		03/21/14 12:36	106-46-7	
Dichlorodifluoromethane	ND	ug/L	10.0	10		03/21/14 12:36	75-71-8	
1,1-Dichloroethane	ND	ug/L	10.0	10		03/21/14 12:36	75-34-3	
1,2-Dichloroethane	ND	ug/L	10.0	10		03/21/14 12:36	107-06-2	
1,1-Dichloroethene	ND	ug/L	10.0	10		03/21/14 12:36	75-35-4	
cis-1,2-Dichloroethene	ND	ug/L	10.0	10		03/21/14 12:36	156-59-2	
trans-1,2-Dichloroethene	ND	ug/L	10.0	10		03/21/14 12:36	156-60-5	
Dichlorofluoromethane	ND	ug/L	10.0	10		03/21/14 12:36	75-43-4	
1,2-Dichloropropane	ND	ug/L	40.0	10		03/21/14 12:36	78-87-5	
1,3-Dichloropropane	ND	ug/L	10.0	10		03/21/14 12:36	142-28-9	
2,2-Dichloropropane	ND	ug/L	40.0	10		03/21/14 12:36	594-20-7	
1,1-Dichloropropene	ND	ug/L	10.0	10		03/21/14 12:36	563-58-6	
cis-1,3-Dichloropropene	ND	ug/L	40.0	10		03/21/14 12:36	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/L	40.0	10		03/21/14 12:36	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/L	40.0	10		03/21/14 12:36	60-29-7	
Ethylbenzene	ND	ug/L	10.0	10		03/21/14 12:36	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	10.0	10		03/21/14 12:36	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	10.0	10		03/21/14 12:36	98-82-8	
p-Isopropyltoluene	ND	ug/L	10.0	10		03/21/14 12:36	99-87-6	
Methylene Chloride	ND	ug/L	40.0	10		03/21/14 12:36	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	50.0	10		03/21/14 12:36	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	10.0	10		03/21/14 12:36	1634-04-4	
Naphthalene	ND	ug/L	40.0	10		03/21/14 12:36	91-20-3	
n-Propylbenzene	ND	ug/L	10.0	10		03/21/14 12:36	103-65-1	
Styrene	ND	ug/L	10.0	10		03/21/14 12:36	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	10.0	10		03/21/14 12:36	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	10.0	10		03/21/14 12:36	79-34-5	
Tetrachloroethene	ND	ug/L	10.0	10		03/21/14 12:36	127-18-4	
Tetrahydrofuran	ND	ug/L	100	10		03/21/14 12:36	109-99-9	
Toluene	702	ug/L	10.0	10		03/21/14 12:36	108-88-3	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

Sample: GP-10W		Lab ID: 10260546016	Collected: 03/13/14 12:40	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
1,2,3-Trichlorobenzene	ND ug/L		10.0	10		03/21/14 12:36	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		10.0	10		03/21/14 12:36	120-82-1	
1,1,1-Trichloroethane	ND ug/L		10.0	10		03/21/14 12:36	71-55-6	
1,1,2-Trichloroethane	ND ug/L		10.0	10		03/21/14 12:36	79-00-5	
Trichloroethene	ND ug/L		4.0	10		03/21/14 12:36	79-01-6	
Trichlorofluoromethane	ND ug/L		10.0	10		03/21/14 12:36	75-69-4	
1,2,3-Trichloropropane	ND ug/L		40.0	10		03/21/14 12:36	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		10.0	10		03/21/14 12:36	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		10.0	10		03/21/14 12:36	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		10.0	10		03/21/14 12:36	108-67-8	
Vinyl chloride	ND ug/L		4.0	10		03/21/14 12:36	75-01-4	
Xylene (Total)	ND ug/L		30.0	10		03/21/14 12:36	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	105 %.		75-125	10		03/21/14 12:36	17060-07-0	
Toluene-d8 (S)	102 %.		75-125	10		03/21/14 12:36	2037-26-5	
4-Bromofluorobenzene (S)	107 %.		75-125	10		03/21/14 12:36	460-00-4	

Sample: TRIP BLANK (WT)		Lab ID: 10260546017	Collected: 03/13/14 00:00	Received: 03/17/14 14:20	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		03/19/14 09:45		
Surrogates								
a,a,a-Trifluorotoluene (S)	102 %.		80-125	1		03/19/14 09:45	98-08-8	
8260 VOC		Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	1		03/20/14 17:33	67-64-1	
Allyl chloride	ND ug/L		4.0	1		03/20/14 17:33	107-05-1	
Benzene	ND ug/L		1.0	1		03/20/14 17:33	71-43-2	
Bromobenzene	ND ug/L		1.0	1		03/20/14 17:33	108-86-1	
Bromochloromethane	ND ug/L		1.0	1		03/20/14 17:33	74-97-5	
Bromodichloromethane	ND ug/L		1.0	1		03/20/14 17:33	75-27-4	
Bromoform	ND ug/L		4.0	1		03/20/14 17:33	75-25-2	
Bromomethane	ND ug/L		4.0	1		03/20/14 17:33	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	1		03/20/14 17:33	78-93-3	
n-Butylbenzene	ND ug/L		1.0	1		03/20/14 17:33	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	1		03/20/14 17:33	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	1		03/20/14 17:33	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	1		03/20/14 17:33	56-23-5	
Chlorobenzene	ND ug/L		1.0	1		03/20/14 17:33	108-90-7	
Chloroethane	ND ug/L		1.0	1		03/20/14 17:33	75-00-3	
Chloroform	ND ug/L		1.0	1		03/20/14 17:33	67-66-3	
Chloromethane	ND ug/L		4.0	1		03/20/14 17:33	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	1		03/20/14 17:33	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	1		03/20/14 17:33	106-43-4	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: TRIP BLANK (WT)		Lab ID: 10260546017	Collected: 03/13/14 00:00	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	1		03/20/14 17:33	96-12-8	
Dibromochloromethane	ND ug/L		1.0	1		03/20/14 17:33	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	1		03/20/14 17:33	106-93-4	
Dibromomethane	ND ug/L		4.0	1		03/20/14 17:33	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 17:33	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 17:33	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	1		03/20/14 17:33	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	1		03/20/14 17:33	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	1		03/20/14 17:33	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	1		03/20/14 17:33	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	1		03/20/14 17:33	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 17:33	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	1		03/20/14 17:33	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	1		03/20/14 17:33	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 17:33	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	1		03/20/14 17:33	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	1		03/20/14 17:33	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	1		03/20/14 17:33	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 17:33	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	1		03/20/14 17:33	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	1		03/20/14 17:33	60-29-7	
Ethylbenzene	ND ug/L		1.0	1		03/20/14 17:33	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	1		03/20/14 17:33	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	1		03/20/14 17:33	98-82-8	
p-Isopropyltoluene	ND ug/L		1.0	1		03/20/14 17:33	99-87-6	
Methylene Chloride	ND ug/L		4.0	1		03/20/14 17:33	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	1		03/20/14 17:33	108-10-1	
Methyl-tert-butyl ether	ND ug/L		1.0	1		03/20/14 17:33	1634-04-4	
Naphthalene	ND ug/L		4.0	1		03/20/14 17:33	91-20-3	
n-Propylbenzene	ND ug/L		1.0	1		03/20/14 17:33	103-65-1	
Styrene	ND ug/L		1.0	1		03/20/14 17:33	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	1		03/20/14 17:33	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	1		03/20/14 17:33	79-34-5	
Tetrachloroethene	ND ug/L		1.0	1		03/20/14 17:33	127-18-4	
Tetrahydrofuran	ND ug/L		10.0	1		03/20/14 17:33	109-99-9	
Toluene	ND ug/L		1.0	1		03/20/14 17:33	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		1.0	1		03/20/14 17:33	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		1.0	1		03/20/14 17:33	120-82-1	
1,1,1-Trichloroethane	ND ug/L		1.0	1		03/20/14 17:33	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	1		03/20/14 17:33	79-00-5	
Trichloroethene	ND ug/L		0.40	1		03/20/14 17:33	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	1		03/20/14 17:33	75-69-4	
1,2,3-Trichloropropane	ND ug/L		4.0	1		03/20/14 17:33	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		1.0	1		03/20/14 17:33	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	1		03/20/14 17:33	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		1.0	1		03/20/14 17:33	108-67-8	
Vinyl chloride	ND ug/L		0.40	1		03/20/14 17:33	75-01-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Sample: TRIP BLANK (WT)		Lab ID: 10260546017	Collected: 03/13/14 00:00	Received: 03/17/14 14:20	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
8260 VOC		Analytical Method: EPA 8260						
Xylene (Total)	ND	ug/L	3.0	1		03/20/14 17:33	1330-20-7	
Surrogates								
1,2-Dichloroethane-d4 (S)	102	%.	75-125	1		03/20/14 17:33	17060-07-0	
Toluene-d8 (S)	101	%.	75-125	1		03/20/14 17:33	2037-26-5	
4-Bromofluorobenzene (S)	103	%.	75-125	1		03/20/14 17:33	460-00-4	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch: GCV/11784

Analysis Method: WI MOD GRO

QC Batch Method: TPH GRO/PVOC WI ext.

Analysis Description: WIGRO Solid GCV

Associated Lab Samples: 10260546001, 10260546002

METHOD BLANK: 1640595

Matrix: Solid

Associated Lab Samples: 10260546001, 10260546002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/kg	ND	0.050	03/21/14 01:26	
Ethylbenzene	mg/kg	ND	0.050	03/21/14 01:26	
Gasoline Range Organics	mg/kg	ND	5.0	03/21/14 01:26	
Methyl-tert-butyl ether	mg/kg	ND	0.25	03/21/14 01:26	
Toluene	mg/kg	ND	0.050	03/21/14 01:26	
Xylene (Total)	mg/kg	ND	0.15	03/21/14 01:26	
a,a,a-Trifluorotoluene (S)	%.	100	80-125	03/21/14 01:26	

LABORATORY CONTROL SAMPLE & LCSD: 1640596

1640597

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	mg/kg	5	4.1	4.0	82	81	80-120	2	20	
Ethylbenzene	mg/kg	5	4.3	4.2	87	84	80-120	4	20	
Gasoline Range Organics	mg/kg	50	44.0	49.2	88	98	80-120	11	20	
Methyl-tert-butyl ether	mg/kg	5	4.6	4.6	93	91	80-120	2	20	
Toluene	mg/kg	5	4.2	4.1	84	81	80-120	3	20	
Xylene (Total)	mg/kg	15	13.3	13.1	89	87	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%.				99	100	80-125			

MATRIX SPIKE SAMPLE: 1640598

Parameter	Units	10260546001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	mg/kg	0.31	5.9	5.7	92	80-120	
Ethylbenzene	mg/kg	2.2	5.9	8.2	103	80-120	
Gasoline Range Organics	mg/kg	18.7	58.7	80.0	105	80-120	
Methyl-tert-butyl ether	mg/kg	ND	5.9	6.0	102	80-120	
Toluene	mg/kg	3.3	5.9	9.0	97	80-120	
Xylene (Total)	mg/kg	5.6	17.6	23.1	99	80-120	
a,a,a-Trifluorotoluene (S)	%.				98	80-125	

SAMPLE DUPLICATE: 1640599

Parameter	Units	10260546002 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		
Toluene	mg/kg	ND	ND		

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

SAMPLE DUPLICATE: 1640599

Parameter	Units	10260546002 Result	Dup Result	RPD	Qualifiers
Xylene (Total)	mg/kg	ND	ND		
a,a,a-Trifluorotoluene (S)	%.	100	101	.02	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260546

QC Batch: GCV/11790 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 10260546003, 10260546004, 10260546005, 10260546006, 10260546007

METHOD BLANK: 1641835 Matrix: Solid
Associated Lab Samples: 10260546003, 10260546004, 10260546005, 10260546006, 10260546007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Benzene	mg/kg	ND	0.050	03/27/14 03:48	
Ethylbenzene	mg/kg	ND	0.050	03/27/14 03:48	
Gasoline Range Organics	mg/kg	ND	5.0	03/27/14 03:48	
Methyl-tert-butyl ether	mg/kg	ND	0.25	03/27/14 03:48	
Toluene	mg/kg	ND	0.050	03/27/14 03:48	
Xylene (Total)	mg/kg	ND	0.15	03/27/14 03:48	
a,a,a-Trifluorotoluene (S)	%	100	80-125	03/27/14 03:48	

LABORATORY CONTROL SAMPLE & LCSD: 1641836

LABORATORY CONTROL SAMPLE & LCSD: 1641836			1641837							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Benzene	mg/kg	5	4.8	4.7	96	93	80-120	3	20	
Ethylbenzene	mg/kg	5	5.0	4.9	100	98	80-120	2	20	
Gasoline Range Organics	mg/kg	50	48.0	46.2	96	92	80-120	4	20	
Methyl-tert-butyl ether	mg/kg	5	4.8	4.6	96	91	80-120	5	20	
Toluene	mg/kg	5	4.8	4.7	97	95	80-120	2	20	
Xylene (Total)	mg/kg	15	15.5	15.1	103	100	80-120	2	20	
a,a,a-Trifluorotoluene (S)	%				99	98	80-125			

MATRIX SPIKE SAMPLE: 1641838

Parameter	Units	10260546003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Benzene	mg/kg	ND	5.7	5.2	93	80-120	
Ethylbenzene	mg/kg	ND	5.7	5.4	96	80-120	
Gasoline Range Organics	mg/kg	ND	56.4	49.9	89	80-120	
Methyl-tert-butyl ether	mg/kg	ND	5.7	5.2	92	80-120	
Toluene	mg/kg	ND	5.7	5.2	93	80-120	
Xylene (Total)	mg/kg	ND	17	16.4	97	80-120	
a,a,a-Trifluorotoluene (S)	%				100	80-125	

SAMPLE DUPLICATE: 1641839

Parameter	Units	10260546004 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		
Toluene	mg/kg	ND	.016J		

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

SAMPLE DUPLICATE: 1641839

Parameter	Units	10260546004 Result	Dup Result	RPD	Qualifiers
Xylene (Total)	mg/kg	ND	ND		
a,a,a-Trifluorotoluene (S)	%.	101	102	4	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch:	GCV/11788	Analysis Method:	WI MOD GRO
QC Batch Method:	WI MOD GRO	Analysis Description:	WIGRO GCV Water
Associated Lab Samples:	10260546011, 10260546012, 10260546013, 10260546014, 10260546015, 10260546016, 10260546017		

METHOD BLANK:	1641197	Matrix:	Water
Associated Lab Samples:	10260546011, 10260546012, 10260546013, 10260546014, 10260546015, 10260546016, 10260546017		

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	03/19/14 09:06	
a,a,a-Trifluorotoluene (S)	%.	98	80-125	03/19/14 09:06	

LABORATORY CONTROL SAMPLE & LCSD:		1641198	1641199							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	1120	1050	112	105	80-120	6	20	
a,a,a-Trifluorotoluene (S)	%.				97	97	80-125			

MATRIX SPIKE SAMPLE:		1641200					
		10260636001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Gasoline Range Organics	ug/L	ND	1000	1140	114	80-120	
a,a,a-Trifluorotoluene (S)	%.				97	80-125	

SAMPLE DUPLICATE: 1641201					
		10260636002	Dup		
Parameter	Units	Result	Result	RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	ND		
a,a,a-Trifluorotoluene (S)	%.	100	99	1	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch:	MPRP/44796	Analysis Method:	ASTM D2974
QC Batch Method:	ASTM D2974	Analysis Description:	Dry Weight/Percent Moisture
Associated Lab Samples:	10260546001, 10260546002, 10260546003, 10260546004, 10260546005, 10260546006		

SAMPLE DUPLICATE: 1641132

Parameter	Units	10260555001 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	18.9	18.9	.05	

SAMPLE DUPLICATE: 1641133

Parameter	Units	10260580007 Result	Dup Result	RPD	Qualifiers
Percent Moisture	%	22.3	22.5	1	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch: MSV/26591 Analysis Method: EPA 8260
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 465 W
Associated Lab Samples: 10260546013, 10260546014, 10260546015, 10260546017

METHOD BLANK: 1641948 Matrix: Water
Associated Lab Samples: 10260546013, 10260546014, 10260546015, 10260546017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	03/20/14 16:46	
1,1,1-Trichloroethane	ug/L	ND	1.0	03/20/14 16:46	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	03/20/14 16:46	
1,1,2-Trichloroethane	ug/L	ND	1.0	03/20/14 16:46	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	03/20/14 16:46	
1,1-Dichloroethane	ug/L	ND	1.0	03/20/14 16:46	
1,1-Dichloroethene	ug/L	ND	1.0	03/20/14 16:46	
1,1-Dichloropropene	ug/L	ND	1.0	03/20/14 16:46	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	03/20/14 16:46	
1,2,3-Trichloropropane	ug/L	ND	4.0	03/20/14 16:46	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	03/20/14 16:46	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	03/20/14 16:46	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	03/20/14 16:46	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	03/20/14 16:46	
1,2-Dichlorobenzene	ug/L	ND	1.0	03/20/14 16:46	
1,2-Dichloroethane	ug/L	ND	1.0	03/20/14 16:46	
1,2-Dichloropropane	ug/L	ND	4.0	03/20/14 16:46	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	03/20/14 16:46	
1,3-Dichlorobenzene	ug/L	ND	1.0	03/20/14 16:46	
1,3-Dichloropropane	ug/L	ND	1.0	03/20/14 16:46	
1,4-Dichlorobenzene	ug/L	ND	1.0	03/20/14 16:46	
2,2-Dichloropropane	ug/L	ND	4.0	03/20/14 16:46	
2-Butanone (MEK)	ug/L	ND	5.0	03/20/14 16:46	
2-Chlorotoluene	ug/L	ND	1.0	03/20/14 16:46	
4-Chlorotoluene	ug/L	ND	1.0	03/20/14 16:46	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	03/20/14 16:46	
Acetone	ug/L	ND	20.0	03/20/14 16:46	
Allyl chloride	ug/L	ND	4.0	03/20/14 16:46	
Benzene	ug/L	ND	1.0	03/20/14 16:46	
Bromobenzene	ug/L	ND	1.0	03/20/14 16:46	
Bromochloromethane	ug/L	ND	1.0	03/20/14 16:46	
Bromodichloromethane	ug/L	ND	1.0	03/20/14 16:46	
Bromoform	ug/L	ND	4.0	03/20/14 16:46	
Bromomethane	ug/L	ND	4.0	03/20/14 16:46	
Carbon tetrachloride	ug/L	ND	1.0	03/20/14 16:46	
Chlorobenzene	ug/L	ND	1.0	03/20/14 16:46	
Chloroethane	ug/L	ND	1.0	03/20/14 16:46	
Chloroform	ug/L	ND	1.0	03/20/14 16:46	
Chloromethane	ug/L	ND	4.0	03/20/14 16:46	
cis-1,2-Dichloroethene	ug/L	ND	1.0	03/20/14 16:46	
cis-1,3-Dichloropropene	ug/L	ND	4.0	03/20/14 16:46	
Dibromochloromethane	ug/L	ND	1.0	03/20/14 16:46	
Dibromomethane	ug/L	ND	4.0	03/20/14 16:46	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

METHOD BLANK: 1641948

Matrix: Water

Associated Lab Samples: 10260546013, 10260546014, 10260546015, 10260546017

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	03/20/14 16:46	
Dichlorofluoromethane	ug/L	ND	1.0	03/20/14 16:46	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	03/20/14 16:46	
Ethylbenzene	ug/L	ND	1.0	03/20/14 16:46	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	03/20/14 16:46	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	03/20/14 16:46	
Methyl-tert-butyl ether	ug/L	ND	1.0	03/20/14 16:46	
Methylene Chloride	ug/L	ND	4.0	03/20/14 16:46	
n-Butylbenzene	ug/L	ND	1.0	03/20/14 16:46	
n-Propylbenzene	ug/L	ND	1.0	03/20/14 16:46	
Naphthalene	ug/L	ND	4.0	03/20/14 16:46	
p-Isopropyltoluene	ug/L	ND	1.0	03/20/14 16:46	
sec-Butylbenzene	ug/L	ND	1.0	03/20/14 16:46	
Styrene	ug/L	ND	1.0	03/20/14 16:46	
tert-Butylbenzene	ug/L	ND	1.0	03/20/14 16:46	
Tetrachloroethene	ug/L	ND	1.0	03/20/14 16:46	
Tetrahydrofuran	ug/L	ND	10.0	03/20/14 16:46	
Toluene	ug/L	ND	1.0	03/20/14 16:46	
trans-1,2-Dichloroethene	ug/L	ND	1.0	03/20/14 16:46	
trans-1,3-Dichloropropene	ug/L	ND	4.0	03/20/14 16:46	
Trichloroethene	ug/L	ND	0.40	03/20/14 16:46	
Trichlorofluoromethane	ug/L	ND	1.0	03/20/14 16:46	
Vinyl chloride	ug/L	ND	0.40	03/20/14 16:46	
Xylene (Total)	ug/L	ND	3.0	03/20/14 16:46	
1,2-Dichloroethane-d4 (S)	%	108	75-125	03/20/14 16:46	
4-Bromofluorobenzene (S)	%	102	75-125	03/20/14 16:46	
Toluene-d8 (S)	%	101	75-125	03/20/14 16:46	

LABORATORY CONTROL SAMPLE: 1641949

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.5	92	75-125	
1,1,1-Trichloroethane	ug/L	20	20.4	102	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	23.1	115	74-125	
1,1,2-Trichloroethane	ug/L	20	21.1	105	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	22.1	111	56-133	
1,1-Dichloroethane	ug/L	20	20.3	102	75-125	
1,1-Dichloroethene	ug/L	20	23.4	117	70-125	
1,1-Dichloropropene	ug/L	20	22.8	114	73-125	
1,2,3-Trichlorobenzene	ug/L	20	20.6	103	75-125	
1,2,3-Trichloropropane	ug/L	20	22.1	110	75-125	
1,2,4-Trichlorobenzene	ug/L	20	20.1	100	75-125	
1,2,4-Trimethylbenzene	ug/L	20	20.8	104	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	55.6	111	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	21.8	109	75-125	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

LABORATORY CONTROL SAMPLE: 1641949

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,2-Dichloroethane	ug/L	20	21.1	105	75-125	
1,2-Dichloropropane	ug/L	20	20.6	103	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.8	104	75-125	
1,3-Dichlorobenzene	ug/L	20	20.6	103	75-125	
1,3-Dichloropropane	ug/L	20	22.1	110	75-125	
1,4-Dichlorobenzene	ug/L	20	20.3	102	75-125	
2,2-Dichloropropane	ug/L	20	20.8	104	66-130	
2-Butanone (MEK)	ug/L	100	116	116	64-126	
2-Chlorotoluene	ug/L	20	20.1	100	73-125	
4-Chlorotoluene	ug/L	20	20.7	103	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	115	115	71-125	
Acetone	ug/L	100	109	109	66-131	
Allyl chloride	ug/L	20	23.8	119	70-129	
Benzene	ug/L	20	21.0	105	75-125	
Bromobenzene	ug/L	20	19.9	99	75-125	
Bromochloromethane	ug/L	20	21.3	107	75-125	
Bromodichloromethane	ug/L	20	18.4	92	75-125	
Bromoform	ug/L	20	18.9	95	70-125	
Bromomethane	ug/L	20	15.7	79	30-150	
Carbon tetrachloride	ug/L	20	18.8	94	68-129	
Chlorobenzene	ug/L	20	20.0	100	75-125	
Chloroethane	ug/L	20	19.7	98	68-133	
Chloroform	ug/L	20	20.3	101	75-125	
Chloromethane	ug/L	20	18.3	91	57-140	
cis-1,2-Dichloroethene	ug/L	20	20.3	102	75-125	
cis-1,3-Dichloropropene	ug/L	20	18.7	94	75-125	
Dibromochloromethane	ug/L	20	19.2	96	75-125	
Dibromomethane	ug/L	20	20.0	100	75-125	
Dichlorodifluoromethane	ug/L	20	22.0	110	50-134	
Dichlorofluoromethane	ug/L	20	21.8	109	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	21.4	107	75-125	
Ethylbenzene	ug/L	20	20.3	102	75-125	
Hexachloro-1,3-butadiene	ug/L	20	24.1	120	74-128	
Isopropylbenzene (Cumene)	ug/L	20	20.0	100	73-125	
Methyl-tert-butyl ether	ug/L	20	23.3	117	75-125	
Methylene Chloride	ug/L	20	21.9	109	75-125	
n-Butylbenzene	ug/L	20	21.5	107	73-125	
n-Propylbenzene	ug/L	20	20.4	102	72-125	
Naphthalene	ug/L	20	21.9	110	74-125	
p-Isopropyltoluene	ug/L	20	21.6	108	74-125	
sec-Butylbenzene	ug/L	20	22.0	110	74-125	
Styrene	ug/L	20	19.5	98	75-125	
tert-Butylbenzene	ug/L	20	20.2	101	74-125	
Tetrachloroethene	ug/L	20	20.0	100	71-125	
Tetrahydrofuran	ug/L	200	201	101	70-125	
Toluene	ug/L	20	21.1	105	75-125	
trans-1,2-Dichloroethene	ug/L	20	22.2	111	73-125	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

LABORATORY CONTROL SAMPLE: 1641949

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,3-Dichloropropene	ug/L	20	19.9	100	75-125	
Trichloroethene	ug/L	20	21.2	106	75-125	
Trichlorofluoromethane	ug/L	20	21.4	107	70-128	
Vinyl chloride	ug/L	20	21.1	106	70-130	
Xylene (Total)	ug/L	60	61.8	103	75-125	
1,2-Dichloroethane-d4 (S)	%			104	75-125	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			102	75-125	

MATRIX SPIKE SAMPLE: 1642548

Parameter	Units	10260636001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	18.6	93	74-131	
1,1,1-Trichloroethane	ug/L	ND	20	20.9	104	73-139	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	21.7	109	72-125	
1,1,2-Trichloroethane	ug/L	ND	20	21.3	107	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	24.5	122	68-150	
1,1-Dichloroethane	ug/L	ND	20	21.9	110	73-132	
1,1-Dichloroethene	ug/L	ND	20	25.4	127	71-142	
1,1-Dichloropropene	ug/L	ND	20	23.0	115	73-139	
1,2,3-Trichlorobenzene	ug/L	ND	20	19.2	96	70-129	
1,2,3-Trichloropropane	ug/L	ND	20	21.1	105	74-125	
1,2,4-Trichlorobenzene	ug/L	ND	20	19.6	98	70-129	
1,2,4-Trimethylbenzene	ug/L	ND	20	21.7	109	72-136	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	51.0	102	66-127	
1,2-Dibromoethane (EDB)	ug/L	ND	20	21.5	107	75-125	
1,2-Dichlorobenzene	ug/L	ND	20	21.3	107	75-125	
1,2-Dichloroethane	ug/L	ND	20	20.8	104	68-128	
1,2-Dichloropropane	ug/L	ND	20	21.6	108	74-131	
1,3,5-Trimethylbenzene	ug/L	ND	20	21.7	109	75-131	
1,3-Dichlorobenzene	ug/L	ND	20	21.1	105	73-125	
1,3-Dichloropropane	ug/L	ND	20	22.2	111	75-125	
1,4-Dichlorobenzene	ug/L	ND	20	20.8	104	73-125	
2,2-Dichloropropane	ug/L	ND	20	20.5	102	58-150	
2-Butanone (MEK)	ug/L	ND	100	115	115	56-140	
2-Chlorotoluene	ug/L	ND	20	21.3	106	70-130	
4-Chlorotoluene	ug/L	ND	20	21.4	107	73-126	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	112	112	69-128	
Acetone	ug/L	ND	100	115	113	57-143	
Allyl chloride	ug/L	ND	20	24.3	122	65-146	
Benzene	ug/L	ND	20	22.4	112	75-129	
Bromobenzene	ug/L	ND	20	20.0	100	74-125	
Bromochloromethane	ug/L	ND	20	20.2	101	75-126	
Bromodichloromethane	ug/L	ND	20	19.2	96	75-128	
Bromoform	ug/L	ND	20	18.1	90	66-130	
Bromomethane	ug/L	ND	20	10.6	53	30-150	
Carbon tetrachloride	ug/L	ND	20	19.7	98	69-148	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

MATRIX SPIKE SAMPLE: 1642548		10260636001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Chlorobenzene	ug/L	ND	20	21.1	106	75-125	
Chloroethane	ug/L	ND	20	20.6	103	71-143	
Chloroform	ug/L	ND	20	21.6	108	75-126	
Chloromethane	ug/L	ND	20	21.1	105	55-150	
cis-1,2-Dichloroethene	ug/L	ND	20	21.2	106	75-130	
cis-1,3-Dichloropropene	ug/L	ND	20	18.6	93	72-129	
Dibromochloromethane	ug/L	ND	20	18.8	94	73-129	
Dibromomethane	ug/L	ND	20	19.1	95	75-125	
Dichlorodifluoromethane	ug/L	ND	20	23.8	119	70-150	
Dichlorofluoromethane	ug/L	ND	20	22.9	115	75-135	
Diethyl ether (Ethyl ether)	ug/L	ND	20	22.9	115	72-126	
Ethylbenzene	ug/L	ND	20	21.7	108	75-128	
Hexachloro-1,3-butadiene	ug/L	ND	20	19.3	97	65-144	
Isopropylbenzene (Cumene)	ug/L	ND	20	21.8	109	75-131	
Methyl-tert-butyl ether	ug/L	ND	20	22.3	111	74-128	
Methylene Chloride	ug/L	ND	20	21.7	108	69-125	
n-Butylbenzene	ug/L	ND	20	21.3	106	70-137	
n-Propylbenzene	ug/L	ND	20	21.3	107	72-131	
Naphthalene	ug/L	ND	20	20.4	102	70-132	
p-Isopropyltoluene	ug/L	ND	20	21.8	109	73-133	
sec-Butylbenzene	ug/L	ND	20	22.7	113	74-133	
Styrene	ug/L	ND	20	20.5	103	75-128	
tert-Butylbenzene	ug/L	ND	20	20.9	104	74-130	
Tetrachloroethene	ug/L	ND	20	21.2	106	68-140	
Tetrahydrofuran	ug/L	ND	200	209	104	65-131	
Toluene	ug/L	ND	20	22.0	110	75-129	
trans-1,2-Dichloroethene	ug/L	ND	20	22.4	112	70-136	
trans-1,3-Dichloropropene	ug/L	ND	20	19.0	95	71-125	
Trichloroethene	ug/L	ND	20	21.5	108	72-135	
Trichlorofluoromethane	ug/L	ND	20	22.6	113	75-150	
Vinyl chloride	ug/L	ND	20	22.8	114	73-150	
Xylene (Total)	ug/L	ND	60	64.7	108	75-129	
1,2-Dichloroethane-d4 (S)	%				104	75-125	
4-Bromofluorobenzene (S)	%				102	75-125	
Toluene-d8 (S)	%				101	75-125	

SAMPLE DUPLICATE: 1642549

Parameter	Units	10260636002	Dup	RPD	Qualifiers
		Result	Result		
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		

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

SAMPLE DUPLICATE: 1642549

Parameter	Units	10260636002 Result	Dup Result	RPD	Qualifiers
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	ND	ND		
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		
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		

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

SAMPLE DUPLICATE: 1642549

Parameter	Units	10260636002 Result	Dup Result	RPD	Qualifiers
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)	%.	102	97	5	
4-Bromofluorobenzene (S)	%.	105	103	2	
Toluene-d8 (S)	%.	101	106	5	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch: MSV/26596

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 465 W

Associated Lab Samples: 10260546011, 10260546012, 10260546016

METHOD BLANK: 1642561

Matrix: Water

Associated Lab Samples: 10260546011, 10260546012, 10260546016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	03/21/14 09:01	
1,1,1-Trichloroethane	ug/L	ND	1.0	03/21/14 09:01	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	03/21/14 09:01	
1,1,2-Trichloroethane	ug/L	ND	1.0	03/21/14 09:01	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	03/21/14 09:01	
1,1-Dichloroethane	ug/L	ND	1.0	03/21/14 09:01	
1,1-Dichloroethene	ug/L	ND	1.0	03/21/14 09:01	
1,1-Dichloropropene	ug/L	ND	1.0	03/21/14 09:01	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	03/21/14 09:01	
1,2,3-Trichloropropane	ug/L	ND	4.0	03/21/14 09:01	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	03/21/14 09:01	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	03/21/14 09:01	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	03/21/14 09:01	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	03/21/14 09:01	
1,2-Dichlorobenzene	ug/L	ND	1.0	03/21/14 09:01	
1,2-Dichloroethane	ug/L	ND	1.0	03/21/14 09:01	
1,2-Dichloropropane	ug/L	ND	4.0	03/21/14 09:01	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	03/21/14 09:01	
1,3-Dichlorobenzene	ug/L	ND	1.0	03/21/14 09:01	
1,3-Dichloropropane	ug/L	ND	1.0	03/21/14 09:01	
1,4-Dichlorobenzene	ug/L	ND	1.0	03/21/14 09:01	
2,2-Dichloropropane	ug/L	ND	4.0	03/21/14 09:01	
2-Butanone (MEK)	ug/L	ND	5.0	03/21/14 09:01	
2-Chlorotoluene	ug/L	ND	1.0	03/21/14 09:01	
4-Chlorotoluene	ug/L	ND	1.0	03/21/14 09:01	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	03/21/14 09:01	
Acetone	ug/L	ND	20.0	03/21/14 09:01	
Allyl chloride	ug/L	ND	4.0	03/21/14 09:01	
Benzene	ug/L	ND	1.0	03/21/14 09:01	
Bromobenzene	ug/L	ND	1.0	03/21/14 09:01	
Bromochloromethane	ug/L	ND	1.0	03/21/14 09:01	
Bromodichloromethane	ug/L	ND	1.0	03/21/14 09:01	
Bromoform	ug/L	ND	4.0	03/21/14 09:01	
Bromomethane	ug/L	ND	4.0	03/21/14 09:01	
Carbon tetrachloride	ug/L	ND	1.0	03/21/14 09:01	
Chlorobenzene	ug/L	ND	1.0	03/21/14 09:01	
Chloroethane	ug/L	ND	1.0	03/21/14 09:01	
Chloroform	ug/L	ND	1.0	03/21/14 09:01	
Chloromethane	ug/L	ND	4.0	03/21/14 09:01	
cis-1,2-Dichloroethene	ug/L	ND	1.0	03/21/14 09:01	
cis-1,3-Dichloropropene	ug/L	ND	4.0	03/21/14 09:01	
Dibromochloromethane	ug/L	ND	1.0	03/21/14 09:01	
Dibromomethane	ug/L	ND	4.0	03/21/14 09:01	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

METHOD BLANK: 1642561

Matrix: Water

Associated Lab Samples: 10260546011, 10260546012, 10260546016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dichlorodifluoromethane	ug/L	ND	1.0	03/21/14 09:01	
Dichlorofluoromethane	ug/L	ND	1.0	03/21/14 09:01	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	03/21/14 09:01	
Ethylbenzene	ug/L	ND	1.0	03/21/14 09:01	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	03/21/14 09:01	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	03/21/14 09:01	
Methyl-tert-butyl ether	ug/L	ND	1.0	03/21/14 09:01	
Methylene Chloride	ug/L	ND	4.0	03/21/14 09:01	
n-Butylbenzene	ug/L	ND	1.0	03/21/14 09:01	
n-Propylbenzene	ug/L	ND	1.0	03/21/14 09:01	
Naphthalene	ug/L	ND	4.0	03/21/14 09:01	
p-Isopropyltoluene	ug/L	ND	1.0	03/21/14 09:01	
sec-Butylbenzene	ug/L	ND	1.0	03/21/14 09:01	
Styrene	ug/L	ND	1.0	03/21/14 09:01	
tert-Butylbenzene	ug/L	ND	1.0	03/21/14 09:01	
Tetrachloroethene	ug/L	ND	1.0	03/21/14 09:01	
Tetrahydrofuran	ug/L	ND	10.0	03/21/14 09:01	
Toluene	ug/L	ND	1.0	03/21/14 09:01	
trans-1,2-Dichloroethene	ug/L	ND	1.0	03/21/14 09:01	
trans-1,3-Dichloropropene	ug/L	ND	4.0	03/21/14 09:01	
Trichloroethene	ug/L	ND	0.40	03/21/14 09:01	
Trichlorofluoromethane	ug/L	ND	1.0	03/21/14 09:01	
Vinyl chloride	ug/L	ND	0.40	03/21/14 09:01	
Xylene (Total)	ug/L	ND	3.0	03/21/14 09:01	
1,2-Dichloroethane-d4 (S)	%	98	75-125	03/21/14 09:01	
4-Bromofluorobenzene (S)	%	104	75-125	03/21/14 09:01	
Toluene-d8 (S)	%	100	75-125	03/21/14 09:01	

LABORATORY CONTROL SAMPLE: 1642562

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.3	92	75-125	
1,1,1-Trichloroethane	ug/L	20	18.9	94	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	20.1	100	74-125	
1,1,2-Trichloroethane	ug/L	20	20.1	101	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	22.4	112	56-133	
1,1-Dichloroethane	ug/L	20	21.1	105	75-125	
1,1-Dichloroethene	ug/L	20	19.1	96	70-125	
1,1-Dichloropropene	ug/L	20	20.0	100	73-125	
1,2,3-Trichlorobenzene	ug/L	20	17.5	87	75-125	
1,2,3-Trichloropropane	ug/L	20	19.2	96	75-125	
1,2,4-Trichlorobenzene	ug/L	20	18.0	90	75-125	
1,2,4-Trimethylbenzene	ug/L	20	18.7	93	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	53.8	108	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	20.0	100	75-125	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

LABORATORY CONTROL SAMPLE: 1642562

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2-Dichlorobenzene	ug/L	20	18.8	94	75-125	
1,2-Dichloroethane	ug/L	20	18.9	95	75-125	
1,2-Dichloropropane	ug/L	20	19.7	98	75-125	
1,3,5-Trimethylbenzene	ug/L	20	18.6	93	75-125	
1,3-Dichlorobenzene	ug/L	20	18.0	90	75-125	
1,3-Dichloropropane	ug/L	20	20.6	103	75-125	
1,4-Dichlorobenzene	ug/L	20	18.3	92	75-125	
2,2-Dichloropropane	ug/L	20	20.5	102	66-130	
2-Butanone (MEK)	ug/L	100	110	110	64-126	
2-Chlorotoluene	ug/L	20	18.3	91	73-125	
4-Chlorotoluene	ug/L	20	19.2	96	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	105	105	71-125	
Acetone	ug/L	100	95.3	95	66-131	
Allyl chloride	ug/L	20	21.7	108	70-129	
Benzene	ug/L	20	20.4	102	75-125	
Bromobenzene	ug/L	20	17.8	89	75-125	
Bromochloromethane	ug/L	20	18.0	90	75-125	
Bromodichloromethane	ug/L	20	18.6	93	75-125	
Bromoform	ug/L	20	18.8	94	70-125	
Bromomethane	ug/L	20	20.5	103	30-150	
Carbon tetrachloride	ug/L	20	18.0	90	68-129	
Chlorobenzene	ug/L	20	19.3	96	75-125	
Chloroethane	ug/L	20	19.2	96	68-133	
Chloroform	ug/L	20	19.7	98	75-125	
Chloromethane	ug/L	20	21.1	106	57-140	
cis-1,2-Dichloroethene	ug/L	20	18.3	92	75-125	
cis-1,3-Dichloropropene	ug/L	20	18.0	90	75-125	
Dibromochloromethane	ug/L	20	18.3	91	75-125	
Dibromomethane	ug/L	20	17.9	90	75-125	
Dichlorodifluoromethane	ug/L	20	22.1	110	50-134	
Dichlorofluoromethane	ug/L	20	22.0	110	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	22.7	113	75-125	
Ethylbenzene	ug/L	20	18.9	95	75-125	
Hexachloro-1,3-butadiene	ug/L	20	18.0	90	74-128	
Isopropylbenzene (Cumene)	ug/L	20	19.2	96	73-125	
Methyl-tert-butyl ether	ug/L	20	20.8	104	75-125	
Methylene Chloride	ug/L	20	19.6	98	75-125	
n-Butylbenzene	ug/L	20	18.9	94	73-125	
n-Propylbenzene	ug/L	20	18.5	93	72-125	
Naphthalene	ug/L	20	19.0	95	74-125	
p-Isopropyltoluene	ug/L	20	19.7	99	74-125	
sec-Butylbenzene	ug/L	20	20.1	100	74-125	
Styrene	ug/L	20	18.4	92	75-125	
tert-Butylbenzene	ug/L	20	18.0	90	74-125	
Tetrachloroethene	ug/L	20	18.3	91	71-125	
Tetrahydrofuran	ug/L	200	185	93	70-125	
Toluene	ug/L	20	19.7	99	75-125	
trans-1,2-Dichloroethene	ug/L	20	19.2	96	73-125	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

LABORATORY CONTROL SAMPLE: 1642562

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
trans-1,3-Dichloropropene	ug/L	20	19.1	95	75-125	
Trichloroethene	ug/L	20	19.4	97	75-125	
Trichlorofluoromethane	ug/L	20	21.0	105	70-128	
Vinyl chloride	ug/L	20	22.2	111	70-130	
Xylene (Total)	ug/L	60	57.6	96	75-125	
1,2-Dichloroethane-d4 (S)	%			103	75-125	
4-Bromofluorobenzene (S)	%			101	75-125	
Toluene-d8 (S)	%			102	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1643034 1643035

Parameter	Units	10260811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
1,1,1,2-Tetrachloroethane	ug/L	ND	20	20	19.5	18.1	98	90	74-131	8	
1,1,1-Trichloroethane	ug/L	ND	20	20	22.3	20.4	112	102	73-139	9	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20	22.1	21.7	110	108	72-125	2	
1,1,2-Trichloroethane	ug/L	ND	20	20	22.4	20.8	112	104	75-125	7	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	20	27.5	24.0	137	120	68-150	14	
1,1-Dichloroethane	ug/L	ND	20	20	24.2	22.9	121	114	73-132	6	
1,1-Dichloroethene	ug/L	ND	20	20	26.6	24.5	133	122	71-142	8	
1,1-Dichloropropene	ug/L	ND	20	20	25.3	23.0	127	115	73-139	10	
1,2,3-Trichlorobenzene	ug/L	ND	20	20	18.6	18.2	93	91	70-129	2	
1,2,3-Trichloropropane	ug/L	ND	20	20	20.3	20.3	101	102	74-125	.2	
1,2,4-Trichlorobenzene	ug/L	ND	20	20	19.3	18.5	96	92	70-129	4	
1,2,4-Trimethylbenzene	ug/L	ND	20	20	22.8	21.6	114	108	72-136	5	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	50	51.9	50.4	104	101	66-127	3	
1,2-Dibromoethane (EDB)	ug/L	ND	20	20	23.3	20.8	116	104	75-125	11	
1,2-Dichlorobenzene	ug/L	ND	20	20	21.3	20.6	106	103	75-125	3	
1,2-Dichloroethane	ug/L	ND	20	20	23.4	20.2	117	101	68-128	15	
1,2-Dichloropropane	ug/L	ND	20	20	24.1	21.9	121	109	74-131	10	
1,3,5-Trimethylbenzene	ug/L	ND	20	20	22.2	21.5	111	107	75-131	4	
1,3-Dichlorobenzene	ug/L	ND	20	20	21.4	20.5	107	103	73-125	4	
1,3-Dichloropropane	ug/L	ND	20	20	24.1	21.7	120	109	75-125	10	
1,4-Dichlorobenzene	ug/L	ND	20	20	21.1	20.0	105	100	73-125	5	
2,2-Dichloropropane	ug/L	ND	20	20	23.0	20.4	115	102	58-150	12	
2-Butanone (MEK)	ug/L	ND	100	100	126	113	126	113	56-140	11	
2-Chlorotoluene	ug/L	ND	20	20	21.2	20.7	106	104	70-130	2	
4-Chlorotoluene	ug/L	ND	20	20	22.3	21.3	111	106	73-126	5	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	100	124	112	124	112	69-128	10	
Acetone	ug/L	ND	100	100	122	116	122	116	57-143	5	
Allyl chloride	ug/L	ND	20	20	27.9	24.6	139	123	65-146	13	
Benzene	ug/L	ND	20	20	25.3	23.3	126	116	75-129	8	
Bromobenzene	ug/L	ND	20	20	20.5	19.6	103	98	74-125	4	
Bromochloromethane	ug/L	ND	20	20	23.0	20.8	115	104	75-126	10	
Bromodichloromethane	ug/L	ND	20	20	19.9	17.6	99	88	75-128	12	
Bromoform	ug/L	ND	20	20	18.2	16.4	91	82	66-130	10	
Bromomethane	ug/L	ND	20	20	10.1	14.2	51	71	30-150	33 R1	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1643034 1643035											
Parameter	Units	10260811001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Qual
Carbon tetrachloride	ug/L	ND	20	20	21.4	19.6	107	98	69-148	9	
Chlorobenzene	ug/L	ND	20	20	22.1	20.5	111	103	75-125	7	
Chloroethane	ug/L	ND	20	20	21.1	19.3	105	97	71-143	9	
Chloroform	ug/L	ND	20	20	24.1	21.7	120	109	75-126	10	
Chloromethane	ug/L	ND	20	20	22.7	21.2	113	106	55-150	7	
cis-1,2-Dichloroethene	ug/L	ND	20	20	24.4	21.9	122	109	75-130	11	
cis-1,3-Dichloropropene	ug/L	ND	20	20	20.1	18.0	100	90	72-129	11	
Dibromochloromethane	ug/L	ND	20	20	19.8	18.1	99	90	73-129	9	
Dibromomethane	ug/L	ND	20	20	22.1	19.6	110	98	75-125	12	
Dichlorodifluoromethane	ug/L	ND	20	20	26.0	23.4	130	117	70-150	10	
Dichlorofluoromethane	ug/L	ND	20	20	25.8	22.8	129	114	75-135	12	
Diethyl ether (Ethyl ether)	ug/L	ND	20	20	27.1	22.4	135	112	72-126	19	M1
Ethylbenzene	ug/L	ND	20	20	22.6	21.7	112	108	75-128	4	
Hexachloro-1,3-butadiene	ug/L	ND	20	20	18.9	17.1	95	86	65-144	10	
Isopropylbenzene (Cumene)	ug/L	ND	20	20	22.7	21.1	114	106	75-131	7	
Methyl-tert-butyl ether	ug/L	ND	20	20	24.6	22.2	123	111	74-128	10	
Methylene Chloride	ug/L	ND	20	20	25.2	22.1	126	111	69-125	13	M1
n-Butylbenzene	ug/L	ND	20	20	21.7	20.8	108	104	70-137	4	
n-Propylbenzene	ug/L	ND	20	20	22.2	21.4	111	107	72-131	3	
Naphthalene	ug/L	ND	20	20	20.0	19.6	100	98	70-132	2	
p-Isopropyltoluene	ug/L	ND	20	20	22.5	21.1	112	106	73-133	6	
sec-Butylbenzene	ug/L	ND	20	20	23.5	22.4	117	112	74-133	5	
Styrene	ug/L	ND	20	20	21.2	19.7	106	98	75-128	7	
tert-Butylbenzene	ug/L	ND	20	20	21.8	20.5	109	102	74-130	6	
Tetrachloroethene	ug/L	ND	20	20	22.3	20.6	111	103	68-140	8	
Tetrahydrofuran	ug/L	ND	200	200	222	213	111	106	65-131	4	
Toluene	ug/L	ND	20	20	23.7	21.8	118	108	75-129	8	
trans-1,2-Dichloroethene	ug/L	ND	20	20	25.3	22.9	127	115	70-136	10	
trans-1,3-Dichloropropene	ug/L	ND	20	20	20.0	18.7	100	94	71-125	6	
Trichloroethene	ug/L	ND	20	20	23.3	21.7	117	109	72-135	7	
Trichlorofluoromethane	ug/L	ND	20	20	24.6	22.6	123	113	75-150	9	
Vinyl chloride	ug/L	ND	20	20	24.7	22.0	124	110	73-150	11	
Xylene (Total)	ug/L	ND	60	60	69.7	64.4	116	107	75-129	8	
1,2-Dichloroethane-d4 (S)	%						109	105	75-125		
4-Bromofluorobenzene (S)	%						102	103	75-125		
Toluene-d8 (S)	%						100	99	75-125		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch: OEXT/24593 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10260546001, 10260546002, 10260546003, 10260546004, 10260546005, 10260546006

METHOD BLANK: 1640307 Matrix: Solid
Associated Lab Samples: 10260546001, 10260546002, 10260546003, 10260546004, 10260546005, 10260546006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	03/18/14 10:34	
n-Triacontane (S)	%.	92	50-150	03/18/14 10:34	

LABORATORY CONTROL SAMPLE & LCSD: 1640308		1640309								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	68.9	66.1	86	83	70-120	4	20	
n-Triacontane (S)	%.				93	90	50-150			

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

QC Batch: OEXT/24592 Analysis Method: WI MOD DRO
QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS
Associated Lab Samples: 10260546011, 10260546012, 10260546013, 10260546014, 10260546015, 10260546016

METHOD BLANK: 1640269 Matrix: Water
Associated Lab Samples: 10260546011, 10260546012, 10260546013, 10260546014, 10260546015, 10260546016

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	03/19/14 08:32	
n-Triacontane (S)	%.	93	50-150	03/19/14 08:32	

LABORATORY CONTROL SAMPLE & LCSD: 1640270		1640271								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/L	2	1.8	2.0	90	98	75-115	9	20	
n-Triacontane (S)	%.				99	104	50-150			

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

LABORATORIES

PASI-M Pace Analytical Services - Minneapolis

ANALYTE QUALIFIERS

1M The sample was analyzed at a dilution due to a large amount of sediment in the vials. Post-analysis pH measurement indicates insufficient VOA sample preservation.

HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

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.

R1 RPD value was outside control limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260546

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10260546001	GP-1 (17.5-20')	WI MOD DRO	OEXT/24593	WI MOD DRO	GCSV/12952
10260546002	GP-1 (37.5-40')	WI MOD DRO	OEXT/24593	WI MOD DRO	GCSV/12952
10260546003	GP-2 (22.5-25')	WI MOD DRO	OEXT/24593	WI MOD DRO	GCSV/12952
10260546004	GP-3 (22.5-25')	WI MOD DRO	OEXT/24593	WI MOD DRO	GCSV/12952
10260546005	GP-4 (25-27.5')	WI MOD DRO	OEXT/24593	WI MOD DRO	GCSV/12952
10260546006	GP-5 (22.5-25')	WI MOD DRO	OEXT/24593	WI MOD DRO	GCSV/12952
10260546011	GP-1W	WI MOD DRO	OEXT/24592	WI MOD DRO	GCSV/12959
10260546012	GP-2W	WI MOD DRO	OEXT/24592	WI MOD DRO	GCSV/12959
10260546013	GP-3W	WI MOD DRO	OEXT/24592	WI MOD DRO	GCSV/12959
10260546014	GP-4W	WI MOD DRO	OEXT/24592	WI MOD DRO	GCSV/12959
10260546015	GP-5W	WI MOD DRO	OEXT/24592	WI MOD DRO	GCSV/12959
10260546016	GP-10W	WI MOD DRO	OEXT/24592	WI MOD DRO	GCSV/12959
10260546001	GP-1 (17.5-20')	TPH GRO/PVOC WI ext.	GCV/11784	WI MOD GRO	GCV/11786
10260546002	GP-1 (37.5-40')	TPH GRO/PVOC WI ext.	GCV/11784	WI MOD GRO	GCV/11786
10260546003	GP-2 (22.5-25')	TPH GRO/PVOC WI ext.	GCV/11790	WI MOD GRO	GCV/11791
10260546004	GP-3 (22.5-25')	TPH GRO/PVOC WI ext.	GCV/11790	WI MOD GRO	GCV/11791
10260546005	GP-4 (25-27.5')	TPH GRO/PVOC WI ext.	GCV/11790	WI MOD GRO	GCV/11791
10260546006	GP-5 (22.5-25')	TPH GRO/PVOC WI ext.	GCV/11790	WI MOD GRO	GCV/11791
10260546007	TRIP BLANK (SL)	TPH GRO/PVOC WI ext.	GCV/11790	WI MOD GRO	GCV/11791
10260546011	GP-1W	WI MOD GRO	GCV/11788		
10260546012	GP-2W	WI MOD GRO	GCV/11788		
10260546013	GP-3W	WI MOD GRO	GCV/11788		
10260546014	GP-4W	WI MOD GRO	GCV/11788		
10260546015	GP-5W	WI MOD GRO	GCV/11788		
10260546016	GP-10W	WI MOD GRO	GCV/11788		
10260546017	TRIP BLANK (WT)	WI MOD GRO	GCV/11788		
10260546001	GP-1 (17.5-20')	ASTM D2974	MPRP/44796		
10260546002	GP-1 (37.5-40')	ASTM D2974	MPRP/44796		
10260546003	GP-2 (22.5-25')	ASTM D2974	MPRP/44796		
10260546004	GP-3 (22.5-25')	ASTM D2974	MPRP/44796		
10260546005	GP-4 (25-27.5')	ASTM D2974	MPRP/44796		
10260546006	GP-5 (22.5-25')	ASTM D2974	MPRP/44796		
10260546011	GP-1W	EPA 8260	MSV/26596		
10260546012	GP-2W	EPA 8260	MSV/26596		
10260546013	GP-3W	EPA 8260	MSV/26591		
10260546014	GP-4W	EPA 8260	MSV/26591		
10260546015	GP-5W	EPA 8260	MSV/26591		
10260546016	GP-10W	EPA 8260	MSV/26596		
10260546017	TRIP BLANK (WT)	EPA 8260	MSV/26591		

REPORT OF LABORATORY ANALYSIS

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CHAIN-OF-CUSTODY / Analytical Request Document

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10260546

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company:	Carison McCamy, Inc.	Report To:	Carais Loch	Attention:	'SAME'
Address:	P.O. Box 429	Copy To:	'SAA'	Company Name:	
	MANE AAW, MN/ 55359			Address:	
Email To:	cloach@carisonmccamy.com	Purchase Order No.:	4977-00	Pace Code Reference:	MAA CONTACT RATES
Phone:	952-346-3913	Project Name:	Former Food & Fuel	Pace Project Manager:	STEVEN LAMSEN
Requested Due Date/TAT:	STANDARD TAT	Project Number:	4977-00	Pace Profile #:	

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	COLLECTED		SAMPLE TYPE (G=GRAB C=COMP)	MATRIX CODE (see valid codes to left)	SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives							Analysis Test ↑	Y/N	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab ID
			COMPOSITE START	COMPOSITE END/GRAB					DATE	TIME	DATE	TIME	DATE	TIME	DATE				
1	GP-1 (17.5-20')	DW			G	SL G	3/13/14	11:35										10260546001	
2	GP-1 (37.5-40')	WT			G	SL G	3/13/14	12:15										003	
3	GP-2 (22.5-35')	WW			G	SL G	3/13/14	3:15										003	
4	GP-3 (22.5-25')	P			G	SL G	3/13/14	5:45										003	
5	GP-4 (25-27.5')	SL			G	SL G	3/14/14	9:40										003	
6	GP-5 (22.5-25')	OL			G	SL G	3/14/14	11:40										003	
7		WP																003	
8	GP-1 (30-34')	AR			C	SL C	3/13/14	11:30										003	
9	GP-3 (26-30')	TS			C	SL C	3/13/14	5:40										003	
10	GP-4 (30-34')	OT			C	SL C	3/14/14	9:40										010	
11																			
12																			

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION		DATE		TIME		ACCEPTED BY / AFFILIATION		DATE		TIME		SAMPLE CONDITIONS					
	Signature	Name	Signature	Name	Signature	Name	Signature	Name	Signature	Name	Signature	Name	Temp in °C	Received on	Custody	Sealed Cooler	Samples Intact	
GP-1 → Petroleum Impacted	Carais Loch	Carais Loch	3/17/14	13:02	AM Dale	AM Dale	3/17/14	13:02										
	AM Dale	AM Dale	3/17/14	14:20	AM Dale	AM Dale	3/17/14	14:20										

ORIGINAL

SAMPLER NAME AND SIGNATURE
PRINT Name of SAMPLER: Carais Loch
SIGNATURE of SAMPLER: [Signature]

DATE Signed (MM/DD/YYYY): 3/14/14

CHAIN-OF-CUSTODY / Analytical Request Document

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

10260546

Section A Required Client Information:		Section B Required Project Information:		Section C Invoice Information:	
Company: Charles McLean, Inc.	Report To: Chris Loch	Attention: "Same"	Page: 2 of 2		
Address: P.O. Box 429	Copy To: "Same"	Company Name:	Invoice Number: 1459864		
Phone: 952-364-3913	Purchase Order No.: 4977-00	Address:	REGULATORY AGENCY		
Fac: 952-364-3913	Project Name: Former Food & Fuel	Pace Quote Reference: MPCA STAFF CONTRACT	☐ NPDES ☒ GROUND WATER ☐ DRINKING WATER ☒ UST ☐ RCRA ☐ OTHER		
Requested Due Date/TAT:	Project Number: 4977-00	Pace Project Manager: STACY LARSEN	Site Location: St. Francis, MN		

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE Drinking Water Water Waste Water Product Soil/Solid Oil Wipe Air Tissue Other	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED				SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives										Analysis Test ↑	Y/N	Requested Analysis Filtered (Y/N)										Residual Chlorine (Y/N)	Pace Project No./ Lab I.D.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
					COMPOSITE START	COMPOSITE END/GRAB	DATE	TIME			Unpreserved	H ₂ SO ₄	HNO ₃	HCl	NaOH	Na ₂ S ₂ O ₃	Methanol	Other																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																
1	GP-1W		WT	-	3/13/14	12:30				8																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								

ADDITIONAL COMMENTS	RELINQUISHED BY / AFFILIATION	DATE	TIME	ACCEPTED BY / AFFILIATION	DATE	TIME	SAMPLE CONDITIONS				
	<i>[Signature]</i>	3/17/14	13:02	AM/pace	3/17/14	13:02	60	Received on	Custody	Sealed Cooler	Samples Intact
	AM/pace	3/17/14	14:20	Disposal Pace	3/17/14	14:20	8.2	Y	Y	Y	Y
SAMPLER NAME AND SIGNATURE PRINT Name of SAMPLER: <i>Chris Loch</i> SIGNATURE of SAMPLER: <i>[Signature]</i> DATE Signed (MM/DD/YY): 3/14/14											

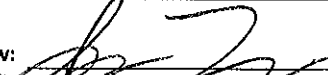
	Document Name:	Document Revised: 07Nov2013
	Sample Condition Upon Receipt Form	Page 1 of 1
	Document No.: F-MN-L-213-rev.08	Issuing Authority: Pace Minnesota Quality Office

Sample Condition Upon Receipt	Client Name:	Project #:
	Carlson McCain	WO#: 10260546
Courier:	☐ Fed Ex ☐ UPS ☐ USPS ☐ Client ☐ Commercial ☒ Pace ☐ Other:	
Tracking Number:		

Custody Seal on Cooler/Box Present?	☐ Yes ☒ No	Seals Intact?	☐ Yes ☒ No	Optional: Proj. Due Date:	Proj. Name:
Packing Material:	☐ Bubble Wrap ☒ Bubble Bags ☐ None ☐ Other:	Temp Blank?	☒ Yes ☐ No		
Thermom. Used:	☐ 80512447 ☐ 72337080 ☐ 888A912167504 ☐ 888A9132521491	Type of Ice:	☒ Wet ☐ Blue ☐ None	☐ Samples on ice, cooling process has begun	
Cooler Temp Read (°C):	6.4, 3.6, 4.3	Cooler Temp Corrected (°C):	6.0, 3.2, 3.9	Biological Tissue Frozen?	☐ Yes ☐ No ☒ N/A
Temp should be above freezing to 6°C	Correction Factor:	-0.4	Date and Initials of Person Examining Contents:	3/17/14	

Chain of Custody Present?	Chain of Custody Filled Out?	Chain of Custody Relinquished?	Sampler Name and/or Signature on COC?	Samples Arrived within Hold Time?	Short Hold Time Analysis (<72 hr)?	Rush Turn Around Time Requested?	Sufficient Volume?	Correct Containers Used?	-Pace Containers Used?	Containers Intact?	Filtered Volume Received for Dissolved Tests?	Sample Labels Match COC?	-Includes Date/Time/ID/Analysis Matrix:	All containers needing acid/base preservation have been checked? Noncompliances are noted in 13. All containers needing preservation are found to be in compliance with EPA recommendation? (HNO ₃ , H ₂ SO ₄ , HCl<2; NaOH>12) Exceptions: VOA, Coliform, TOC, Oil and Grease, WI-DRO (water) DOC	Headspace in VOA Vials (>6mm)?	Trip Blank Present?	Trip Blank Custody Seals Present?	Pace Trip Blank Lot # (if purchased):	
☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☐ Yes ☒ No ☐ N/A	☐ Yes ☒ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☐ Yes ☐ No ☒ N/A	☐ Yes ☒ No ☐ N/A	WT, SL	☐ Yes ☐ No ☒ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	☒ Yes ☐ No ☐ N/A	021814-01, 111813-3
Comments: 3 extra trips, 2 UGAH & 1 MPOT (UGAH). GP-1 DWC no label. GP-3 DWC no time on container.														12. ☐ HNO ₃ ☐ H ₂ SO ₄ ☐ NaOH ☐ HCl Sample # Initial when completed: Lot # of added preservative:					

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

Project Manager Review:  Date: 3/16/14

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)

WORK: 1234474

Chain of Custody

PH: GIK Due Date: 03/31/14
 CLIENT: 1490E MPLS

Workorder: 10260545

Workorder Name: 4977-00 Former Food & Fuel

Owner Received Date: 3/17/2014 Results Requested By: 3232014

Report To: Subcontract To:

Justin Benjamin
 Pace Analytical Services, Inc.
 1703 Elm Street, Suite 200
 Minneapolis, MN 55414
 Phone (612)607-1700
 Fax (612)607-6444

Pace Analytical Virginia MN
 315 Chestnut Street
 Virginia MN 55792
 Phone (218)742-1042

Preserved Containers				Containers			
Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	Volume	LAB USE ONLY
1	GP-1 (30-34)	PS	3/13/2014 11:30	10260546008	Solid	1	
2	GP-3 (26-30)	PS	3/13/2014 17:40	10260546009	Solid	1	
3	GP-4 (30-34)	PS	3/14/2014 09:40	10260546010	Solid	1	
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time
1				
2		3/18/14	Justin Benjamin	3/18/14 10:50
3				

Cooler Temperature on Receipt	75 °C	Custody Seal	Y or N	Received on Ice	Y or N	Samples Intact	X or N

Document Name: Peace Analytical
 Sample Condition Upon Receipt Form
 Document No.: 6-VIR-C-001-Rev.06
 Document Revised: 03Dec2013
 Page 1 of 1
 Issuing Authority:
 Page Virginia, Minnesota Quality Office

Sample Condition
 Upon Receipt

Client Name:

Project #:

Common: ☐ Bad Ex ☐ UPS ☐ USPS ☐ Other
☐ Commercial ☐ Peace ☒ Other: Spencer

Tracking Number:

Correctly Seal on Cooler/Box Present? ☒ Yes ☐ No

Seals Intact? ☒ Yes ☐ No

Optional: Proj. Due Date: Proj. By:

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other:

Temp Blank? ☒ Yes

Temperature Used: ☒ 12039815

Type of Ice: ☐ Wet ☐ Blue ☒ None

☐ Samples on ice cooling process for frozen

Cooler Temp Read °C: 7.5

Cooler Temp Corrected °C: 7.5

Biological Tissue Frozen?

☐ Yes

☐ No

☒ N/A

Temp should be above freezing to 6°C Correction Factor: 2

Date and Initials of Person Submitting Contents:

3.12.14 T.C.

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 Signature on COC?	☐ Yes ☒ No ☐ N/A	4
Samples Arrived within Hold Time?	☒ Yes ☐ No ☐ N/A	5
Short Hold Time Analysis (<72hr)?	☐ Yes ☒ No ☐ N/A	6
Quick Turn Around Time Requested?	☐ Yes ☒ No ☐ N/A	7
Insufficient Volume?	☒ Yes ☐ No ☐ N/A	8
Correct Containers Used?	☒ Yes ☐ No ☐ N/A	9
Peace Containers Used?	☒ Yes ☐ No ☐ N/A	10
Containers Intact?	☒ Yes ☐ No ☐ N/A	11
Filtered Volume Received for Dissolved Tests?	☐ Yes ☐ No ☒ N/A	12
Sample Labels Match COC?	☐ Yes ☒ No ☐ N/A	13
Includes Date/Time/ID/Analysis Matrix: <u>So. 1</u>		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	☐ Yes ☐ No ☒ N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	☐ Yes ☐ No ☒ N/A	14
Headspace in VOA Vials (>6mm)?	☐ Yes ☐ No ☒ N/A	15
Top Blank Present?	☐ Yes ☐ No ☒ N/A	
Top Blank Custody Seals Present?	☐ Yes ☐ No ☒ N/A	
Peace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Person Contacted:

Date/Time:

Field Data Required?

☐ Yes

☒ No

Comments/Resolution:

Temp for Samples has no bearing on ASTM D 1527
 They do not need to be on ice.

TEMPERATURE WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review:

Koski

Date:

3-20-14

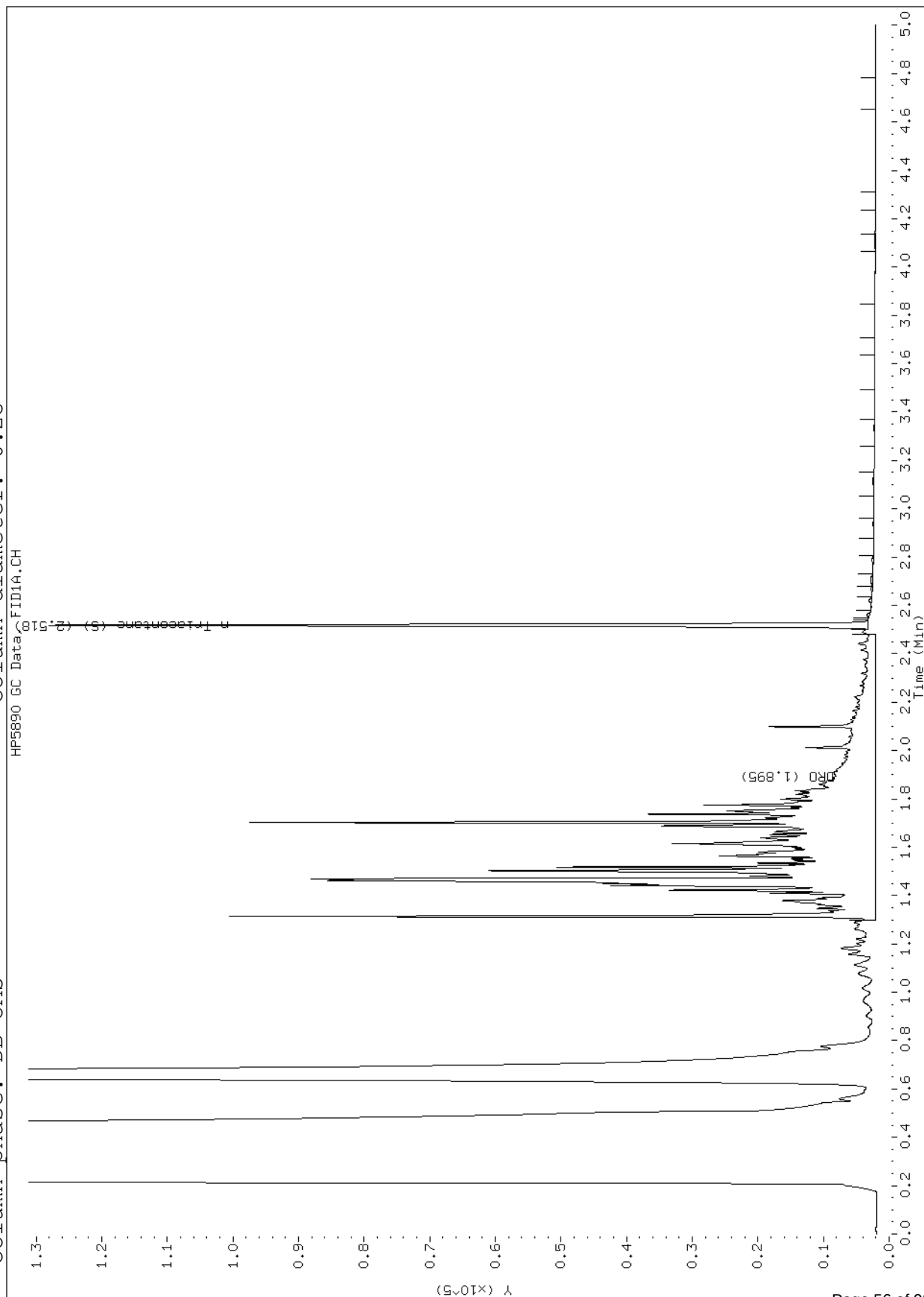
Note: Whenever there is a discrepancy affecting North Carolina compliance samples, a copy of this form will be sent to the North Carolina DENR Certification Office (1-800-368-6868) for review.

Data File: \\192.168.10.12\chem\10gcs4.i\031914dro.b\03190015.D
Report Date: 03/20/2014
Sample ID: 10260546011
Client ID:
Sample Information: 10260546011
Purge Volume:
Column phase: DB-5MS

Instrument: 10gcs4.i

Operator: MT

Column diameter: 0.25

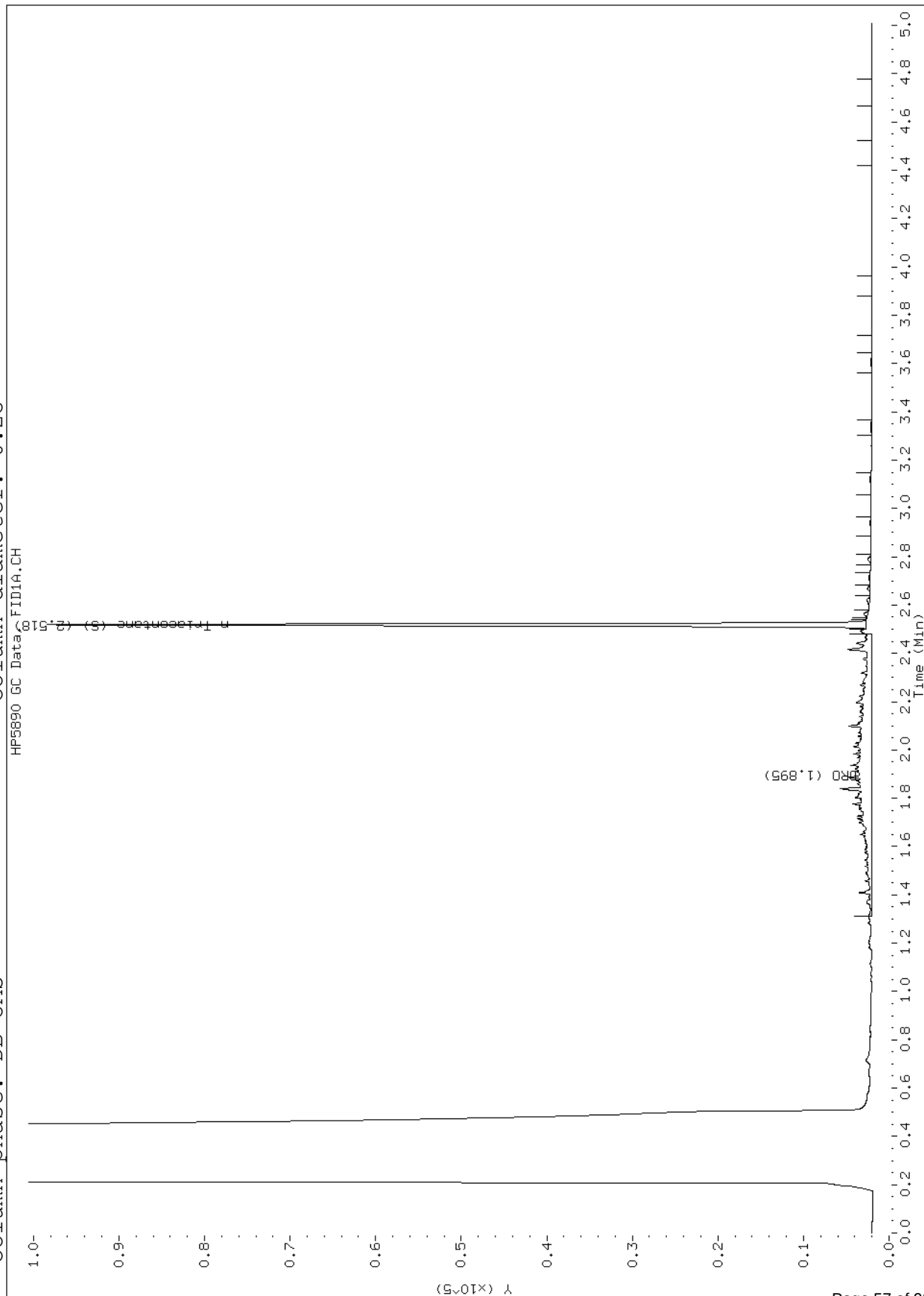


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Report Date: 03/20/2014
Sample ID: 10260546012
Client ID:
Sample Information: 10260546012
Purge Volume: DB-5MS
Column phase: DB-5MS

Instrument: 10gcs4.i

Operator: MT

Column diameter: 0.25

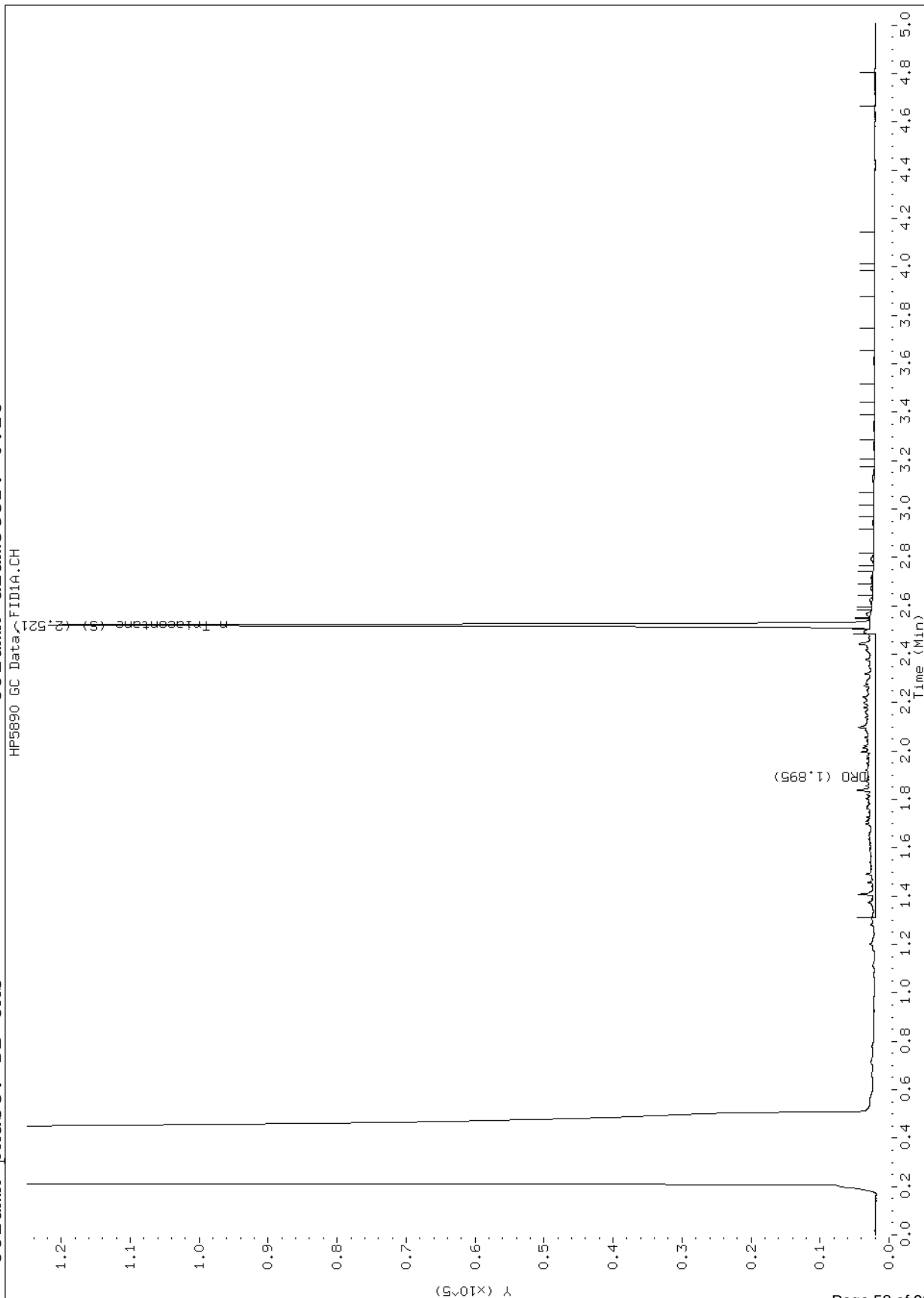


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Report Date: 03/20/2014
Sample ID: 10260546013
Client ID:
Sample Information: 10260546013
Purge Volume: DB-5MS
Column phase: DB-5MS

Instrument: 10gcs4.i

Operator: MT

Column diameter: 0.25

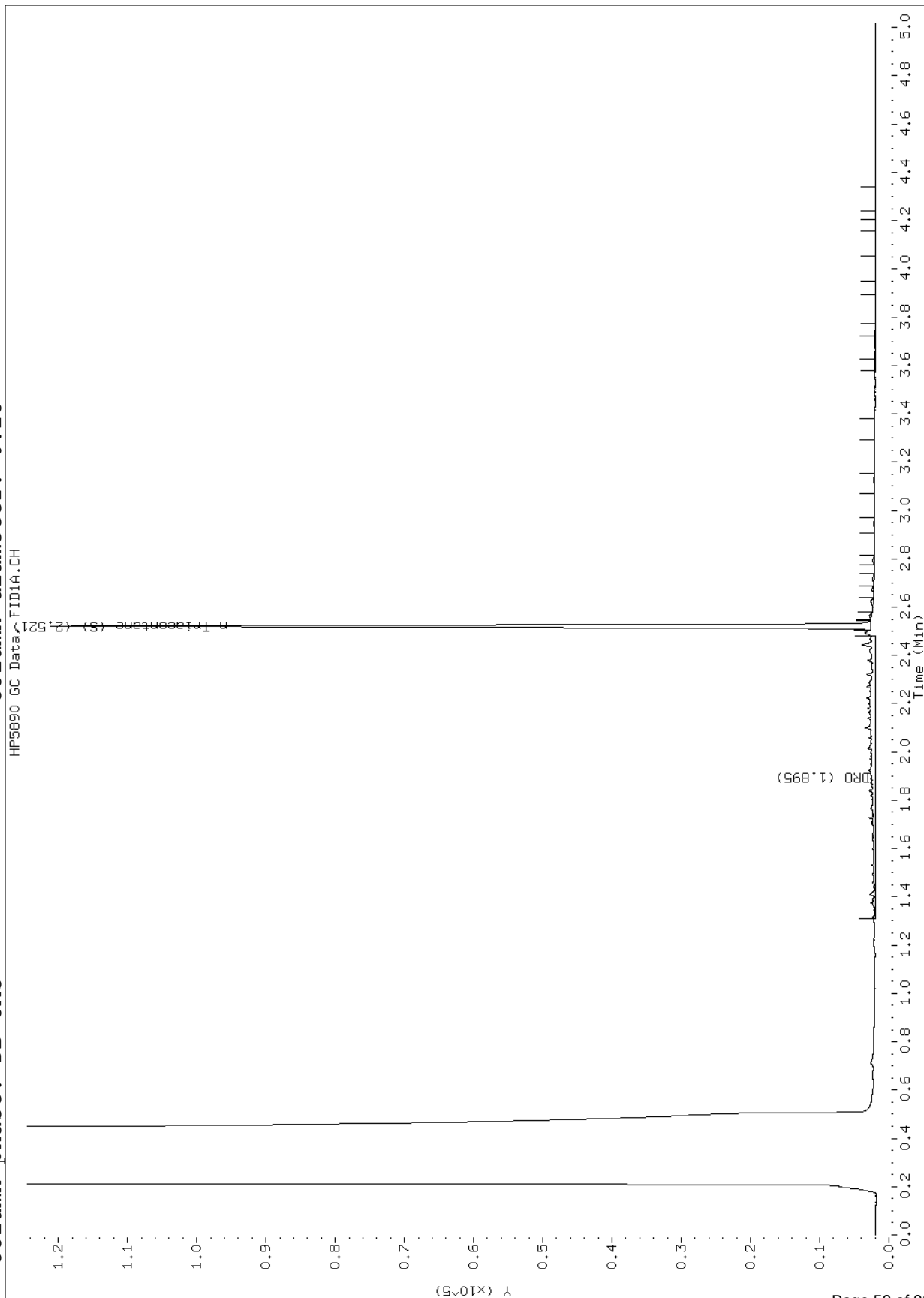


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Client ID:
Sample Information: 10260546014
Purge Volume: DB-5MS
Column phase: DB-5MS

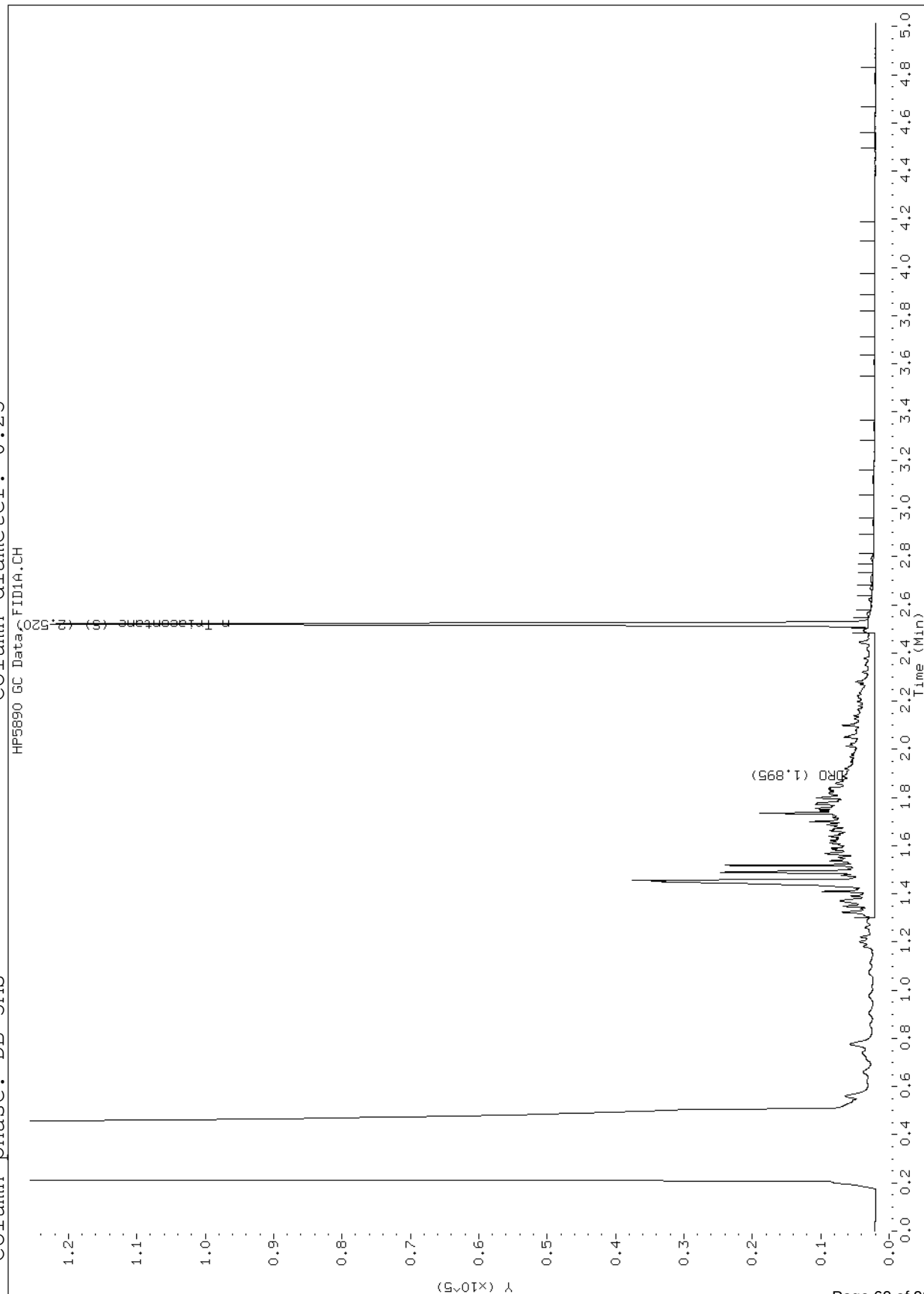
Instrument: 10gcs4.i

Operator: MT

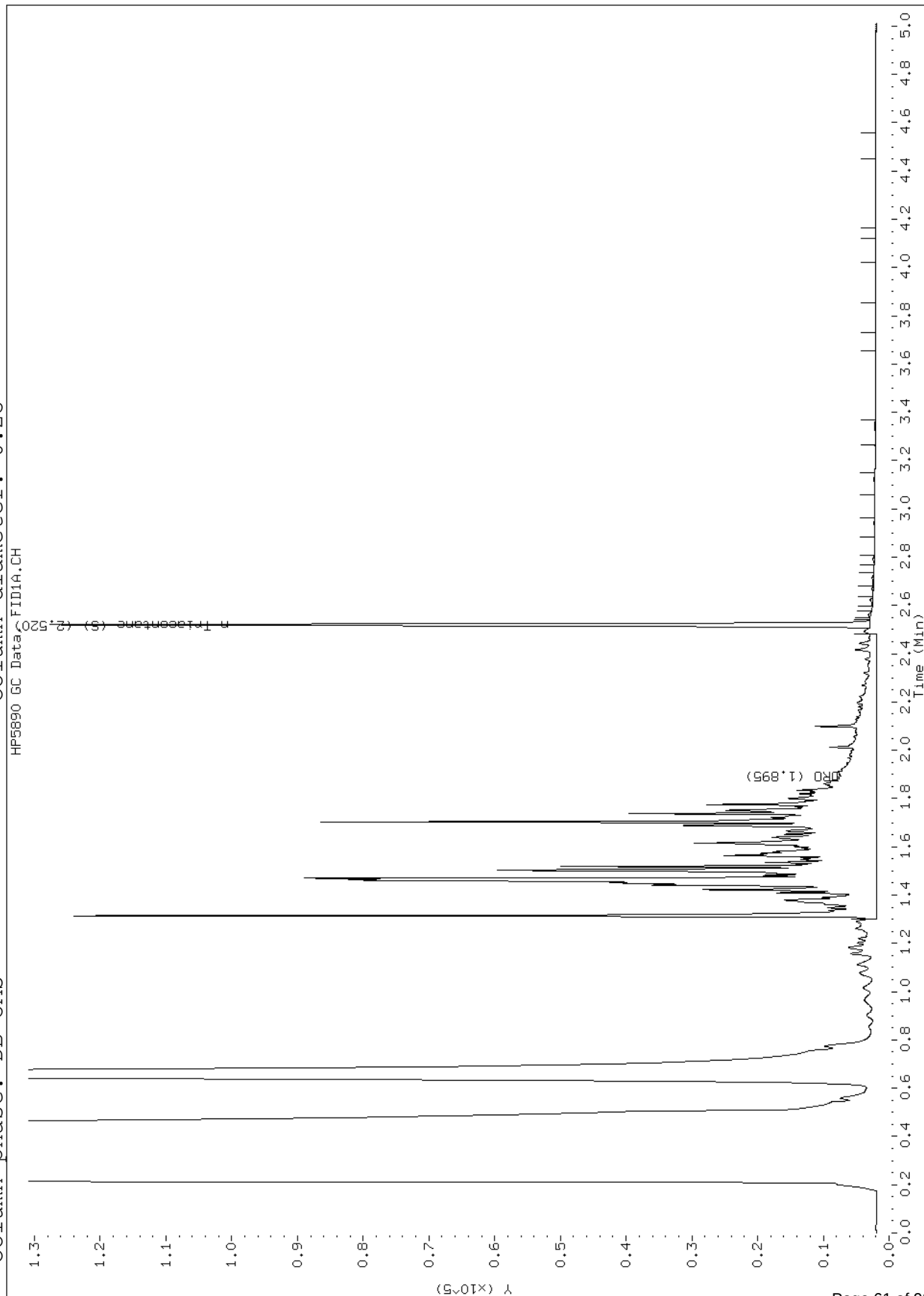
Column diameter: 0.25



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Report Date: 03/20/2014
Sample ID: 10260546015
Client ID:
Sample Information: 10260546015
Purge Volume: DB-5MS
Column phase: DB-5MS
Instrument: 10gcs4.i
Operator: MT
Column diameter: 0.25



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Report Date: 03/20/2014
Sample ID: 10260546016
Client ID:
Sample Information: 10260546016
Purge Volume: DB-5MS
Column phase: DB-5MS
Instrument: 10gcs4.i
Operator: MT
Column diameter: 0.25

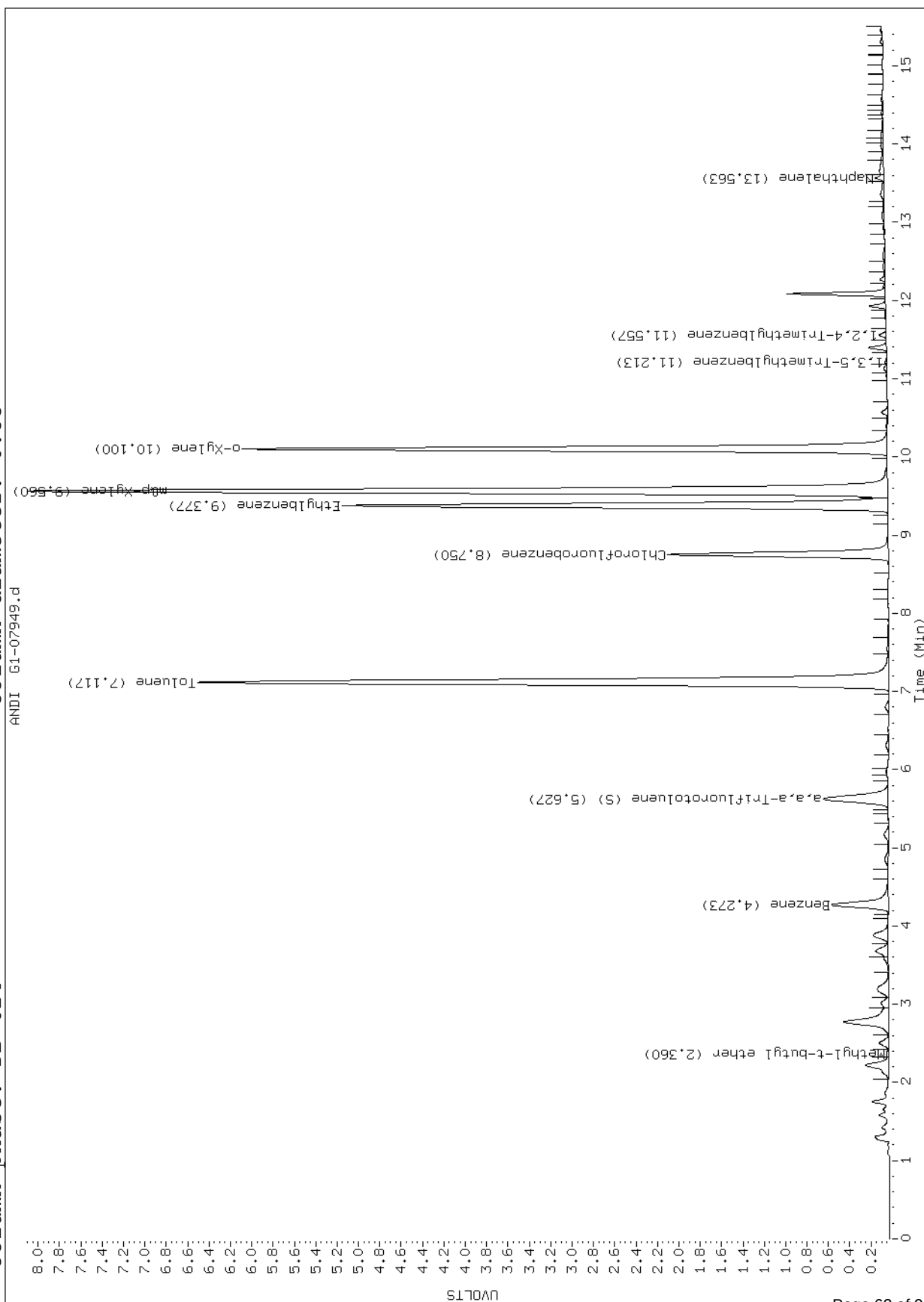


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Report Date: 03/21/2014
Sample ID: 10260546001
Client ID:
Sample Information: 10260546001,MSP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

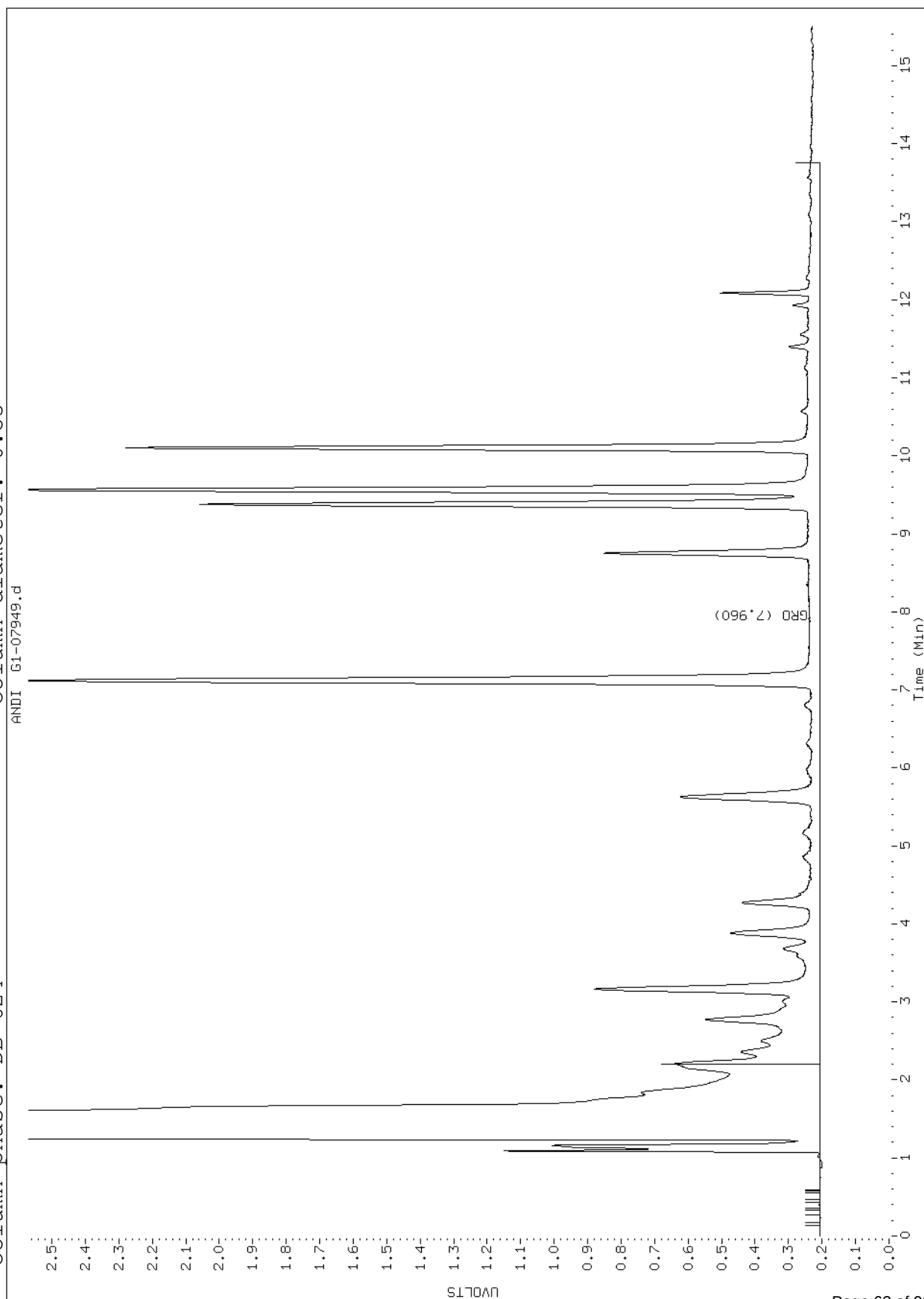


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Report Date: 03/21/2014
Sample ID: 10260546001
Client ID:
Sample Information: 10260546001,MSP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

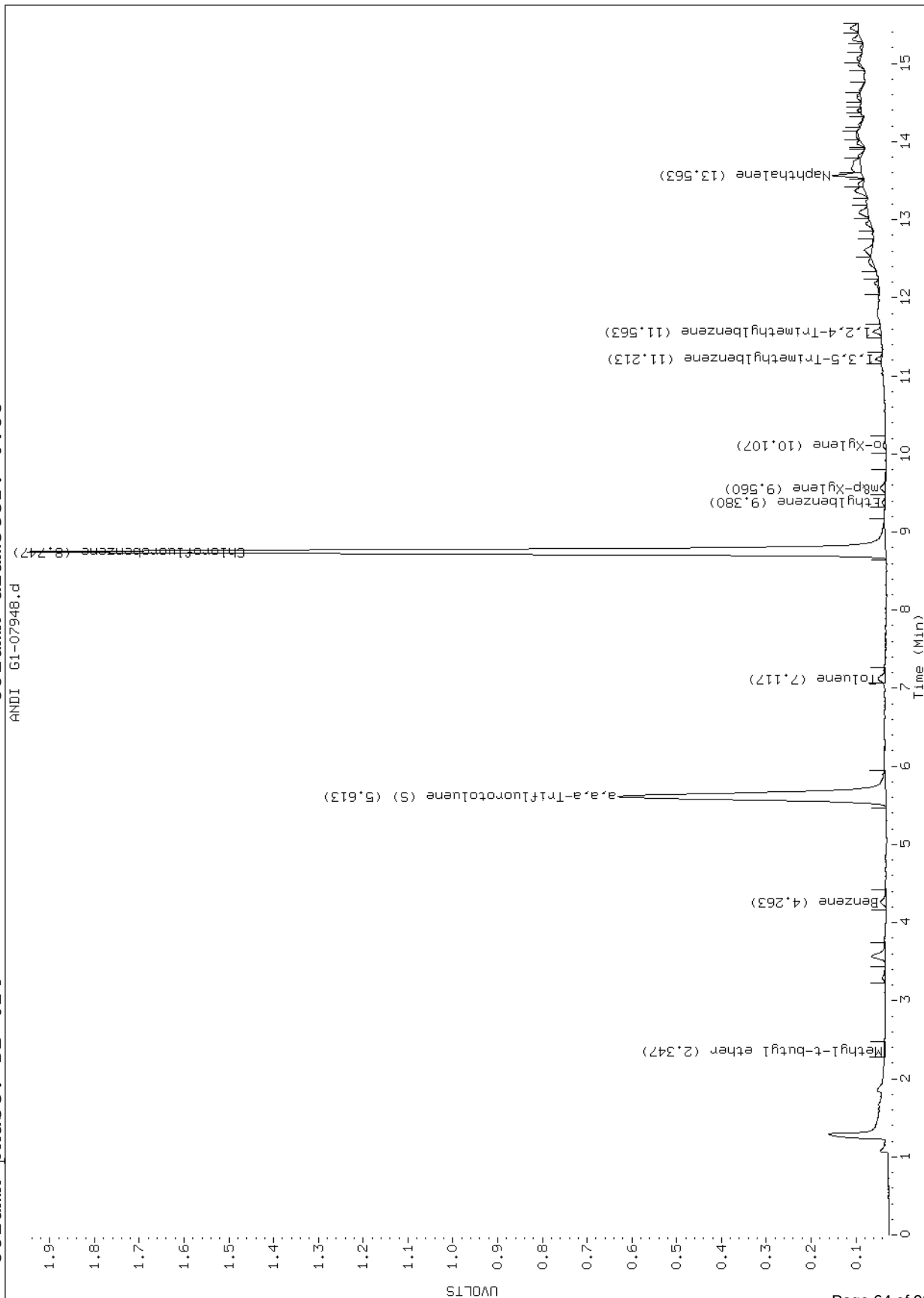


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Report Date: 03/21/2014
Sample ID: 10260546002
Client ID:
Sample Information: 10260546002, DUPP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

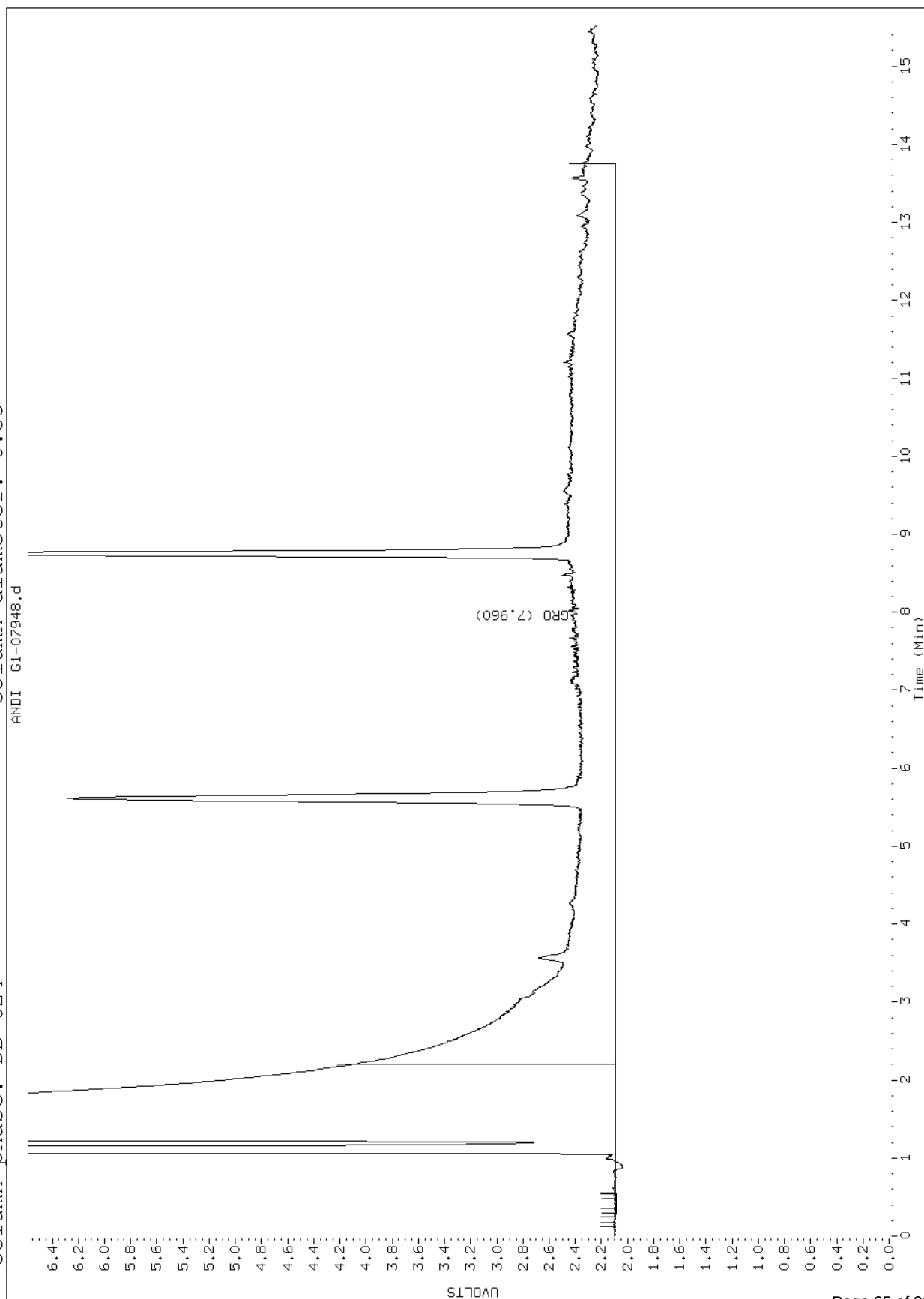


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Report Date: 03/21/2014
Sample ID: 10260546002
Client ID:
Sample Information: 10260546002, DUPP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

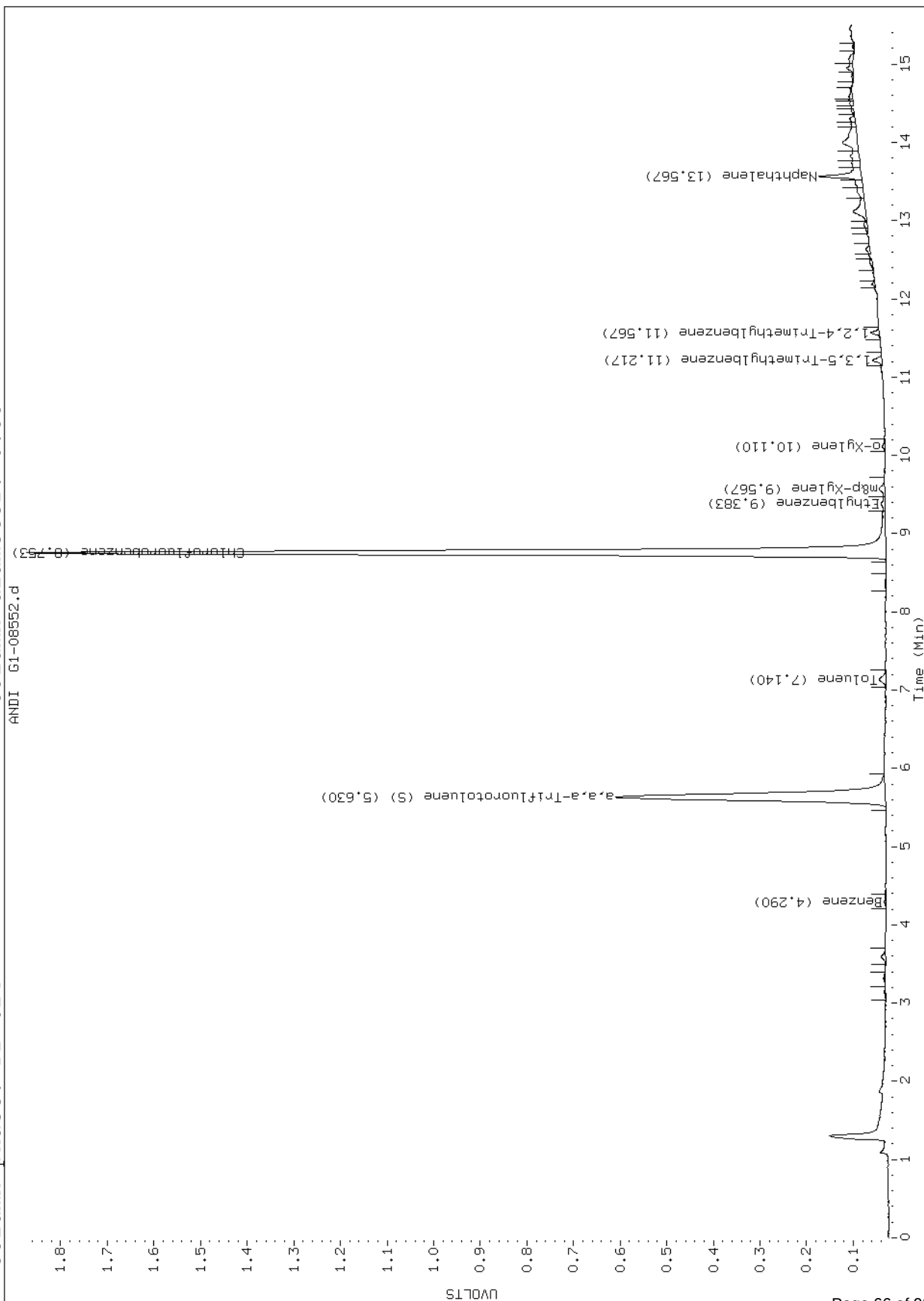


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Sample ID: 10260546003
Client ID:
Sample Information: 10260546003,MSP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

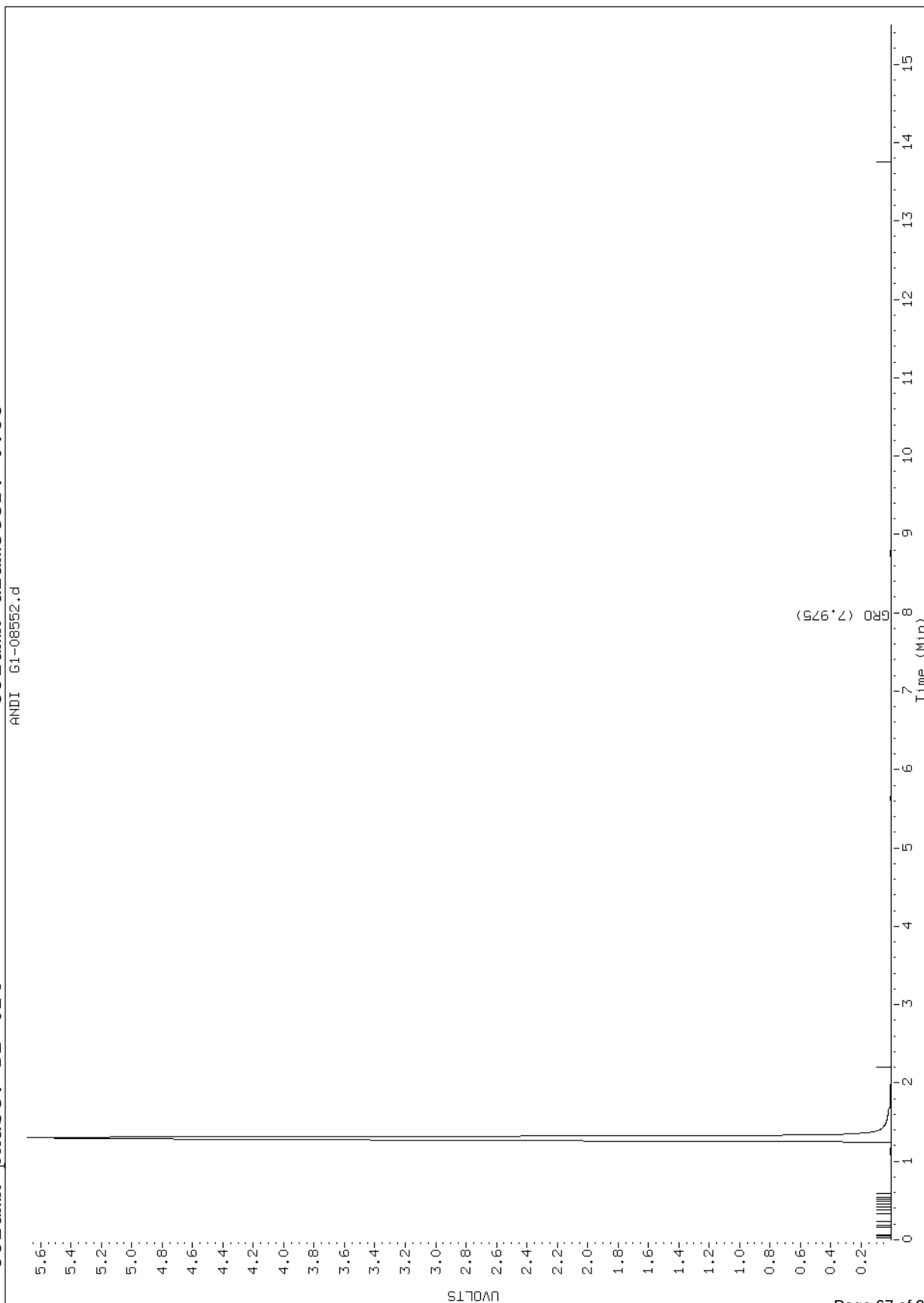


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Sample ID: 10260546003
Client ID:
Sample Information: 10260546003,MSP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

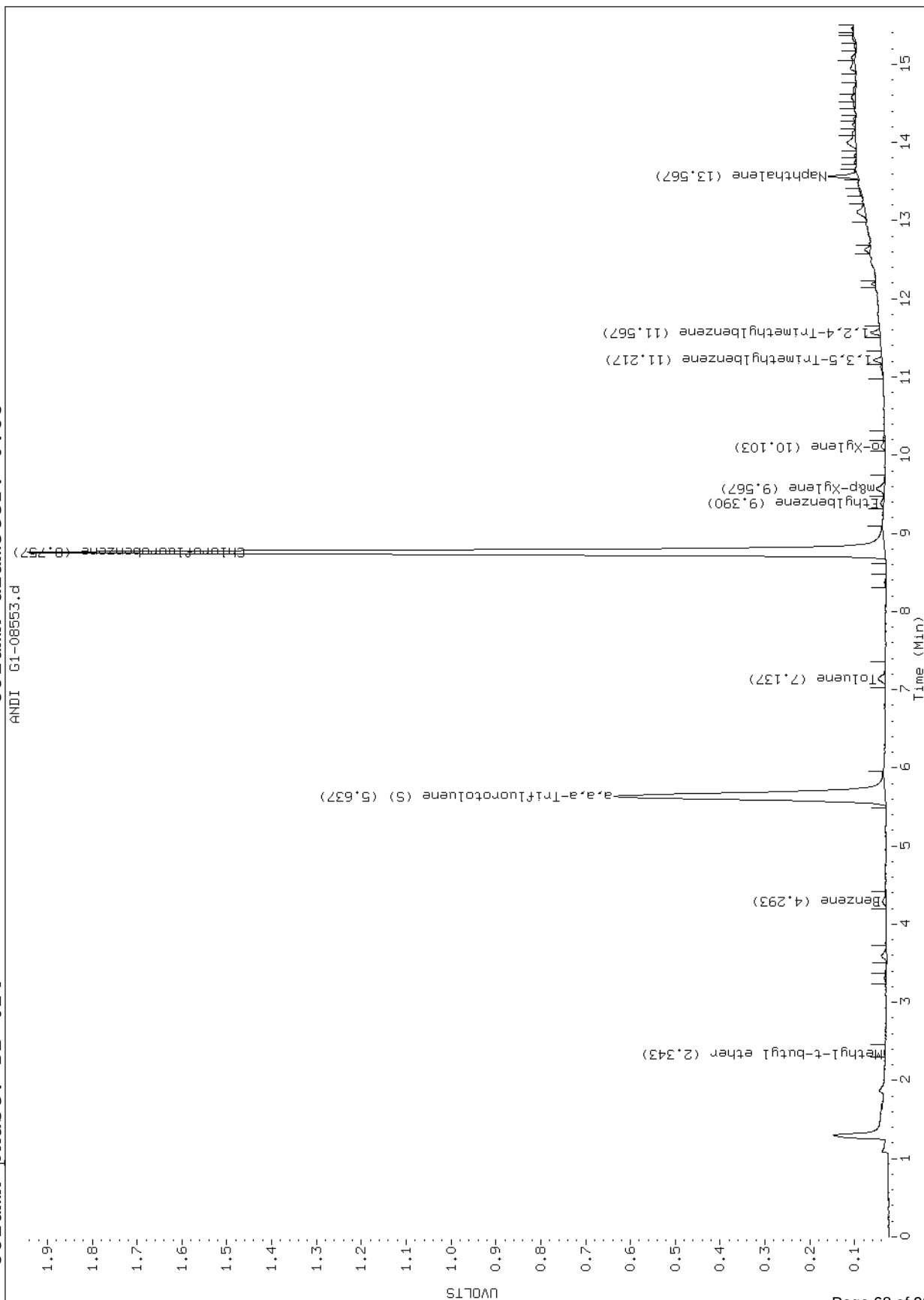


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Sample ID: 10260546004
Client ID:
Sample Information: 10260546004, DUPP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

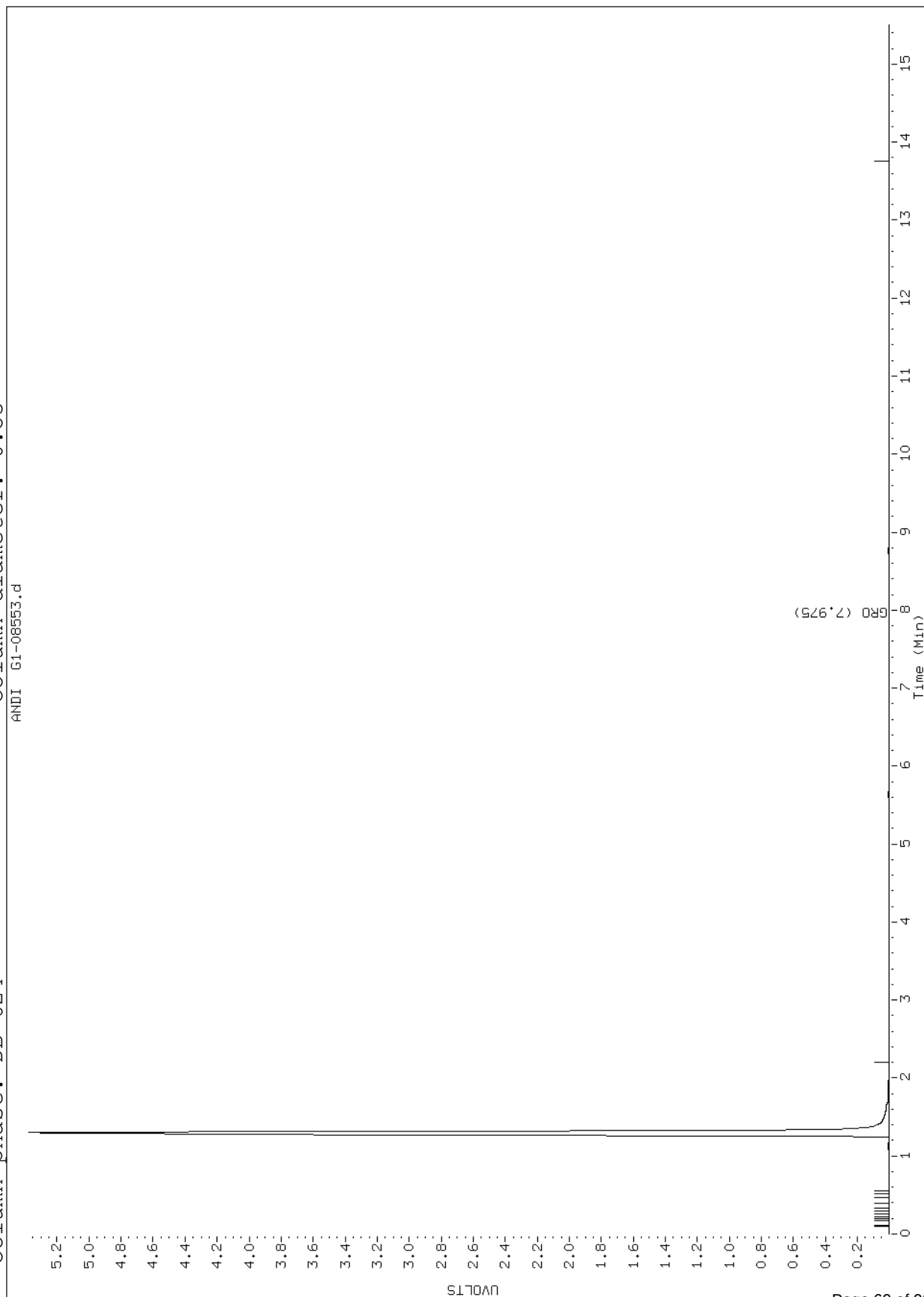


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Sample ID: 10260546004
Client ID:
Sample Information: 10260546004, DUPP
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

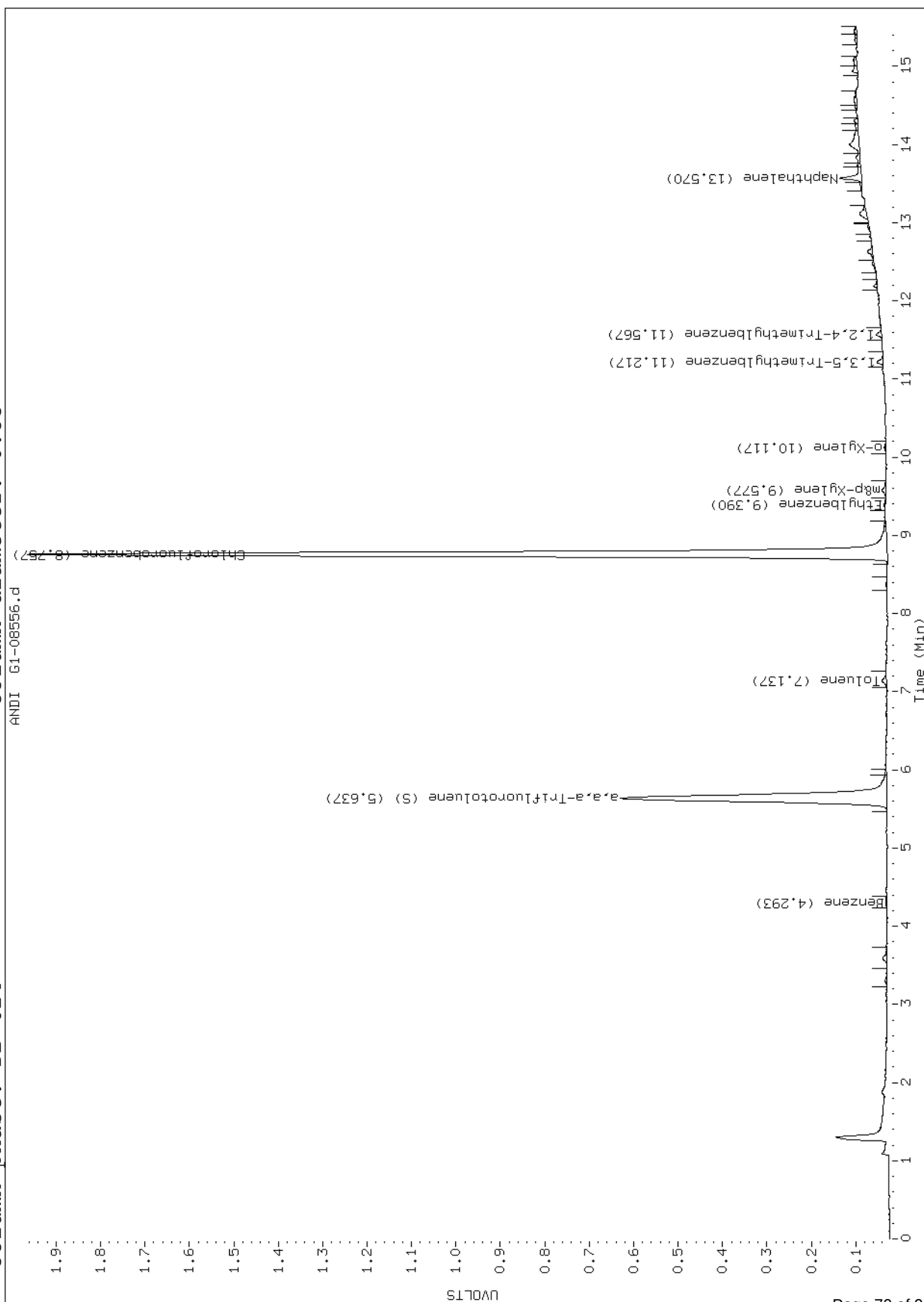


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Report Date: 03/27/2014
Sample ID: 10260546005
Client ID:
Sample Information: 10260546005
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

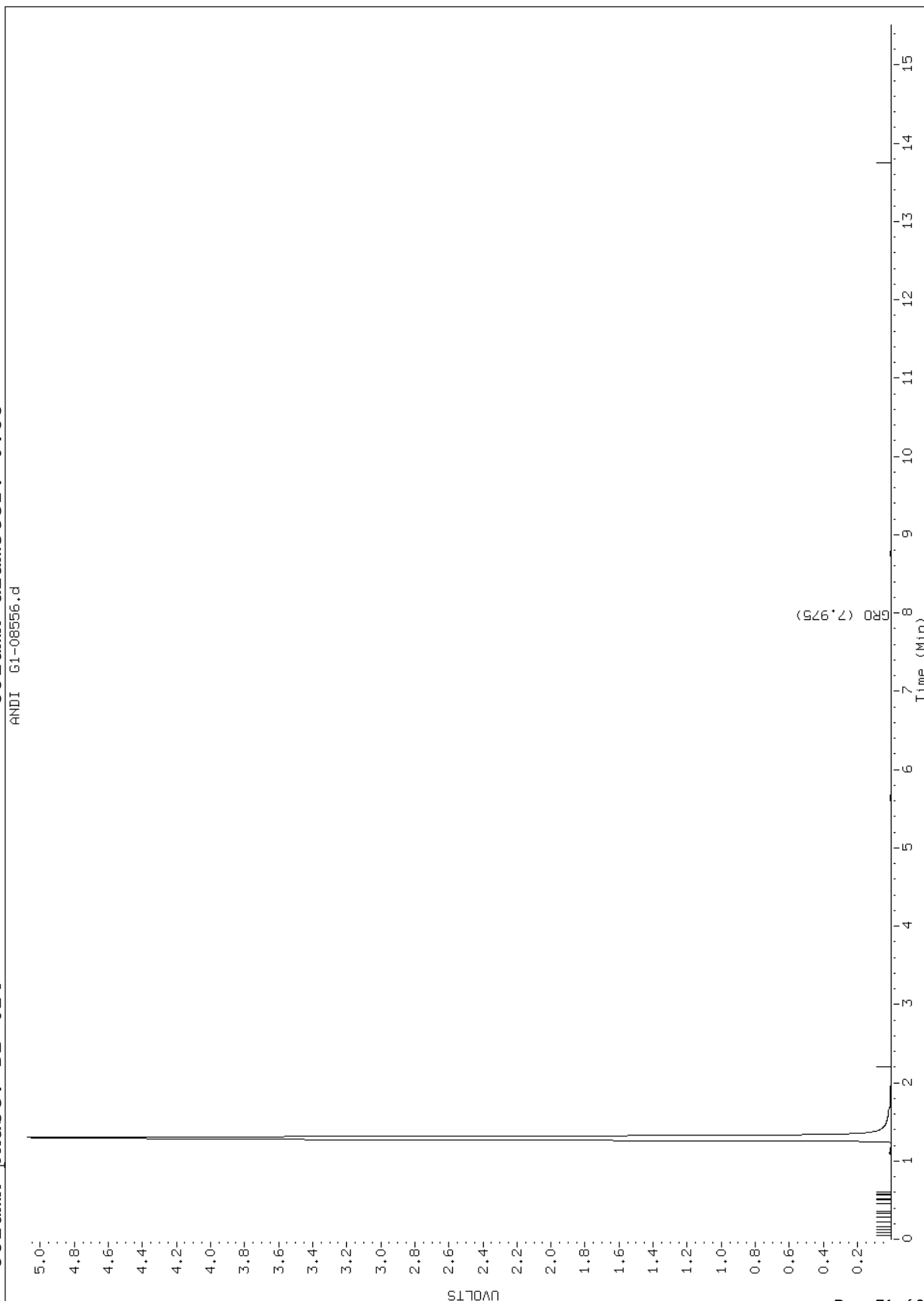


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Report Date: 03/27/2014
Sample ID: 10260546005
Client ID:
Sample Information: 10260546005
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

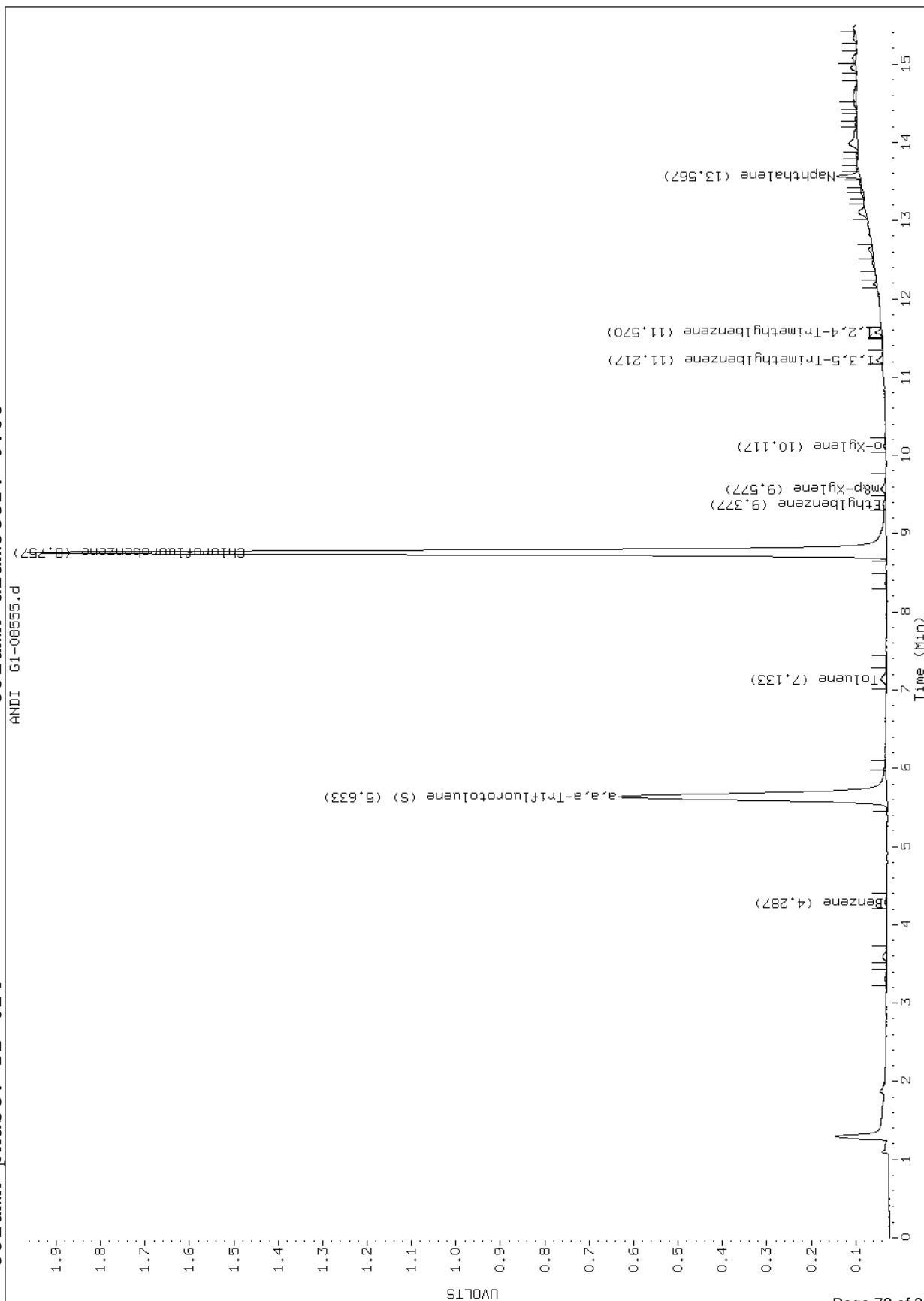


Data File: \\192.168.10.12\chem\10gcv3.i\032614d-1.b/G1-08555.d
Report Date: 03/27/2014
Sample ID: 10260546006
Client ID:
Sample Information: 10260546006
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

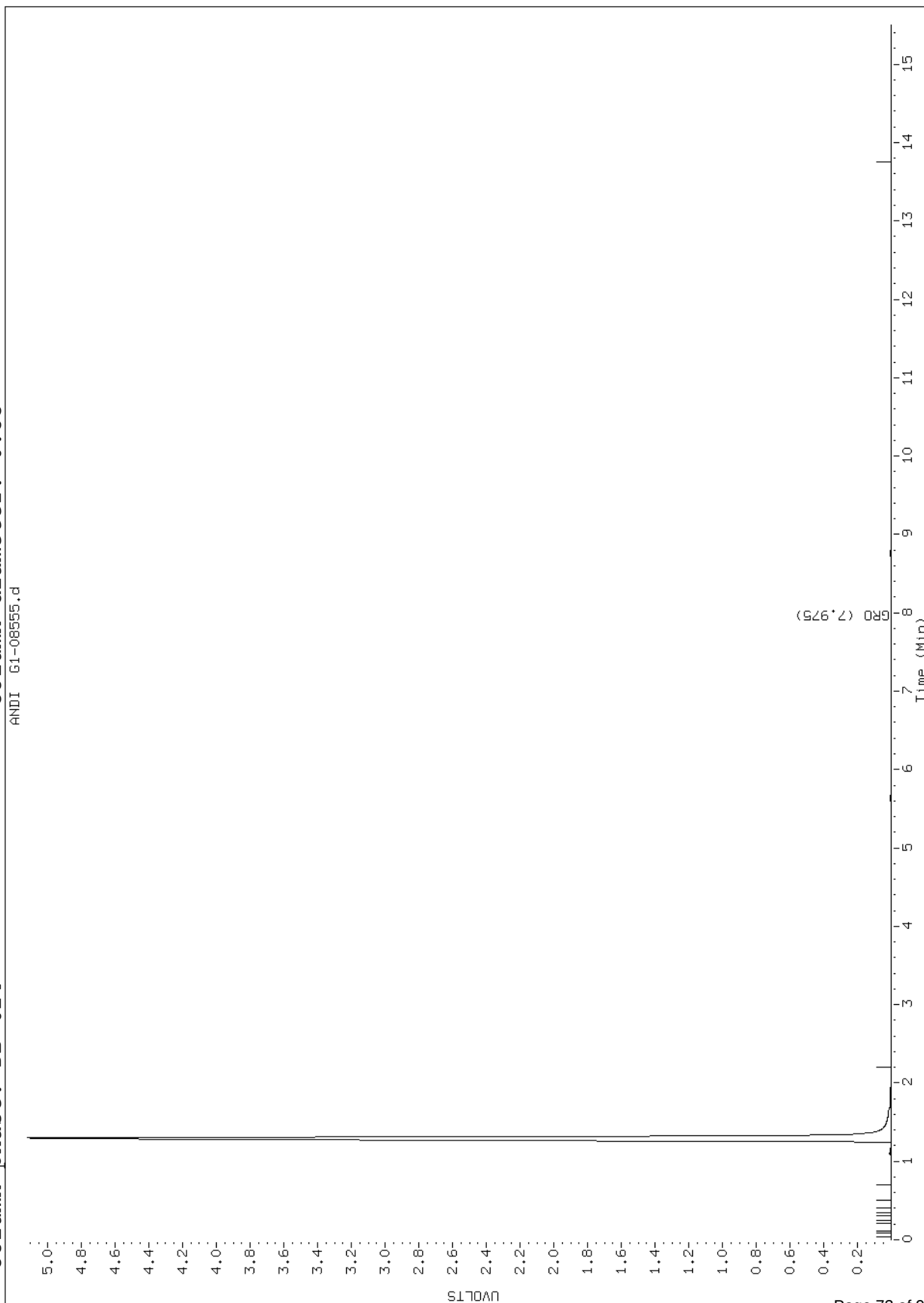


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Report Date: 03/27/2014
Sample ID: 10260546006
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Sample Information: 10260546006
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

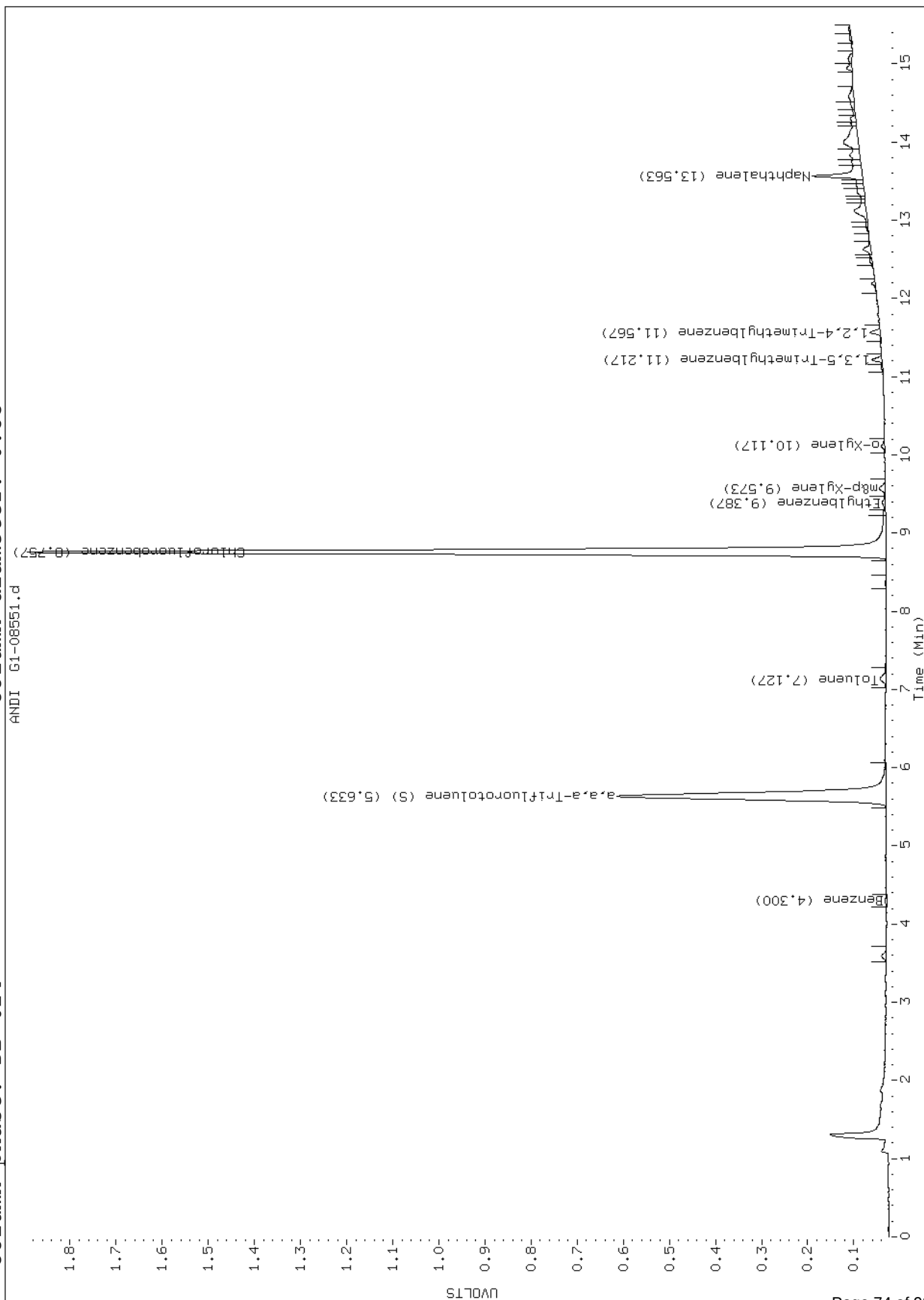


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Report Date: 03/27/2014
Sample ID: 10260546007
Client ID:
Sample Information: 10260546007, TB
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

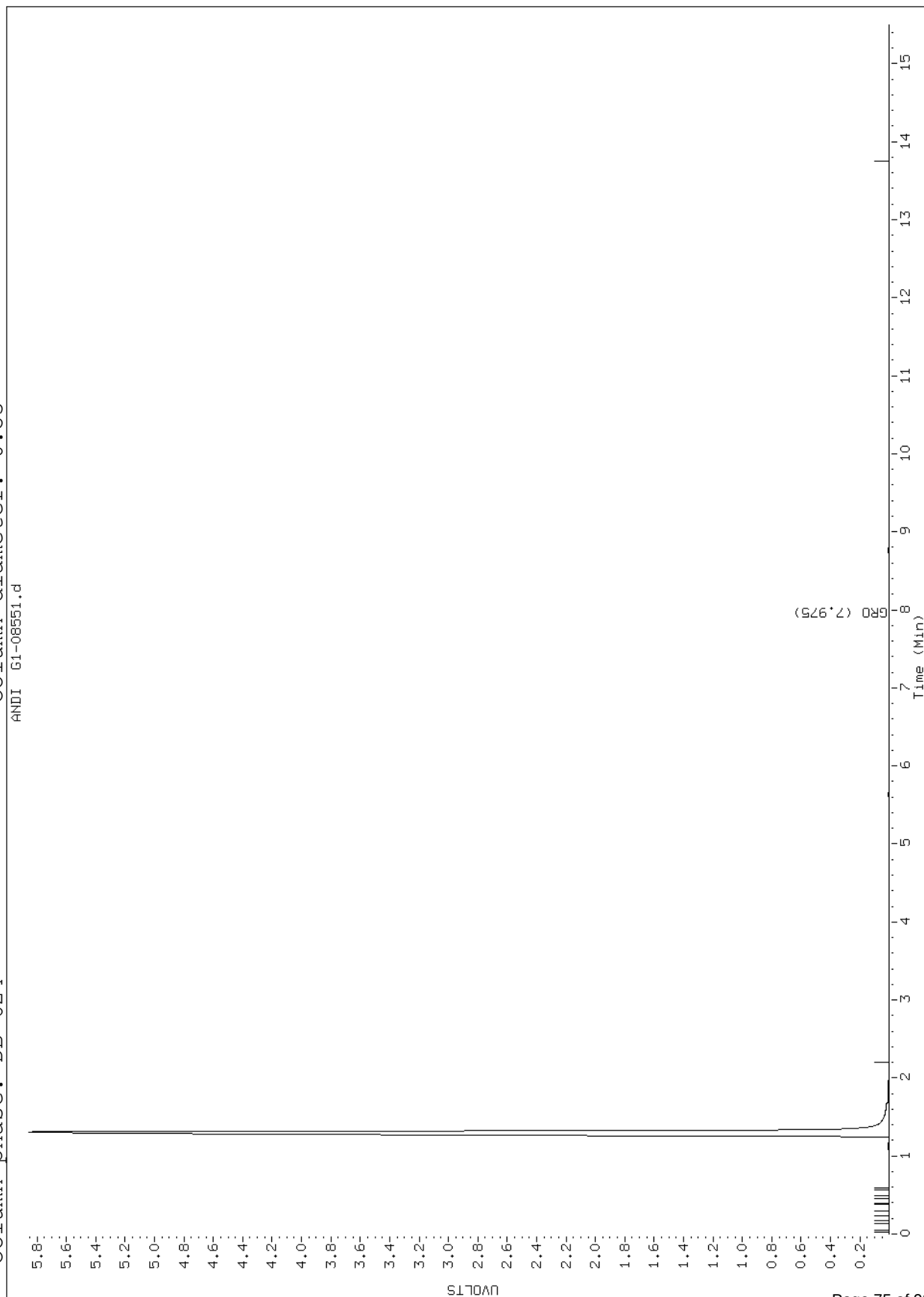


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Report Date: 03/27/2014
Sample ID: 10260546007
Client ID:
Sample Information: 10260546007, TB
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

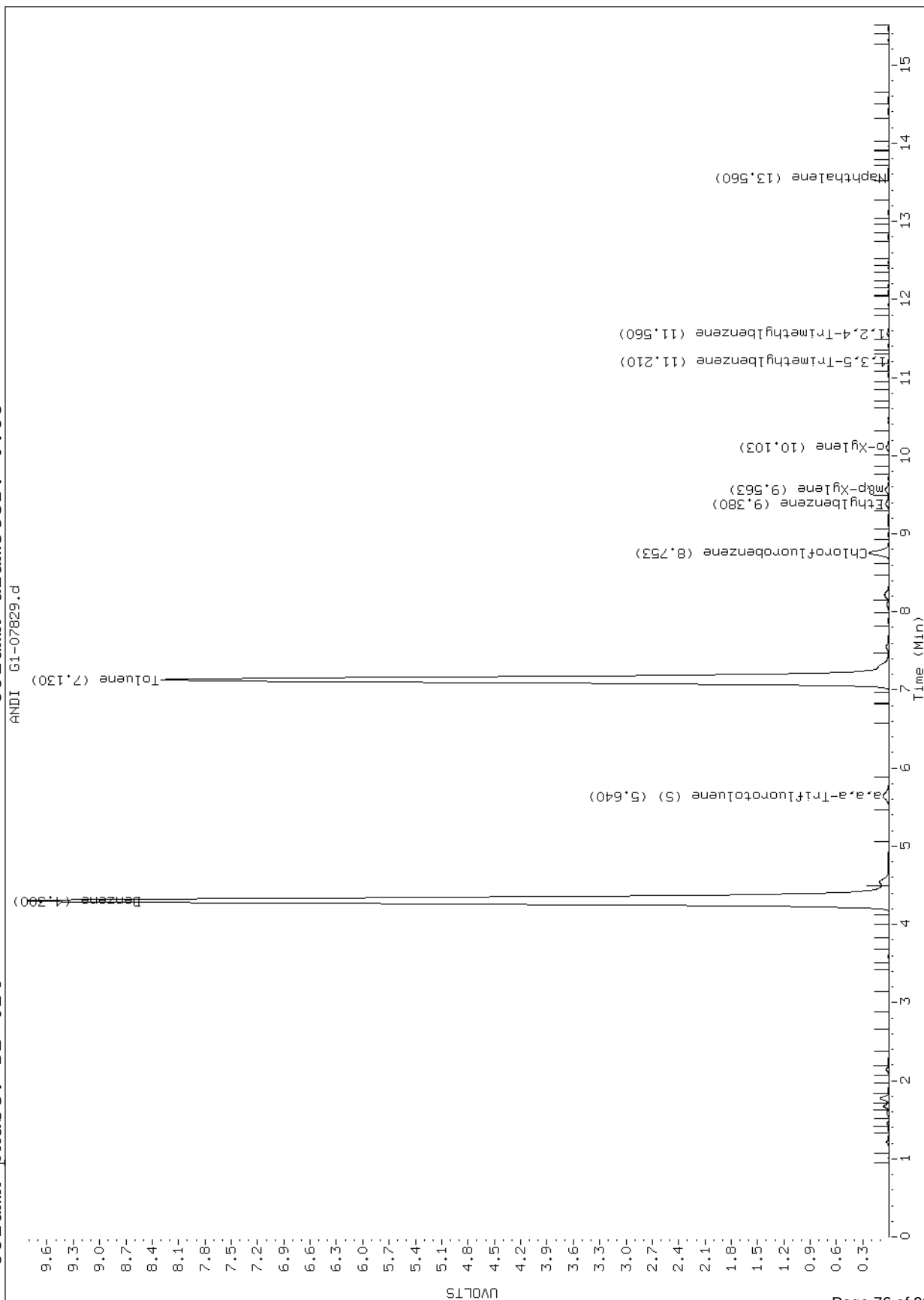


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b\G1-07829.d
Report Date: 03/20/2014
Sample ID: 10260546011
Client ID:
Sample Information: 10260546011
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

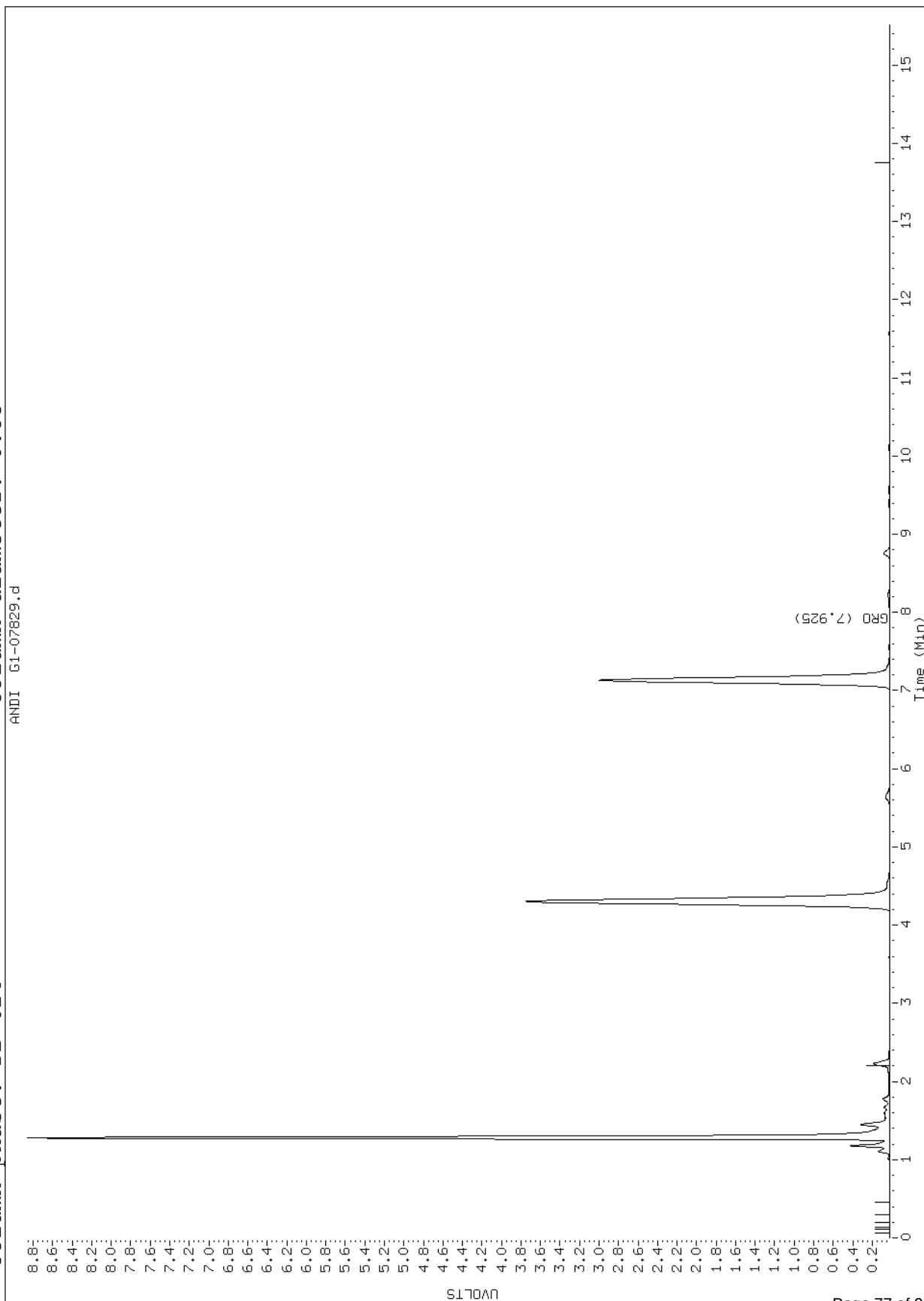


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Report Date: 03/20/2014
Sample ID: 10260546011
Client ID:
Sample Information: 10260546011
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

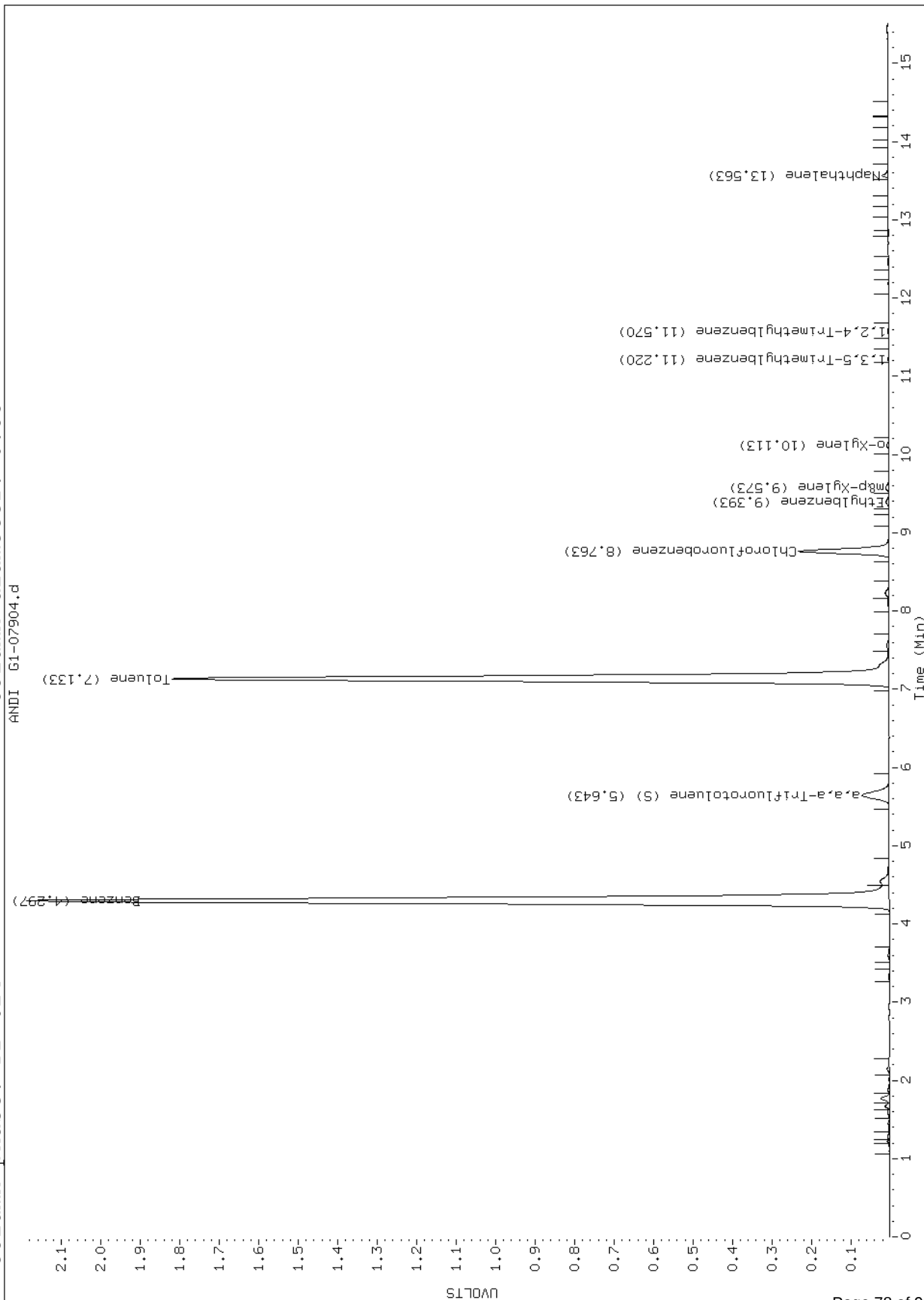


Data File: \\192.168.10.12\chem\10gcv3.i\032014a-1.b/G1-07904.d
Report Date: 03/20/2014
Sample ID: 10260546011
Client ID:
Sample Information: 10260546011,5,DL
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

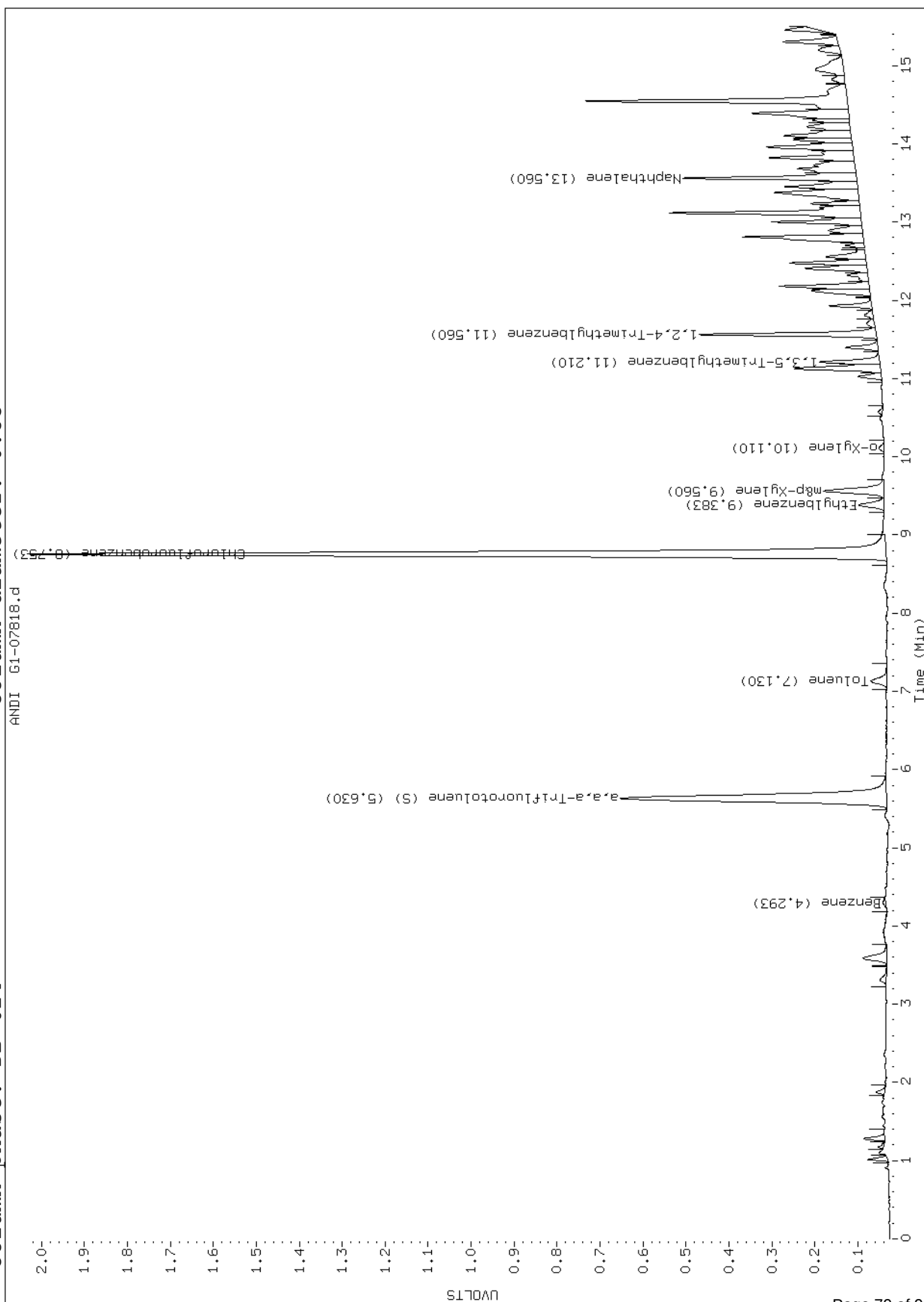


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b/G1-07818.d
Report Date: 03/20/2014
Sample ID: 10260546012
Client ID:
Sample Information: 10260546012
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

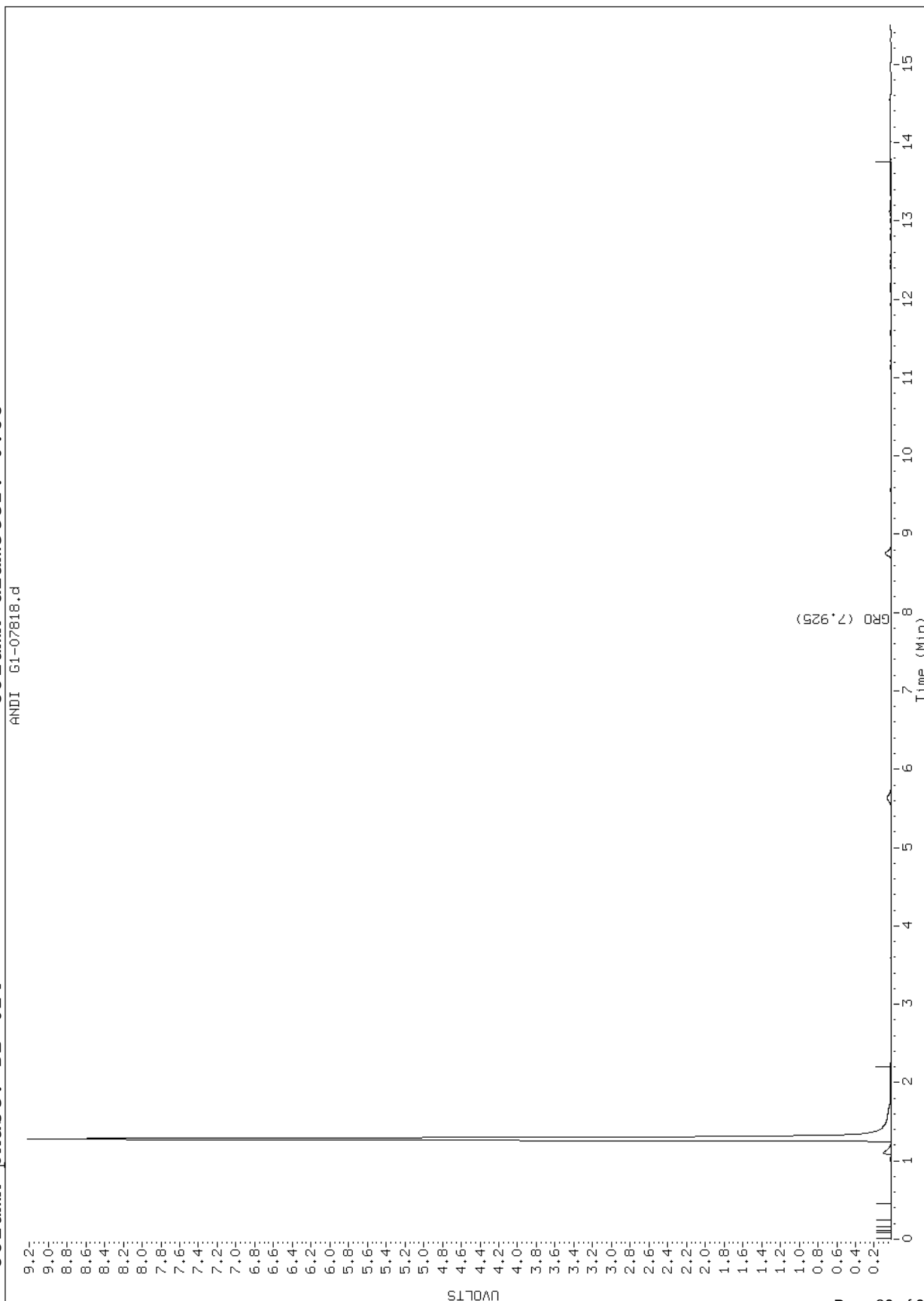


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-2.b\G1-07818.d
Report Date: 03/20/2014
Sample ID: 10260546012
Client ID:
Sample Information: 10260546012
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

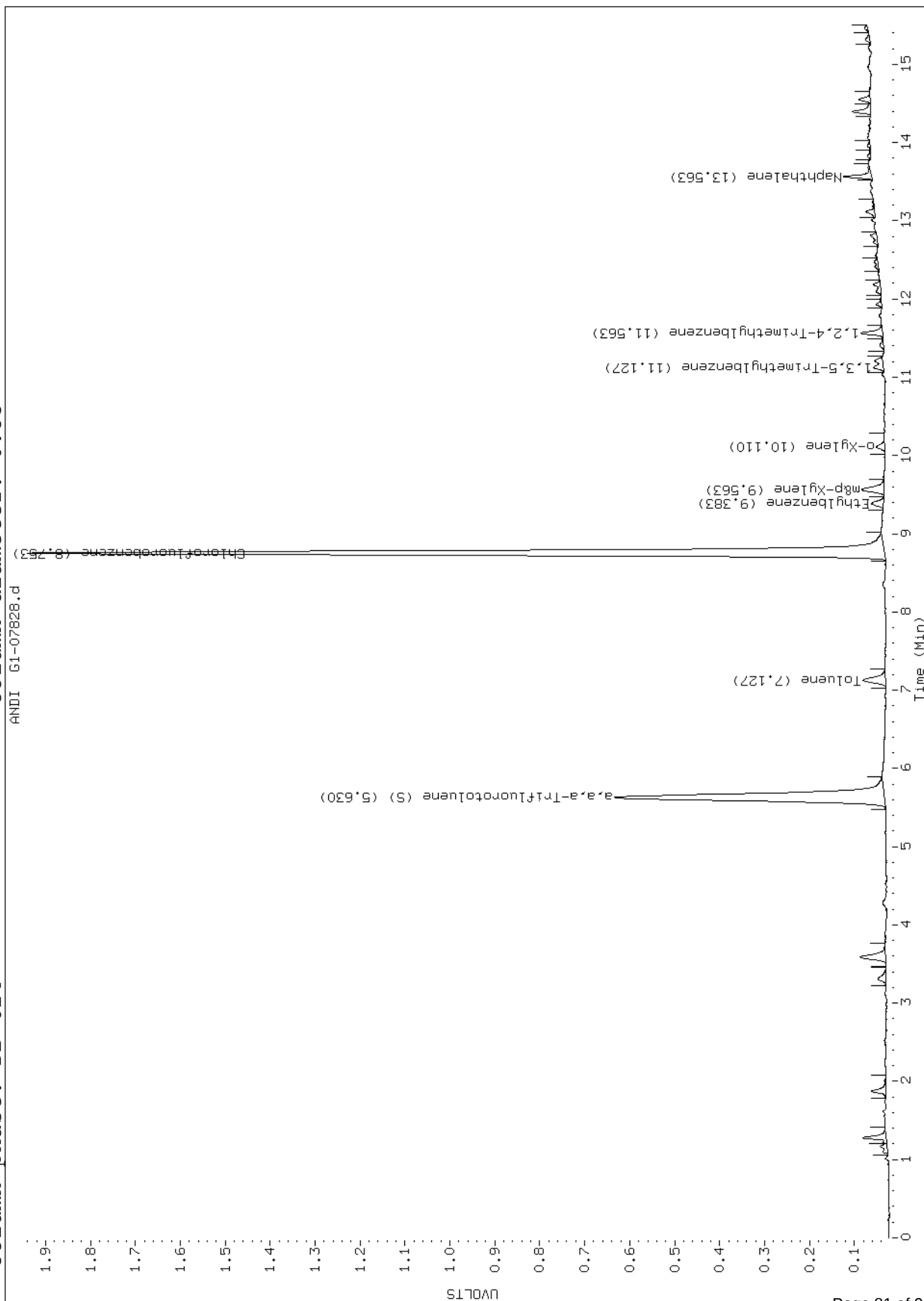


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b\G1-07828.d
Report Date: 03/20/2014
Sample ID: 10260546013
Client ID:
Sample Information: 10260546013,2,SED,pH
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

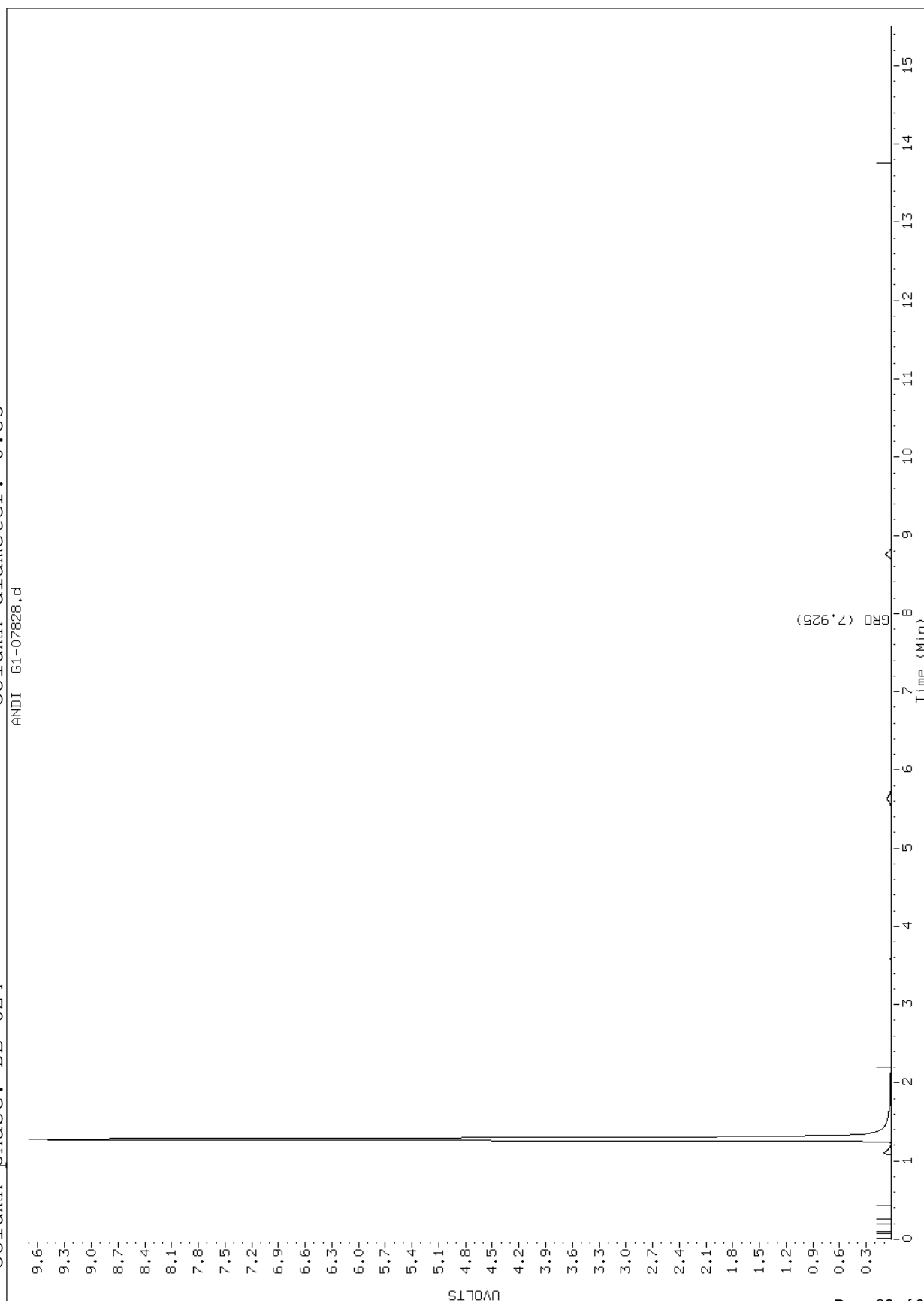


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-2.b\G1-07828.d
Report Date: 03/20/2014
Sample ID: 10260546013
Client ID:
Sample Information: 10260546013, 2, SED, pH
Purge Volume: MS2
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

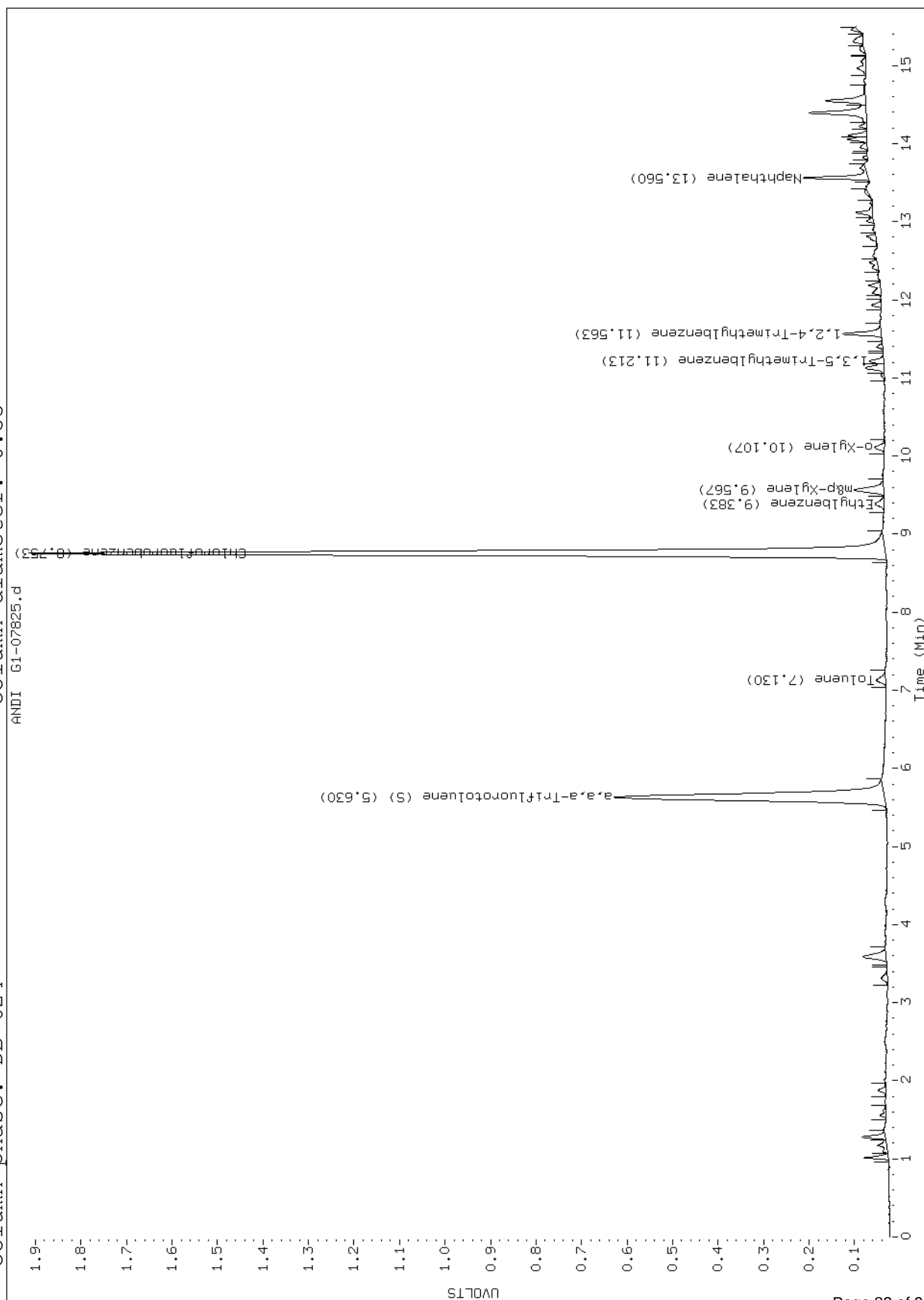


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b\G1-07825.d
Report Date: 03/20/2014
Sample ID: 10260546014
Client ID:
Sample Information: 10260546014
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

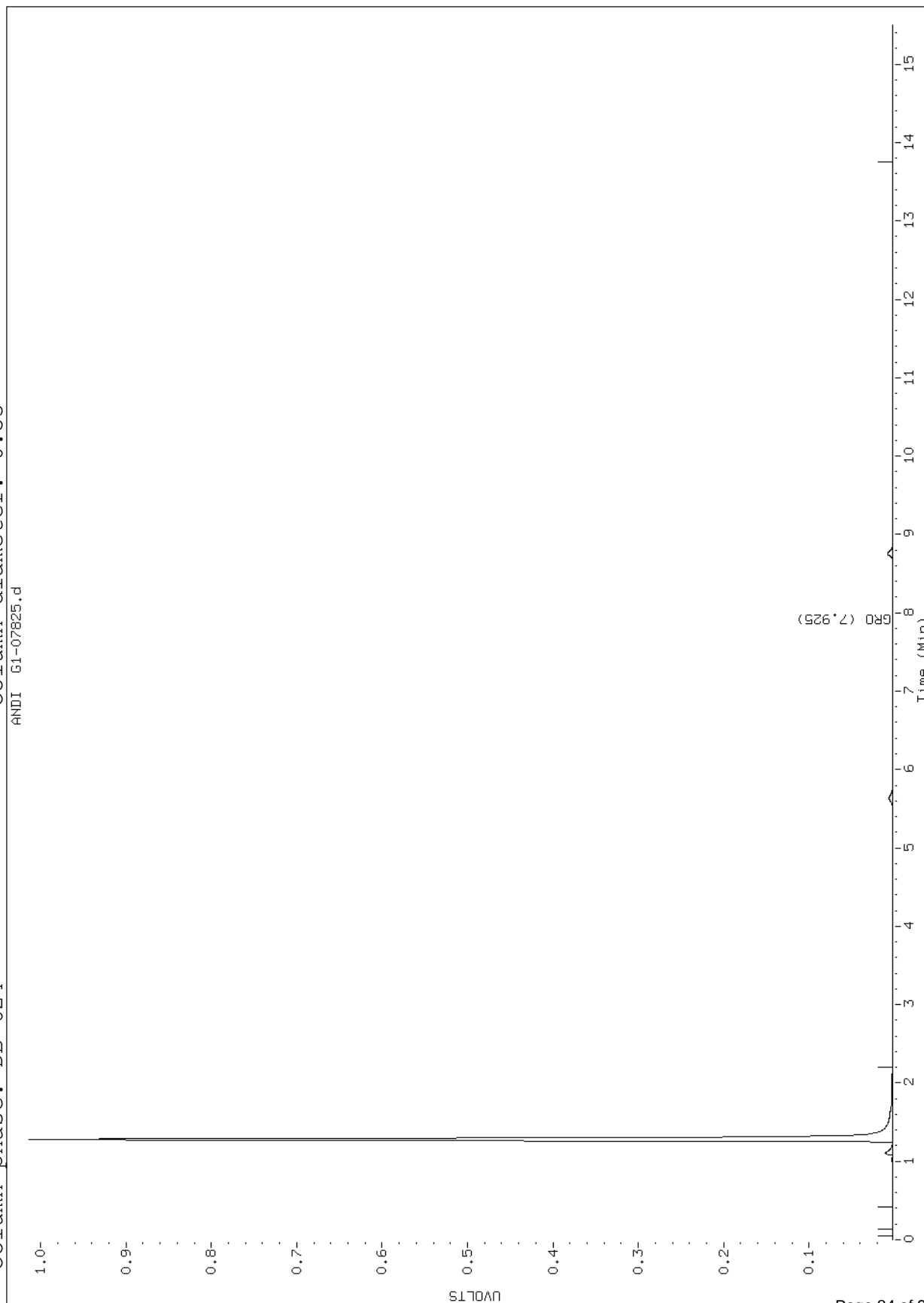


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-2.b/G1-07825.d
Report Date: 03/20/2014
Sample ID: 10260546014
Client ID:
Sample Information: 10260546014
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

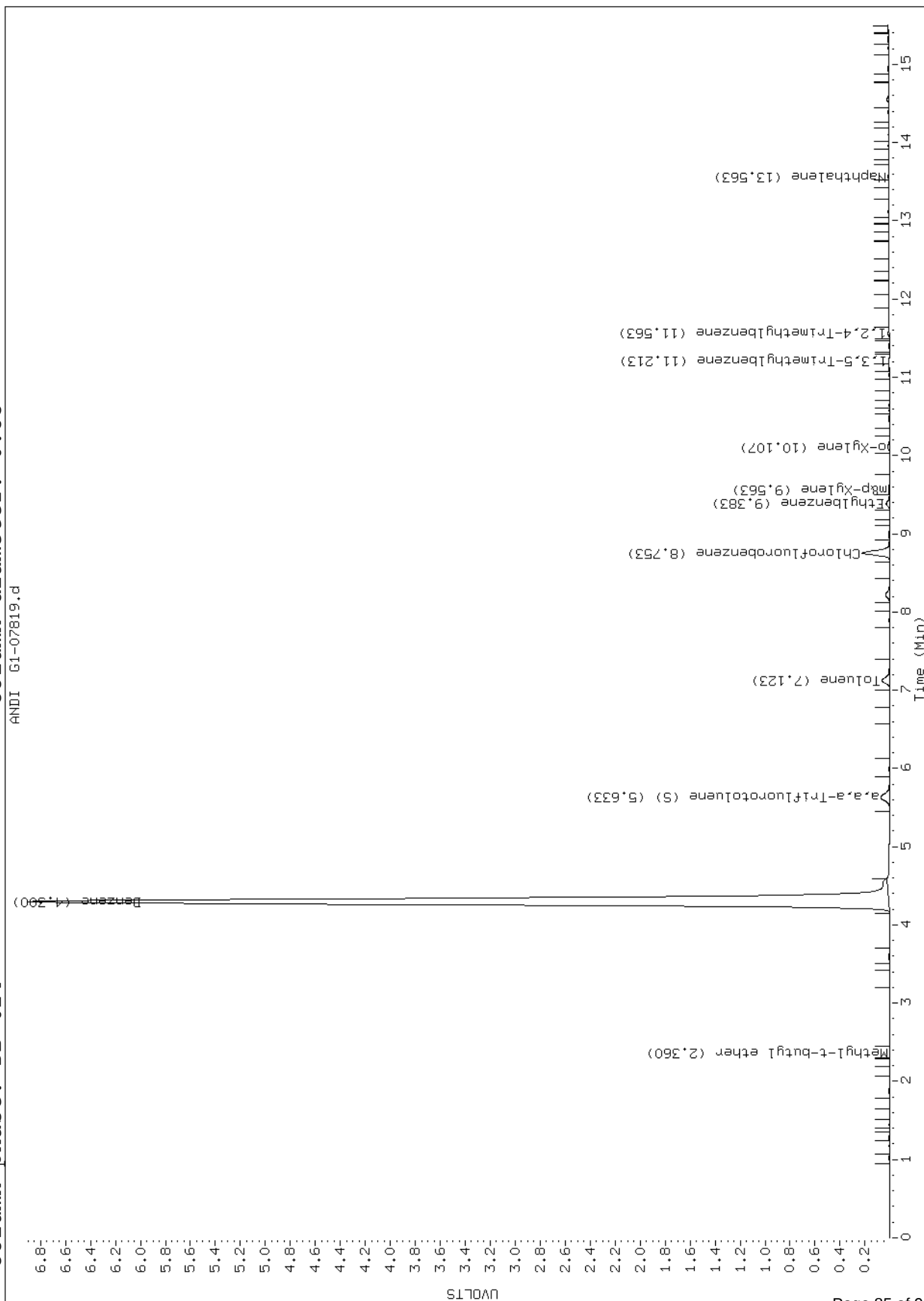


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b\G1-07819.d
Report Date: 03/20/2014
Sample ID: 10260546015
Client ID:
Sample Information: 10260546015
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

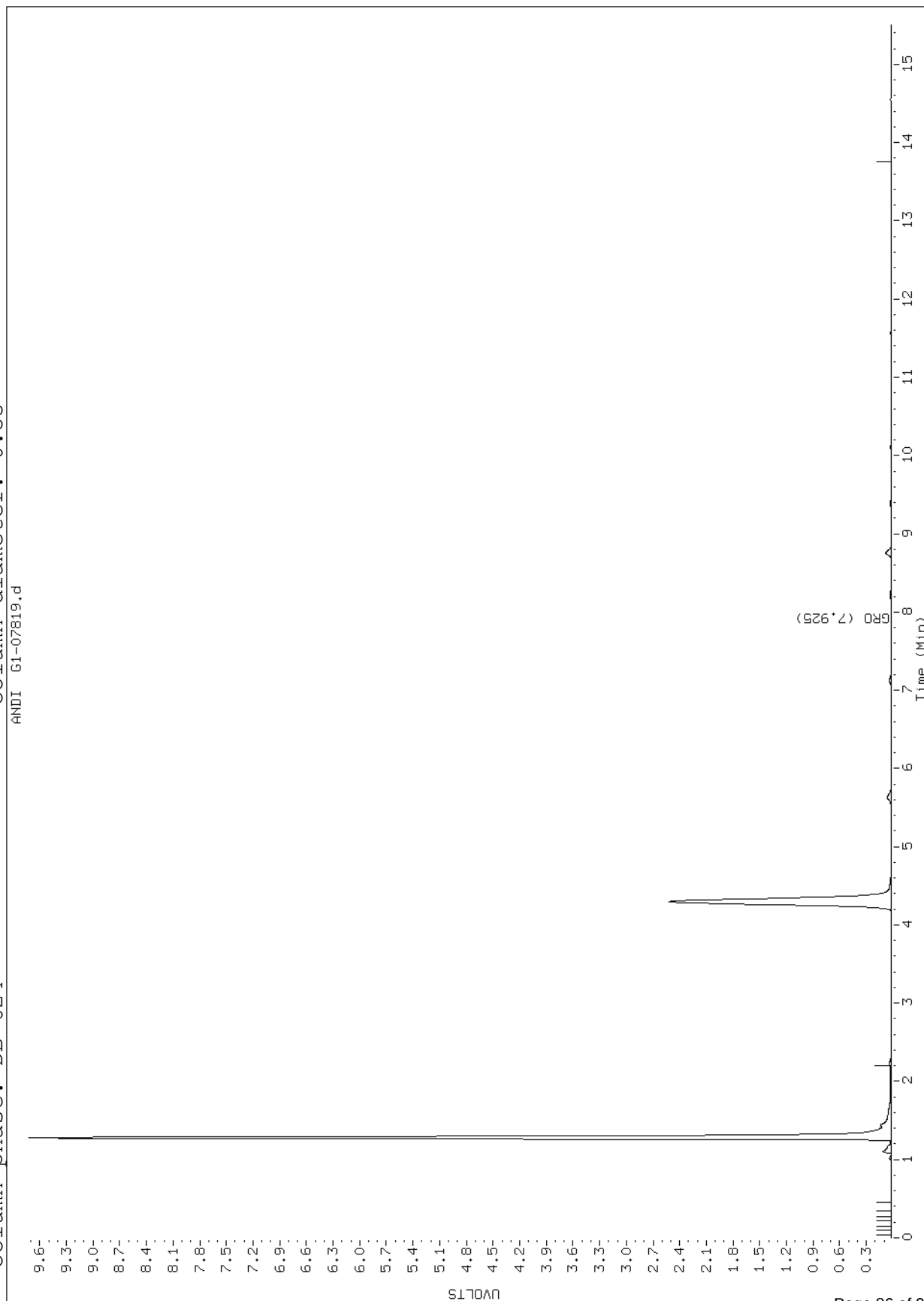


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-2.b/G1-07819.d
Report Date: 03/20/2014
Sample ID: 10260546015
Client ID:
Sample Information: 10260546015
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

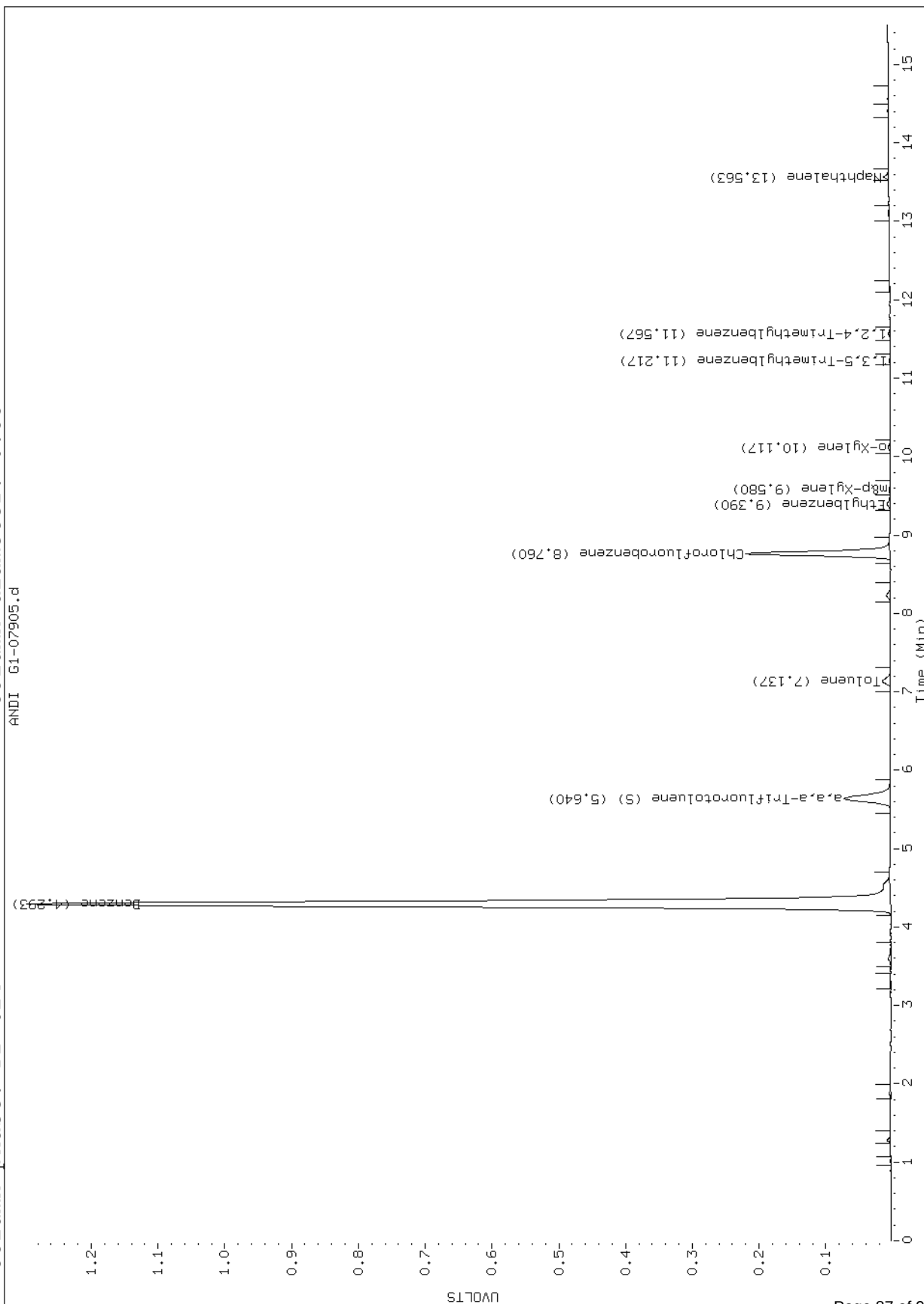


Data File: \\192.168.10.12\chem\10gcv3.i\032014a-1.b\G1-07905.d
Report Date: 03/20/2014
Sample ID: 10260546015
Client ID:
Sample Information: 10260546015, 5, DL
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

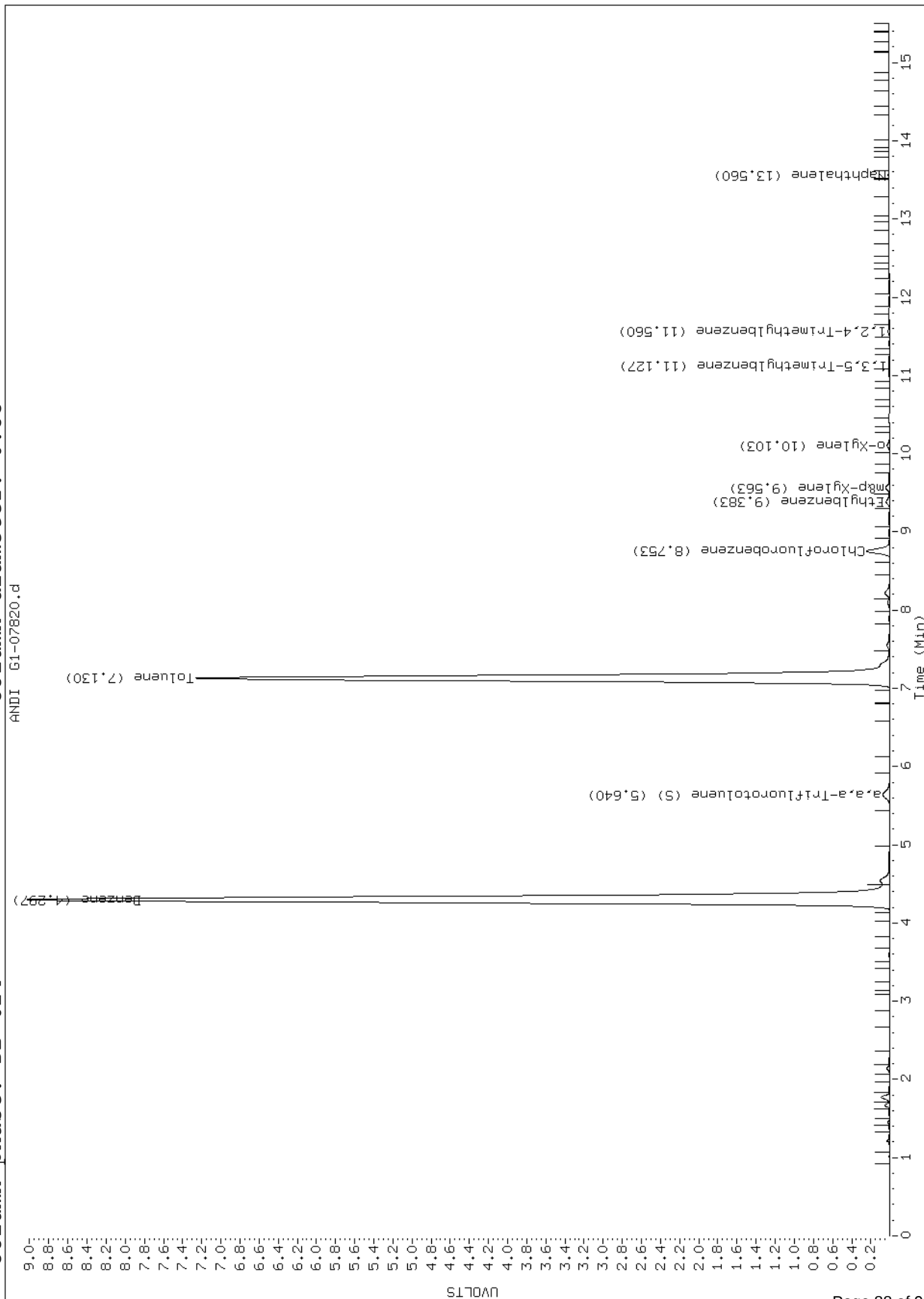


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b\G1-07820.d
Report Date: 03/20/2014
Sample ID: 10260546016
Client ID:
Sample Information: 10260546016
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

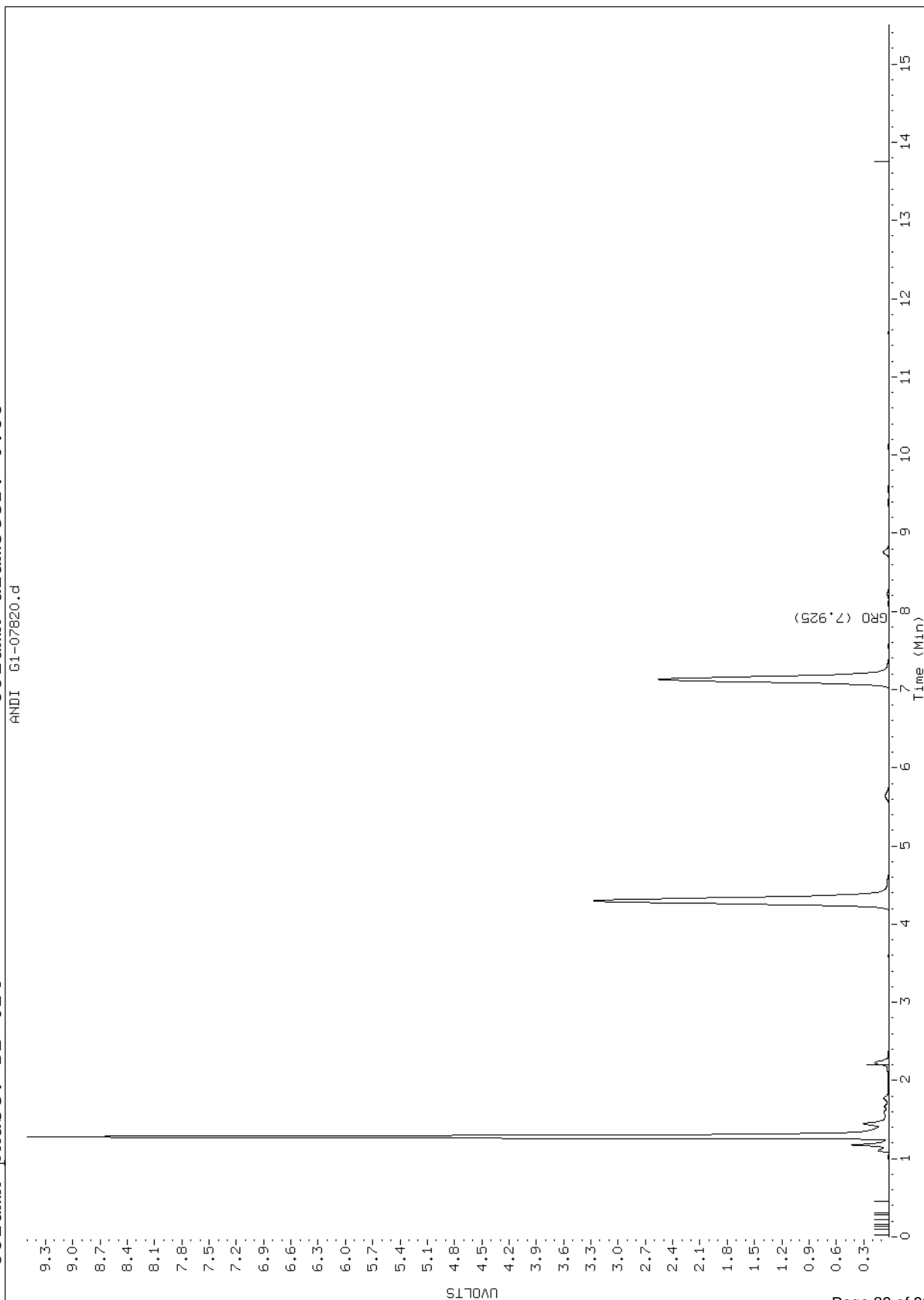


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-2.b/G1-07820.d
Report Date: 03/20/2014
Sample ID: 10260546016
Client ID:
Sample Information: 10260546016
Purge Volume: DB-624
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\032014a-1.b\G1-07906.d

Report Date: 03/20/2014

Sample ID: 10260546016

Client ID:

Instrument: 10gcv3.i

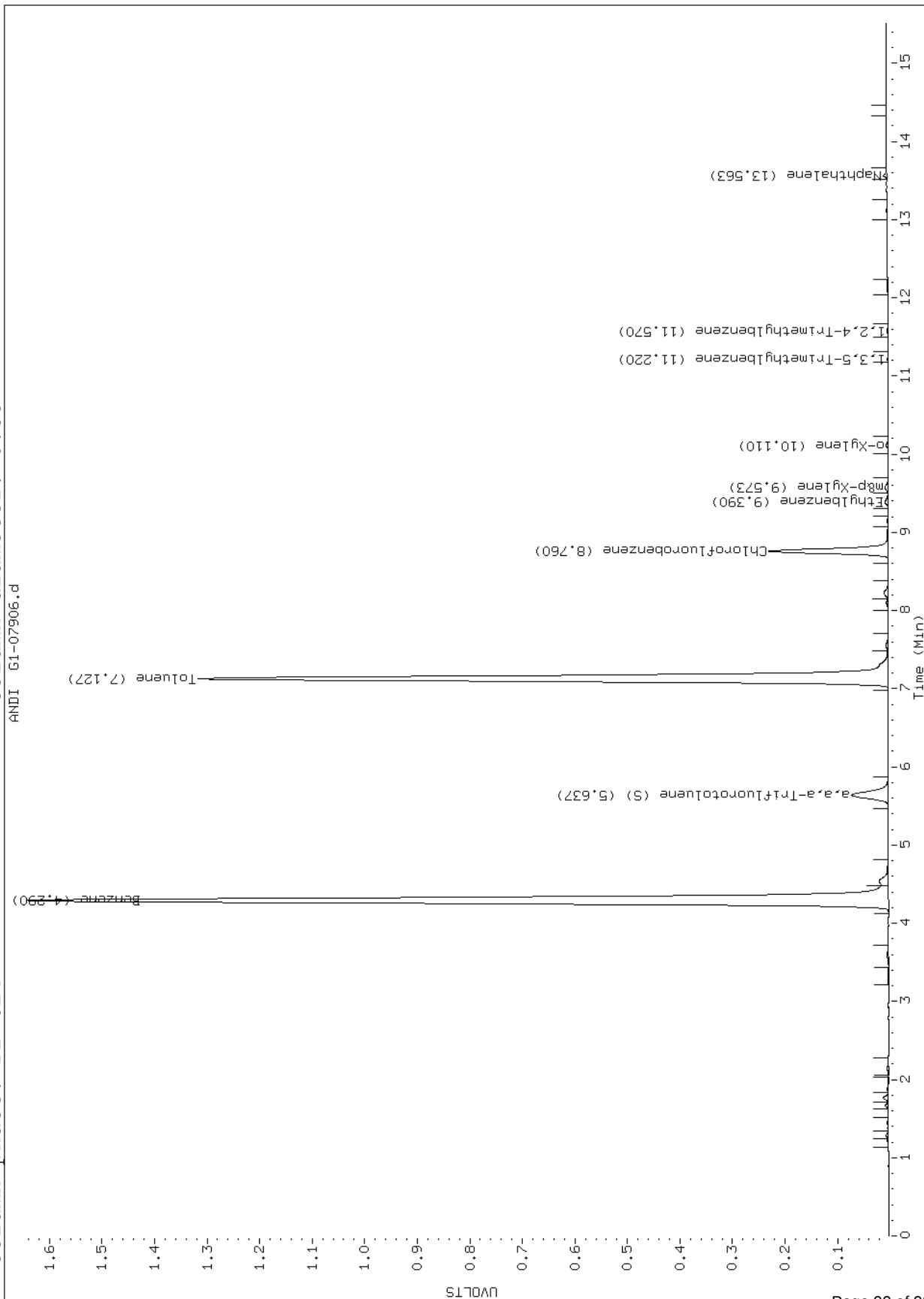
Sample Information: 10260546016, 5, DL

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53

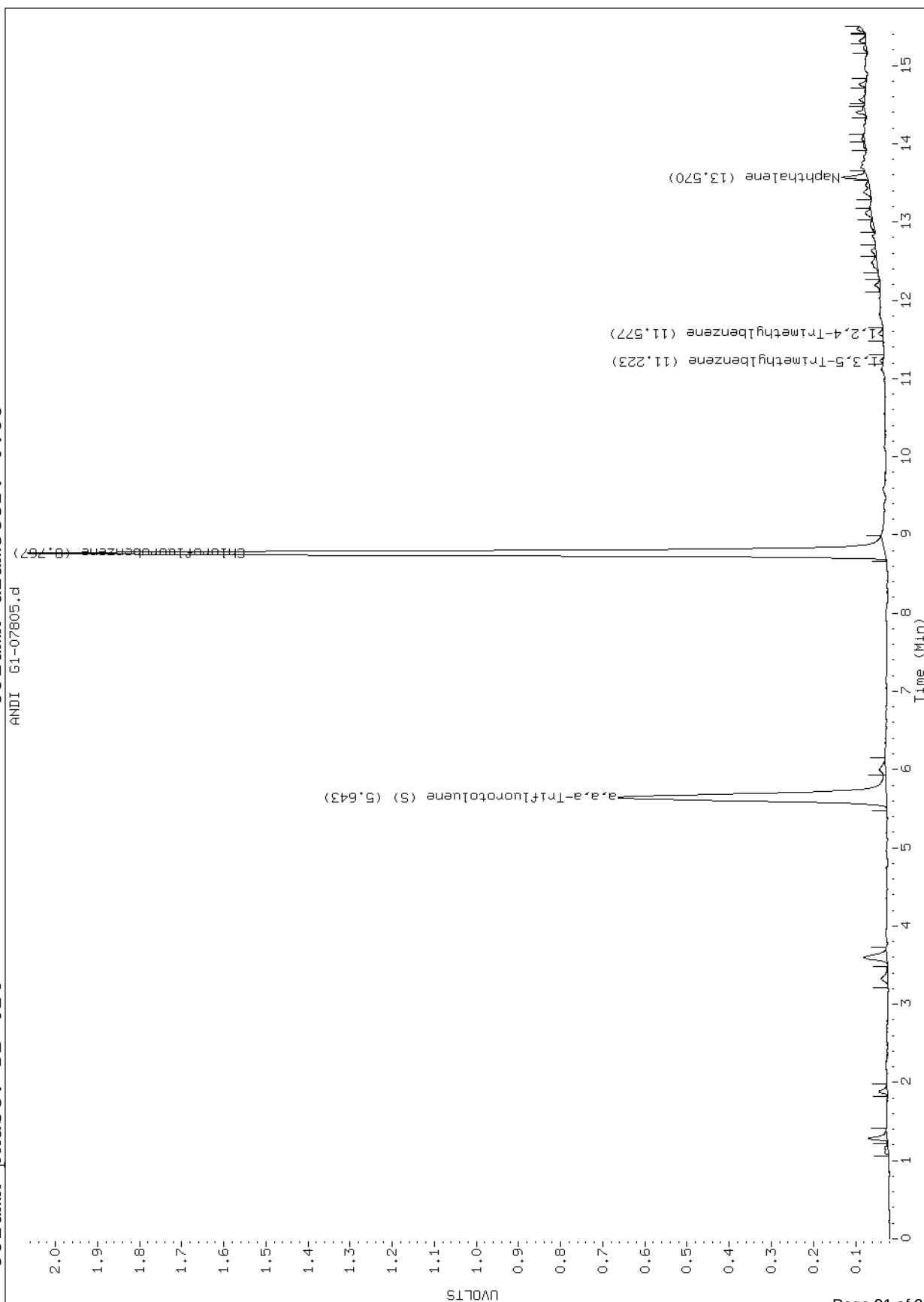


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-1.b/G1-07805.d
Report Date: 03/20/2014
Sample ID: 10260546017
Client ID:
Sample Information: 10260546017, TB
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53

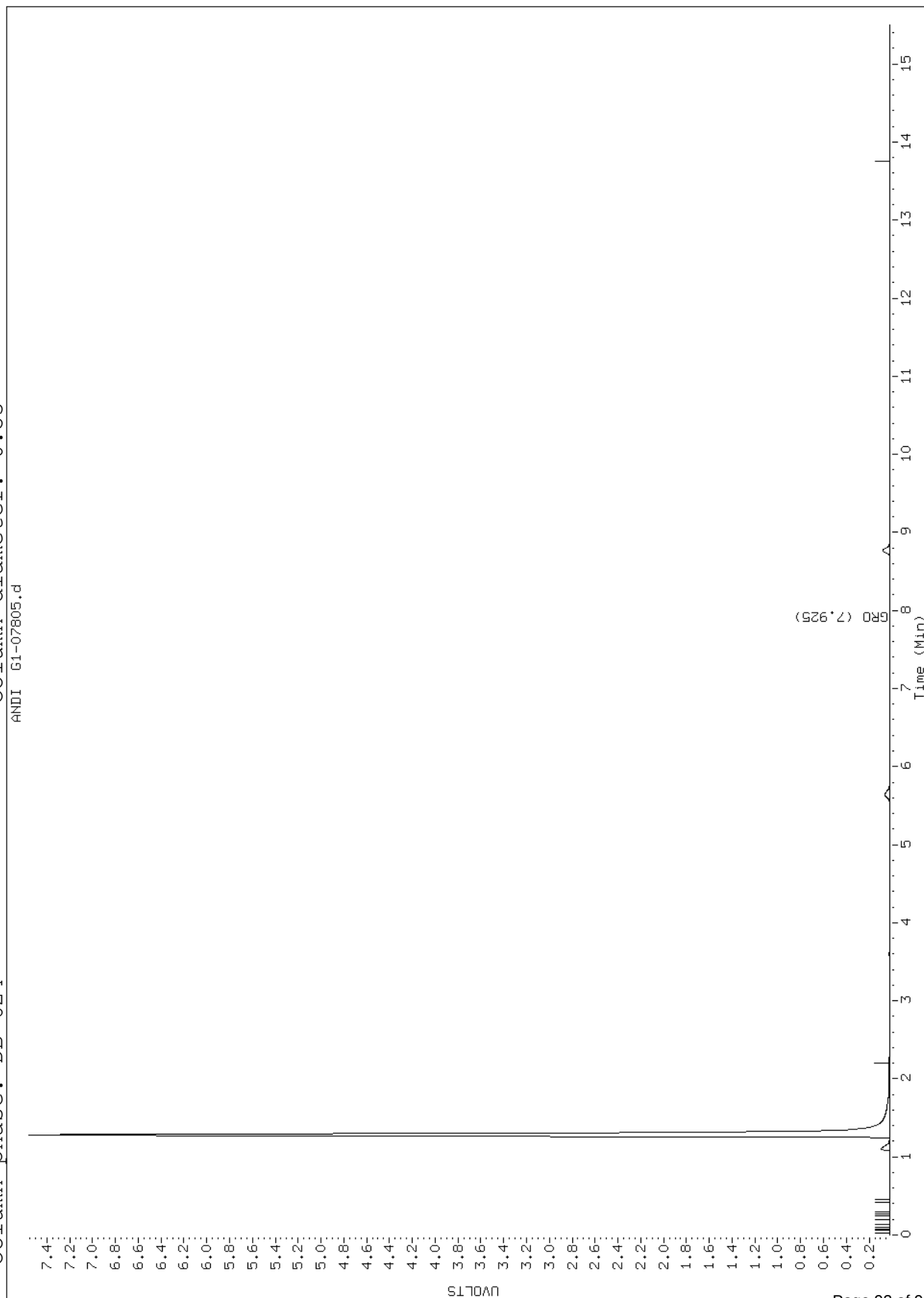


Data File: \\192.168.10.12\chem\10gcv3.i\031914a-2.b\G1-07805.d
Report Date: 03/20/2014
Sample ID: 10260546017
Client ID:
Sample Information: 10260546017, TB
Purge Volume:
Column phase: DB-624

Instrument: 10gcv3.i

Operator: MS2

Column diameter: 0.53



April 01, 2014

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

RE: Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

Dear Chris Loch:

Enclosed are the analytical results for sample(s) received by the laboratory on March 17, 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



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alabama Certification #40770

Alabama Certification #40770

Alaska Certification #: UST-078

Alaska Certification #MN00064

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #: Pace

Georgia Certification #: 959

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

Montana Certification #: MT0092

Nebraska Certification #: Pace

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

Washington Certification #: C486

Wisconsin Certification #: 999407970

West Virginia Certification #: 382

West Virginia TO-15 Approval

West Virginia DHHR #:9952C

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

Sample: VP-1 (8')		Lab ID: 10260521001	Collected: 03/13/14 13:42	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	41.8	ug/m3	36.0	1.49		03/28/14 00:34	67-64-1	
Benzene	48.3	ug/m3	0.48	1.49		03/28/14 00:34	71-43-2	
Benzyl chloride	ND	ug/m3	1.6	1.49		03/28/14 00:34	100-44-7	
Bromodichloromethane	ND	ug/m3	2.0	1.49		03/28/14 00:34	75-27-4	
Bromoform	ND	ug/m3	3.1	1.49		03/28/14 00:34	75-25-2	
Bromomethane	ND	ug/m3	1.2	1.49		03/28/14 00:34	74-83-9	
1,3-Butadiene	ND	ug/m3	0.67	1.49		03/28/14 00:34	106-99-0	
2-Butanone (MEK)	4.5	ug/m3	0.89	1.49		03/28/14 00:34	78-93-3	
Carbon disulfide	10.8	ug/m3	0.94	1.49		03/28/14 00:34	75-15-0	
Carbon tetrachloride	ND	ug/m3	0.95	1.49		03/28/14 00:34	56-23-5	
Chlorobenzene	ND	ug/m3	1.4	1.49		03/28/14 00:34	108-90-7	
Chloroethane	ND	ug/m3	0.80	1.49		03/28/14 00:34	75-00-3	
Chloroform	ND	ug/m3	1.5	1.49		03/28/14 00:34	67-66-3	
Chloromethane	ND	ug/m3	0.63	1.49		03/28/14 00:34	74-87-3	
Cyclohexane	1.3	ug/m3	1.0	1.49		03/28/14 00:34	110-82-7	
Dibromochloromethane	ND	ug/m3	2.6	1.49		03/28/14 00:34	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	2.3	1.49		03/28/14 00:34	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	1.8	1.49		03/28/14 00:34	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	1.8	1.49		03/28/14 00:34	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	1.8	1.49		03/28/14 00:34	106-46-7	
Dichlorodifluoromethane	5.3	ug/m3	1.5	1.49		03/28/14 00:34	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.2	1.49		03/28/14 00:34	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.61	1.49		03/28/14 00:34	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.2	1.49		03/28/14 00:34	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.2	1.49		03/28/14 00:34	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.2	1.49		03/28/14 00:34	156-60-5	
1,2-Dichloropropane	ND	ug/m3	1.4	1.49		03/28/14 00:34	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.4	1.49		03/28/14 00:34	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.4	1.49		03/28/14 00:34	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	2.1	1.49		03/28/14 00:34	76-14-2	
Ethanol	6.3	ug/m3	0.57	1.49		03/28/14 00:34	64-17-5	
Ethyl acetate	ND	ug/m3	1.1	1.49		03/28/14 00:34	141-78-6	
Ethylbenzene	10.7	ug/m3	1.3	1.49		03/28/14 00:34	100-41-4	
4-Ethyltoluene	4.2	ug/m3	1.5	1.49		03/28/14 00:34	622-96-8	
n-Heptane	2.8	ug/m3	1.2	1.49		03/28/14 00:34	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	3.3	1.49		03/28/14 00:34	87-68-3	
n-Hexane	3.2	ug/m3	1.1	1.49		03/28/14 00:34	110-54-3	
2-Hexanone	ND	ug/m3	1.2	1.49		03/28/14 00:34	591-78-6	
Methylene Chloride	1.6	ug/m3	1.1	1.49		03/28/14 00:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/m3	1.2	1.49		03/28/14 00:34	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	1.1	1.49		03/28/14 00:34	1634-04-4	
Naphthalene	ND	ug/m3	1.6	1.49		03/28/14 00:34	91-20-3	
2-Propanol	10.1	ug/m3	0.74	1.49		03/28/14 00:34	67-63-0	
Propylene	47.4	ug/m3	0.52	1.49		03/28/14 00:34	115-07-1	
Styrene	ND	ug/m3	1.3	1.49		03/28/14 00:34	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	1.0	1.49		03/28/14 00:34	79-34-5	
Tetrachloroethene	6.7	ug/m3	1.0	1.49		03/28/14 00:34	127-18-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

Sample: VP-1 (8')		Lab ID: 10260521001	Collected: 03/13/14 13:42	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Tetrahydrofuran	ND	ug/m3	0.89	1.49		03/28/14 00:34	109-99-9	
Toluene	115	ug/m3	1.1	1.49		03/28/14 00:34	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	2.2	1.49		03/28/14 00:34	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	1.7	1.49		03/28/14 00:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	0.82	1.49		03/28/14 00:34	79-00-5	
Trichloroethene	ND	ug/m3	0.82	1.49		03/28/14 00:34	79-01-6	
Trichlorofluoromethane	ND	ug/m3	1.7	1.49		03/28/14 00:34	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	2.4	1.49		03/28/14 00:34	76-13-1	
1,2,4-Trimethylbenzene	8.4	ug/m3	1.5	1.49		03/28/14 00:34	95-63-6	
1,3,5-Trimethylbenzene	2.0	ug/m3	1.5	1.49		03/28/14 00:34	108-67-8	
Vinyl acetate	ND	ug/m3	1.1	1.49		03/28/14 00:34	108-05-4	
Vinyl chloride	ND	ug/m3	0.39	1.49		03/28/14 00:34	75-01-4	
m&p-Xylene	47.5	ug/m3	2.6	1.49		03/28/14 00:34	179601-23-1	
o-Xylene	12.5	ug/m3	1.3	1.49		03/28/14 00:34	95-47-6	

Sample: VP-2 (8')		Lab ID: 10260521002	Collected: 03/13/14 17:21	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	74.2	ug/m3	32.3	1.34		03/28/14 01:30	67-64-1	
Benzene	2.5	ug/m3	0.44	1.34		03/28/14 01:30	71-43-2	
Benzyl chloride	ND	ug/m3	1.4	1.34		03/28/14 01:30	100-44-7	
Bromodichloromethane	ND	ug/m3	1.8	1.34		03/28/14 01:30	75-27-4	
Bromoform	ND	ug/m3	2.8	1.34		03/28/14 01:30	75-25-2	
Bromomethane	ND	ug/m3	1.1	1.34		03/28/14 01:30	74-83-9	
1,3-Butadiene	ND	ug/m3	0.60	1.34		03/28/14 01:30	106-99-0	
2-Butanone (MEK)	16.7	ug/m3	0.80	1.34		03/28/14 01:30	78-93-3	
Carbon disulfide	2.6	ug/m3	0.84	1.34		03/28/14 01:30	75-15-0	
Carbon tetrachloride	9.7	ug/m3	0.86	1.34		03/28/14 01:30	56-23-5	
Chlorobenzene	ND	ug/m3	1.3	1.34		03/28/14 01:30	108-90-7	
Chloroethane	ND	ug/m3	0.72	1.34		03/28/14 01:30	75-00-3	
Chloroform	85.4	ug/m3	1.3	1.34		03/28/14 01:30	67-66-3	
Chloromethane	ND	ug/m3	0.56	1.34		03/28/14 01:30	74-87-3	
Cyclohexane	ND	ug/m3	0.94	1.34		03/28/14 01:30	110-82-7	
Dibromochloromethane	ND	ug/m3	2.3	1.34		03/28/14 01:30	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	2.1	1.34		03/28/14 01:30	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	1.6	1.34		03/28/14 01:30	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	1.6	1.34		03/28/14 01:30	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	1.6	1.34		03/28/14 01:30	106-46-7	
Dichlorodifluoromethane	3.3	ug/m3	1.4	1.34		03/28/14 01:30	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.1	1.34		03/28/14 01:30	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.55	1.34		03/28/14 01:30	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.1	1.34		03/28/14 01:30	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.1	1.34		03/28/14 01:30	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.1	1.34		03/28/14 01:30	156-60-5	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

Sample: VP-2 (8')		Lab ID: 10260521002	Collected: 03/13/14 17:21	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
1,2-Dichloropropane	ND	ug/m3	1.3	1.34		03/28/14 01:30	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.2	1.34		03/28/14 01:30	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.2	1.34		03/28/14 01:30	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	1.9	1.34		03/28/14 01:30	76-14-2	
Ethanol	9.2	ug/m3	0.51	1.34		03/28/14 01:30	64-17-5	
Ethyl acetate	ND	ug/m3	0.98	1.34		03/28/14 01:30	141-78-6	
Ethylbenzene	14.1	ug/m3	1.2	1.34		03/28/14 01:30	100-41-4	
4-Ethyltoluene	5.3	ug/m3	1.3	1.34		03/28/14 01:30	622-96-8	
n-Heptane	4.8	ug/m3	1.1	1.34		03/28/14 01:30	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	2.9	1.34		03/28/14 01:30	87-68-3	
n-Hexane	5.3	ug/m3	0.96	1.34		03/28/14 01:30	110-54-3	
2-Hexanone	ND	ug/m3	1.1	1.34		03/28/14 01:30	591-78-6	
Methylene Chloride	2.0	ug/m3	0.95	1.34		03/28/14 01:30	75-09-2	
4-Methyl-2-pentanone (MIBK)	1.4	ug/m3	1.1	1.34		03/28/14 01:30	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	0.98	1.34		03/28/14 01:30	1634-04-4	
Naphthalene	ND	ug/m3	1.4	1.34		03/28/14 01:30	91-20-3	
2-Propanol	45.8	ug/m3	0.67	1.34		03/28/14 01:30	67-63-0	
Propylene	19.2	ug/m3	0.47	1.34		03/28/14 01:30	115-07-1	
Styrene	ND	ug/m3	1.2	1.34		03/28/14 01:30	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	0.94	1.34		03/28/14 01:30	79-34-5	
Tetrachloroethene	6.4	ug/m3	0.92	1.34		03/28/14 01:30	127-18-4	
Tetrahydrofuran	2.2	ug/m3	0.80	1.34		03/28/14 01:30	109-99-9	
Toluene	80.0	ug/m3	1.0	1.34		03/28/14 01:30	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	2.0	1.34		03/28/14 01:30	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	1.5	1.34		03/28/14 01:30	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	0.74	1.34		03/28/14 01:30	79-00-5	
Trichloroethene	ND	ug/m3	0.74	1.34		03/28/14 01:30	79-01-6	
Trichlorofluoromethane	ND	ug/m3	1.5	1.34		03/28/14 01:30	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	2.1	1.34		03/28/14 01:30	76-13-1	
1,2,4-Trimethylbenzene	10.2	ug/m3	1.3	1.34		03/28/14 01:30	95-63-6	
1,3,5-Trimethylbenzene	2.5	ug/m3	1.3	1.34		03/28/14 01:30	108-67-8	
Vinyl acetate	2.3	ug/m3	0.96	1.34		03/28/14 01:30	108-05-4	
Vinyl chloride	ND	ug/m3	0.35	1.34		03/28/14 01:30	75-01-4	
m&p-Xylene	70.9	ug/m3	2.4	1.34		03/28/14 01:30	179601-23-1	
o-Xylene	16.7	ug/m3	1.2	1.34		03/28/14 01:30	95-47-6	

Sample: VP-3 (8')		Lab ID: 10260521003	Collected: 03/14/14 08:15	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	54.8	ug/m3	32.3	1.34		03/28/14 01:58	67-64-1	
Benzene	3.1	ug/m3	0.44	1.34		03/28/14 01:58	71-43-2	
Benzyl chloride	ND	ug/m3	1.4	1.34		03/28/14 01:58	100-44-7	
Bromodichloromethane	ND	ug/m3	1.8	1.34		03/28/14 01:58	75-27-4	
Bromoform	ND	ug/m3	2.8	1.34		03/28/14 01:58	75-25-2	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

Sample: VP-3 (8')		Lab ID: 10260521003	Collected: 03/14/14 08:15	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Bromomethane	ND	ug/m3	1.1	1.34		03/28/14 01:58	74-83-9	
1,3-Butadiene	5.3	ug/m3	0.60	1.34		03/28/14 01:58	106-99-0	
2-Butanone (MEK)	10.9	ug/m3	0.80	1.34		03/28/14 01:58	78-93-3	
Carbon disulfide	1.3	ug/m3	0.84	1.34		03/28/14 01:58	75-15-0	
Carbon tetrachloride	ND	ug/m3	0.86	1.34		03/28/14 01:58	56-23-5	
Chlorobenzene	ND	ug/m3	1.3	1.34		03/28/14 01:58	108-90-7	
Chloroethane	ND	ug/m3	0.72	1.34		03/28/14 01:58	75-00-3	
Chloroform	ND	ug/m3	1.3	1.34		03/28/14 01:58	67-66-3	
Chloromethane	ND	ug/m3	0.56	1.34		03/28/14 01:58	74-87-3	
Cyclohexane	ND	ug/m3	0.94	1.34		03/28/14 01:58	110-82-7	
Dibromochloromethane	ND	ug/m3	2.3	1.34		03/28/14 01:58	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	2.1	1.34		03/28/14 01:58	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	1.6	1.34		03/28/14 01:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	1.6	1.34		03/28/14 01:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	1.6	1.34		03/28/14 01:58	106-46-7	
Dichlorodifluoromethane	17.2	ug/m3	1.4	1.34		03/28/14 01:58	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.1	1.34		03/28/14 01:58	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.55	1.34		03/28/14 01:58	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.1	1.34		03/28/14 01:58	75-35-4	
cis-1,2-Dichloroethene	1.7	ug/m3	1.1	1.34		03/28/14 01:58	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.1	1.34		03/28/14 01:58	156-60-5	
1,2-Dichloropropane	ND	ug/m3	1.3	1.34		03/28/14 01:58	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	1.2	1.34		03/28/14 01:58	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	1.2	1.34		03/28/14 01:58	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	1.9	1.34		03/28/14 01:58	76-14-2	
Ethanol	8.8	ug/m3	0.51	1.34		03/28/14 01:58	64-17-5	
Ethyl acetate	1.0	ug/m3	0.98	1.34		03/28/14 01:58	141-78-6	
Ethylbenzene	10.3	ug/m3	1.2	1.34		03/28/14 01:58	100-41-4	
4-Ethyltoluene	1.8	ug/m3	1.3	1.34		03/28/14 01:58	622-96-8	
n-Heptane	16.2	ug/m3	1.1	1.34		03/28/14 01:58	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	2.9	1.34		03/28/14 01:58	87-68-3	
n-Hexane	7.2	ug/m3	0.96	1.34		03/28/14 01:58	110-54-3	
2-Hexanone	ND	ug/m3	1.1	1.34		03/28/14 01:58	591-78-6	
Methylene Chloride	3.6	ug/m3	0.95	1.34		03/28/14 01:58	75-09-2	
4-Methyl-2-pentanone (MIBK)	1.8	ug/m3	1.1	1.34		03/28/14 01:58	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	0.98	1.34		03/28/14 01:58	1634-04-4	
Naphthalene	ND	ug/m3	1.4	1.34		03/28/14 01:58	91-20-3	
2-Propanol	10.9	ug/m3	0.67	1.34		03/28/14 01:58	67-63-0	
Propylene	31.2	ug/m3	0.47	1.34		03/28/14 01:58	115-07-1	
Styrene	ND	ug/m3	1.2	1.34		03/28/14 01:58	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	0.94	1.34		03/28/14 01:58	79-34-5	
Tetrachloroethene	1.9	ug/m3	0.92	1.34		03/28/14 01:58	127-18-4	
Tetrahydrofuran	3.0	ug/m3	0.80	1.34		03/28/14 01:58	109-99-9	
Toluene	54.0	ug/m3	1.0	1.34		03/28/14 01:58	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	2.0	1.34		03/28/14 01:58	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	1.5	1.34		03/28/14 01:58	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	0.74	1.34		03/28/14 01:58	79-00-5	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

Sample: VP-3 (8')		Lab ID: 10260521003	Collected: 03/14/14 08:15	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Trichloroethene	54.0	ug/m3	0.74	1.34		03/28/14 01:58	79-01-6	
Trichlorofluoromethane	ND	ug/m3	1.5	1.34		03/28/14 01:58	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	2.1	1.34		03/28/14 01:58	76-13-1	
1,2,4-Trimethylbenzene	3.4	ug/m3	1.3	1.34		03/28/14 01:58	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/m3	1.3	1.34		03/28/14 01:58	108-67-8	
Vinyl acetate	1.7	ug/m3	0.96	1.34		03/28/14 01:58	108-05-4	
Vinyl chloride	ND	ug/m3	0.35	1.34		03/28/14 01:58	75-01-4	
m&p-Xylene	49.1	ug/m3	2.4	1.34		03/28/14 01:58	179601-23-1	
o-Xylene	13.2	ug/m3	1.2	1.34		03/28/14 01:58	95-47-6	

Sample: VP-4 (8')		Lab ID: 10260521004	Collected: 03/14/14 11:52	Received: 03/17/14 14:20	Matrix: Air			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Acetone	ND	ug/m3	422	17.5		03/28/14 02:54	67-64-1	
Benzene	1.5	ug/m3	0.76	2.35		03/28/14 13:49	71-43-2	
Benzyl chloride	ND	ug/m3	2.5	2.35		03/28/14 13:49	100-44-7	
Bromodichloromethane	ND	ug/m3	3.2	2.35		03/28/14 13:49	75-27-4	
Bromoform	ND	ug/m3	4.9	2.35		03/28/14 13:49	75-25-2	
Bromomethane	ND	ug/m3	1.9	2.35		03/28/14 13:49	74-83-9	
1,3-Butadiene	ND	ug/m3	1.1	2.35		03/28/14 13:49	106-99-0	
2-Butanone (MEK)	23.7	ug/m3	1.4	2.35		03/28/14 13:49	78-93-3	
Carbon disulfide	5.4	ug/m3	1.5	2.35		03/28/14 13:49	75-15-0	
Carbon tetrachloride	ND	ug/m3	1.5	2.35		03/28/14 13:49	56-23-5	
Chlorobenzene	ND	ug/m3	2.2	2.35		03/28/14 13:49	108-90-7	
Chloroethane	ND	ug/m3	1.3	2.35		03/28/14 13:49	75-00-3	
Chloroform	ND	ug/m3	2.3	2.35		03/28/14 13:49	67-66-3	
Chloromethane	1.4	ug/m3	0.99	2.35		03/28/14 13:49	74-87-3	
Cyclohexane	ND	ug/m3	1.6	2.35		03/28/14 13:49	110-82-7	
Dibromochloromethane	ND	ug/m3	4.1	2.35		03/28/14 13:49	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/m3	3.7	2.35		03/28/14 13:49	106-93-4	
1,2-Dichlorobenzene	ND	ug/m3	2.9	2.35		03/28/14 13:49	95-50-1	
1,3-Dichlorobenzene	ND	ug/m3	2.9	2.35		03/28/14 13:49	541-73-1	
1,4-Dichlorobenzene	ND	ug/m3	2.9	2.35		03/28/14 13:49	106-46-7	
Dichlorodifluoromethane	3.6	ug/m3	2.4	2.35		03/28/14 13:49	75-71-8	
1,1-Dichloroethane	ND	ug/m3	1.9	2.35		03/28/14 13:49	75-34-3	
1,2-Dichloroethane	ND	ug/m3	0.96	2.35		03/28/14 13:49	107-06-2	
1,1-Dichloroethene	ND	ug/m3	1.9	2.35		03/28/14 13:49	75-35-4	
cis-1,2-Dichloroethene	ND	ug/m3	1.9	2.35		03/28/14 13:49	156-59-2	
trans-1,2-Dichloroethene	ND	ug/m3	1.9	2.35		03/28/14 13:49	156-60-5	
1,2-Dichloropropane	ND	ug/m3	2.2	2.35		03/28/14 13:49	78-87-5	
cis-1,3-Dichloropropene	ND	ug/m3	2.2	2.35		03/28/14 13:49	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/m3	2.2	2.35		03/28/14 13:49	10061-02-6	
Dichlorotetrafluoroethane	ND	ug/m3	3.3	2.35		03/28/14 13:49	76-14-2	
Ethanol	43.2	ug/m3	0.89	2.35		03/28/14 13:49	64-17-5	

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ANALYTICAL RESULTS

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

Sample: VP-4 (8')		Lab ID: 10260521004	Collected: 03/14/14 11:52		Received: 03/17/14 14:20		Matrix: Air	
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
TO15 MSV AIR		Analytical Method: TO-15						
Ethyl acetate	ND	ug/m3	1.7	2.35		03/28/14 13:49	141-78-6	
Ethylbenzene	4.6	ug/m3	2.1	2.35		03/28/14 13:49	100-41-4	
4-Ethyltoluene	6.5	ug/m3	2.4	2.35		03/28/14 13:49	622-96-8	
n-Heptane	2.2	ug/m3	2.0	2.35		03/28/14 13:49	142-82-5	
Hexachloro-1,3-butadiene	ND	ug/m3	5.2	2.35		03/28/14 13:49	87-68-3	
n-Hexane	159	ug/m3	1.7	2.35		03/28/14 13:49	110-54-3	
2-Hexanone	ND	ug/m3	2.0	2.35		03/28/14 13:49	591-78-6	
Methylene Chloride	154	ug/m3	12.4	17.5		03/28/14 02:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/m3	2.0	2.35		03/28/14 13:49	108-10-1	
Methyl-tert-butyl ether	ND	ug/m3	1.7	2.35		03/28/14 13:49	1634-04-4	
Naphthalene	5.1	ug/m3	2.5	2.35		03/28/14 13:49	91-20-3	
2-Propanol	4.0	ug/m3	1.2	2.35		03/28/14 13:49	67-63-0	
Propylene	ND	ug/m3	0.82	2.35		03/28/14 13:49	115-07-1	
Styrene	ND	ug/m3	2.0	2.35		03/28/14 13:49	100-42-5	
1,1,2,2-Tetrachloroethane	ND	ug/m3	1.6	2.35		03/28/14 13:49	79-34-5	
Tetrachloroethene	7.7	ug/m3	1.6	2.35		03/28/14 13:49	127-18-4	
Tetrahydrofuran	ND	ug/m3	1.4	2.35		03/28/14 13:49	109-99-9	
Toluene	199	ug/m3	1.8	2.35		03/28/14 13:49	108-88-3	
1,2,4-Trichlorobenzene	ND	ug/m3	3.5	2.35		03/28/14 13:49	120-82-1	
1,1,1-Trichloroethane	ND	ug/m3	2.6	2.35		03/28/14 13:49	71-55-6	
1,1,2-Trichloroethane	ND	ug/m3	1.3	2.35		03/28/14 13:49	79-00-5	
Trichloroethene	ND	ug/m3	1.3	2.35		03/28/14 13:49	79-01-6	
Trichlorofluoromethane	ND	ug/m3	2.7	2.35		03/28/14 13:49	75-69-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/m3	3.8	2.35		03/28/14 13:49	76-13-1	
1,2,4-Trimethylbenzene	18.9	ug/m3	2.3	2.35		03/28/14 13:49	95-63-6	
1,3,5-Trimethylbenzene	4.5	ug/m3	2.3	2.35		03/28/14 13:49	108-67-8	
Vinyl acetate	ND	ug/m3	1.7	2.35		03/28/14 13:49	108-05-4	
Vinyl chloride	ND	ug/m3	0.61	2.35		03/28/14 13:49	75-01-4	
m&p-Xylene	17.3	ug/m3	4.1	2.35		03/28/14 13:49	179601-23-1	
o-Xylene	8.2	ug/m3	2.1	2.35		03/28/14 13:49	95-47-6	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

QC Batch: AIR/19799 Analysis Method: TO-15
QC Batch Method: TO-15 Analysis Description: TO15 MSV AIR Low Level
Associated Lab Samples: 10260521001, 10260521002, 10260521003

METHOD BLANK: 1646208 Matrix: Air
Associated Lab Samples: 10260521001, 10260521002, 10260521003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	1.1	03/27/14 19:52	
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.70	03/27/14 19:52	
1,1,2-Trichloroethane	ug/m3	ND	0.55	03/27/14 19:52	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	1.6	03/27/14 19:52	
1,1-Dichloroethane	ug/m3	ND	0.82	03/27/14 19:52	
1,1-Dichloroethene	ug/m3	ND	0.81	03/27/14 19:52	
1,2,4-Trichlorobenzene	ug/m3	ND	1.5	03/27/14 19:52	
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	03/27/14 19:52	
1,2-Dibromoethane (EDB)	ug/m3	ND	1.6	03/27/14 19:52	
1,2-Dichlorobenzene	ug/m3	ND	1.2	03/27/14 19:52	
1,2-Dichloroethane	ug/m3	ND	0.41	03/27/14 19:52	
1,2-Dichloropropane	ug/m3	ND	0.94	03/27/14 19:52	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	03/27/14 19:52	
1,3-Butadiene	ug/m3	ND	0.45	03/27/14 19:52	
1,3-Dichlorobenzene	ug/m3	ND	1.2	03/27/14 19:52	
1,4-Dichlorobenzene	ug/m3	ND	1.2	03/27/14 19:52	
2-Butanone (MEK)	ug/m3	ND	0.60	03/27/14 19:52	
2-Hexanone	ug/m3	ND	0.83	03/27/14 19:52	
2-Propanol	ug/m3	ND	0.50	03/27/14 19:52	
4-Ethyltoluene	ug/m3	ND	1.0	03/27/14 19:52	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	0.83	03/27/14 19:52	
Acetone	ug/m3	ND	24.1	03/27/14 19:52	
Benzene	ug/m3	ND	0.32	03/27/14 19:52	
Benzyl chloride	ug/m3	ND	1.0	03/27/14 19:52	
Bromodichloromethane	ug/m3	ND	1.4	03/27/14 19:52	
Bromoform	ug/m3	ND	2.1	03/27/14 19:52	
Bromomethane	ug/m3	ND	0.79	03/27/14 19:52	
Carbon disulfide	ug/m3	ND	0.63	03/27/14 19:52	
Carbon tetrachloride	ug/m3	ND	0.64	03/27/14 19:52	
Chlorobenzene	ug/m3	ND	0.94	03/27/14 19:52	
Chloroethane	ug/m3	ND	0.54	03/27/14 19:52	
Chloroform	ug/m3	ND	0.99	03/27/14 19:52	
Chloromethane	ug/m3	ND	0.42	03/27/14 19:52	
cis-1,2-Dichloroethene	ug/m3	ND	0.81	03/27/14 19:52	
cis-1,3-Dichloropropene	ug/m3	ND	0.92	03/27/14 19:52	
Cyclohexane	ug/m3	ND	0.70	03/27/14 19:52	
Dibromochloromethane	ug/m3	ND	1.7	03/27/14 19:52	
Dichlorodifluoromethane	ug/m3	ND	1.0	03/27/14 19:52	
Dichlorotetrafluoroethane	ug/m3	ND	1.4	03/27/14 19:52	
Ethanol	ug/m3	ND	0.38	03/27/14 19:52	
Ethyl acetate	ug/m3	ND	0.73	03/27/14 19:52	
Ethylbenzene	ug/m3	ND	0.88	03/27/14 19:52	
Hexachloro-1,3-butadiene	ug/m3	ND	2.2	03/27/14 19:52	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

METHOD BLANK: 1646208

Matrix: Air

Associated Lab Samples: 10260521001, 10260521002, 10260521003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/m3	ND	1.8	03/27/14 19:52	
Methyl-tert-butyl ether	ug/m3	ND	0.73	03/27/14 19:52	
Methylene Chloride	ug/m3	ND	0.71	03/27/14 19:52	
n-Heptane	ug/m3	ND	0.83	03/27/14 19:52	
n-Hexane	ug/m3	ND	0.72	03/27/14 19:52	
Naphthalene	ug/m3	ND	1.1	03/27/14 19:52	
o-Xylene	ug/m3	ND	0.88	03/27/14 19:52	
Propylene	ug/m3	ND	0.35	03/27/14 19:52	
Styrene	ug/m3	ND	0.87	03/27/14 19:52	
Tetrachloroethene	ug/m3	ND	0.69	03/27/14 19:52	
Tetrahydrofuran	ug/m3	ND	0.60	03/27/14 19:52	
Toluene	ug/m3	ND	0.77	03/27/14 19:52	
trans-1,2-Dichloroethene	ug/m3	ND	0.81	03/27/14 19:52	
trans-1,3-Dichloropropene	ug/m3	ND	0.92	03/27/14 19:52	
Trichloroethene	ug/m3	ND	0.55	03/27/14 19:52	
Trichlorofluoromethane	ug/m3	ND	1.1	03/27/14 19:52	
Vinyl acetate	ug/m3	ND	0.72	03/27/14 19:52	
Vinyl chloride	ug/m3	ND	0.26	03/27/14 19:52	

LABORATORY CONTROL SAMPLE: 1646209

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	55.4	100	72-128	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	65.8	94	72-136	
1,1,2-Trichloroethane	ug/m3	55.5	54.5	98	72-130	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	78.7	101	68-126	
1,1-Dichloroethane	ug/m3	41.2	39.2	95	68-128	
1,1-Dichloroethene	ug/m3	40.3	42.5	105	68-130	
1,2,4-Trichlorobenzene	ug/m3	75.5	78.3	104	30-150	
1,2,4-Trimethylbenzene	ug/m3	50	50.7	101	71-140	
1,2-Dibromoethane (EDB)	ug/m3	78.1	78.6	101	73-136	
1,2-Dichlorobenzene	ug/m3	61.2	59.9	98	63-150	
1,2-Dichloroethane	ug/m3	41.2	40.7	99	71-132	
1,2-Dichloropropane	ug/m3	47	45.8	97	72-130	
1,3,5-Trimethylbenzene	ug/m3	50	52.1	104	73-136	
1,3-Butadiene	ug/m3	22.5	23.1	103	72-130	
1,3-Dichlorobenzene	ug/m3	61.2	59.3	97	69-142	
1,4-Dichlorobenzene	ug/m3	61.2	58.1	95	65-142	
2-Butanone (MEK)	ug/m3	30	25.5	85	71-135	
2-Hexanone	ug/m3	41.7	44.2	106	75-133	
2-Propanol	ug/m3	25	26.5	106	68-135	
4-Ethyltoluene	ug/m3	50	52.0	104	73-134	
4-Methyl-2-pentanone (MIBK)	ug/m3	41.7	45.1	108	72-137	
Acetone	ug/m3	24.2	22.8J	94	68-136	
Benzene	ug/m3	32.5	32.9	101	69-134	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

LABORATORY CONTROL SAMPLE: 1646209

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzyl chloride	ug/m3	52.5	55.3	105	71-136	
Bromodichloromethane	ug/m3	68.2	68.1	100	74-129	
Bromoform	ug/m3	105	111	105	69-138	
Bromomethane	ug/m3	39.5	42.2	107	68-127	
Carbon disulfide	ug/m3	31.7	30.8	97	68-130	
Carbon tetrachloride	ug/m3	64	68.1	106	66-134	
Chlorobenzene	ug/m3	46.8	45.3	97	72-137	
Chloroethane	ug/m3	26.8	29.0	108	69-128	
Chloroform	ug/m3	49.7	49.7	100	72-127	
Chloromethane	ug/m3	21	21.8	104	69-125	
cis-1,2-Dichloroethene	ug/m3	40.3	39.9	99	71-135	
cis-1,3-Dichloropropene	ug/m3	46.2	48.3	105	74-134	
Cyclohexane	ug/m3	35	35.5	101	72-130	
Dibromochloromethane	ug/m3	86.6	83.3	96	73-133	
Dichlorodifluoromethane	ug/m3	50.3	48.9	97	69-125	
Dichlorotetrafluoroethane	ug/m3	71.1	75.2	106	68-128	
Ethanol	ug/m3	19.2	19.8	104	70-134	
Ethyl acetate	ug/m3	36.6	35.9	98	71-134	
Ethylbenzene	ug/m3	44.2	47.1	107	73-139	
Hexachloro-1,3-butadiene	ug/m3	108	94.1	87	30-150	
m&p-Xylene	ug/m3	44.2	46.9	106	73-139	
Methyl-tert-butyl ether	ug/m3	36.7	39.0	106	72-132	
Methylene Chloride	ug/m3	35.3	35.6	101	64-134	
n-Heptane	ug/m3	41.7	44.4	106	70-130	
n-Hexane	ug/m3	35.8	31.9	89	69-128	
Naphthalene	ug/m3	53.3	48.7	91	61-150	
o-Xylene	ug/m3	44.2	43.6	99	71-138	
Propylene	ug/m3	17.5	17.9	102	69-133	
Styrene	ug/m3	43.3	50.5	117	74-136	
Tetrachloroethene	ug/m3	69	64.9	94	69-136	
Tetrahydrofuran	ug/m3	30	31.3	104	73-131	
Toluene	ug/m3	38.3	34.5	90	67-133	
trans-1,2-Dichloroethene	ug/m3	40.3	41.5	103	70-131	
trans-1,3-Dichloropropene	ug/m3	46.2	52.1	113	72-135	
Trichloroethene	ug/m3	54.6	54.8	100	70-135	
Trichlorofluoromethane	ug/m3	57.1	57.6	101	67-125	
Vinyl acetate	ug/m3	35.8	36.2	101	72-133	
Vinyl chloride	ug/m3	26	28.4	109	69-132	

SAMPLE DUPLICATE: 1646701

Parameter	Units	10260977003 Result	Dup Result	RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	ND		
1,1,2,2-Tetrachloroethane	ug/m3	ND	ND		
1,1,2-Trichloroethane	ug/m3	ND	ND		
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	ND		
1,1-Dichloroethane	ug/m3	ND	ND		

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

SAMPLE DUPLICATE: 1646701

Parameter	Units	10260977003 Result	Dup Result	RPD	Qualifiers
1,1-Dichloroethene	ug/m3	ND	ND		
1,2,4-Trichlorobenzene	ug/m3	ND	ND		
1,2,4-Trimethylbenzene	ug/m3	ND	ND		
1,2-Dibromoethane (EDB)	ug/m3	ND	ND		
1,2-Dichlorobenzene	ug/m3	ND	ND		
1,2-Dichloroethane	ug/m3	ND	ND		
1,2-Dichloropropane	ug/m3	ND	ND		
1,3,5-Trimethylbenzene	ug/m3	ND	ND		
1,3-Butadiene	ug/m3	ND	ND		
1,3-Dichlorobenzene	ug/m3	ND	ND		
1,4-Dichlorobenzene	ug/m3	8.5	9.0	6	
2-Butanone (MEK)	ug/m3	20.6	19.8	4	
2-Hexanone	ug/m3	ND	2.7		
2-Propanol	ug/m3	39.9	39.3	2	
4-Ethyltoluene	ug/m3	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	ND		
Acetone	ug/m3	44.1	43.5	1	
Benzene	ug/m3	0.94	0.94	.04	
Benzyl chloride	ug/m3	ND	ND		
Bromodichloromethane	ug/m3	ND	ND		
Bromoform	ug/m3	ND	ND		
Bromomethane	ug/m3	ND	ND		
Carbon disulfide	ug/m3	ND	ND		
Carbon tetrachloride	ug/m3	ND	ND		
Chlorobenzene	ug/m3	ND	ND		
Chloroethane	ug/m3	ND	ND		
Chloroform	ug/m3	ND	ND		
Chloromethane	ug/m3	1.0	ND		
cis-1,2-Dichloroethene	ug/m3	ND	ND		
cis-1,3-Dichloropropene	ug/m3	ND	ND		
Cyclohexane	ug/m3	ND	ND		
Dibromochloromethane	ug/m3	ND	ND		
Dichlorodifluoromethane	ug/m3	2.4	2.2	9	
Dichlorotetrafluoroethane	ug/m3	ND	ND		
Ethanol	ug/m3	121	124	2 E	
Ethyl acetate	ug/m3	1.1	1.0	6	
Ethylbenzene	ug/m3	ND	ND		
Hexachloro-1,3-butadiene	ug/m3	ND	ND		
m&p-Xylene	ug/m3	ND	1.1J		
Methyl-tert-butyl ether	ug/m3	ND	ND		
Methylene Chloride	ug/m3	7.5	7.3	3	
n-Heptane	ug/m3	1.4	1.4	.5	
n-Hexane	ug/m3	1.3	1.3	2	
Naphthalene	ug/m3	ND	.73J		
o-Xylene	ug/m3	ND	.43J		
Propylene	ug/m3	5.9	ND		
Styrene	ug/m3	ND	ND		
Tetrachloroethene	ug/m3	199	200	.4	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

SAMPLE DUPLICATE: 1646701

Parameter	Units	10260977003 Result	Dup Result	RPD	Qualifiers
Tetrahydrofuran	ug/m3	3.5	3.4	4	
Toluene	ug/m3	3.0	2.8	5	
trans-1,2-Dichloroethene	ug/m3	ND	ND		
trans-1,3-Dichloropropene	ug/m3	ND	ND		
Trichloroethene	ug/m3	1.0	0.98	6	
Trichlorofluoromethane	ug/m3	1.8	1.8	1	
Vinyl acetate	ug/m3	3.8	3.8	.4	
Vinyl chloride	ug/m3	ND	ND		

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

QC Batch:	AIR/19807	Analysis Method:	TO-15
QC Batch Method:	TO-15	Analysis Description:	TO15 MSV AIR Low Level
Associated Lab Samples:	10260521004		

METHOD BLANK: 1646658 Matrix: Air
Associated Lab Samples: 10260521004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	1.1	03/28/14 10:20	
1,1,2,2-Tetrachloroethane	ug/m3	ND	0.70	03/28/14 10:20	
1,1,2-Trichloroethane	ug/m3	ND	0.55	03/28/14 10:20	
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	1.6	03/28/14 10:20	
1,1-Dichloroethane	ug/m3	ND	0.82	03/28/14 10:20	
1,1-Dichloroethene	ug/m3	ND	0.81	03/28/14 10:20	
1,2,4-Trichlorobenzene	ug/m3	ND	1.5	03/28/14 10:20	
1,2,4-Trimethylbenzene	ug/m3	ND	1.0	03/28/14 10:20	
1,2-Dibromoethane (EDB)	ug/m3	ND	1.6	03/28/14 10:20	
1,2-Dichlorobenzene	ug/m3	ND	1.2	03/28/14 10:20	
1,2-Dichloroethane	ug/m3	ND	0.41	03/28/14 10:20	
1,2-Dichloropropane	ug/m3	ND	0.94	03/28/14 10:20	
1,3,5-Trimethylbenzene	ug/m3	ND	1.0	03/28/14 10:20	
1,3-Butadiene	ug/m3	ND	0.45	03/28/14 10:20	
1,3-Dichlorobenzene	ug/m3	ND	1.2	03/28/14 10:20	
1,4-Dichlorobenzene	ug/m3	ND	1.2	03/28/14 10:20	
2-Butanone (MEK)	ug/m3	ND	0.60	03/28/14 10:20	
2-Hexanone	ug/m3	ND	0.83	03/28/14 10:20	
2-Propanol	ug/m3	ND	0.50	03/28/14 10:20	
4-Ethyltoluene	ug/m3	ND	1.0	03/28/14 10:20	
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	0.83	03/28/14 10:20	
Acetone	ug/m3	ND	24.1	03/28/14 10:20	
Benzene	ug/m3	ND	0.32	03/28/14 10:20	
Benzyl chloride	ug/m3	ND	1.0	03/28/14 10:20	
Bromodichloromethane	ug/m3	ND	1.4	03/28/14 10:20	
Bromoform	ug/m3	ND	2.1	03/28/14 10:20	
Bromomethane	ug/m3	ND	0.79	03/28/14 10:20	
Carbon disulfide	ug/m3	ND	0.63	03/28/14 10:20	
Carbon tetrachloride	ug/m3	ND	0.64	03/28/14 10:20	
Chlorobenzene	ug/m3	ND	0.94	03/28/14 10:20	
Chloroethane	ug/m3	ND	0.54	03/28/14 10:20	
Chloroform	ug/m3	ND	0.99	03/28/14 10:20	
Chloromethane	ug/m3	ND	0.42	03/28/14 10:20	
cis-1,2-Dichloroethene	ug/m3	ND	0.81	03/28/14 10:20	
cis-1,3-Dichloropropene	ug/m3	ND	0.92	03/28/14 10:20	
Cyclohexane	ug/m3	ND	0.70	03/28/14 10:20	
Dibromochloromethane	ug/m3	ND	1.7	03/28/14 10:20	
Dichlorodifluoromethane	ug/m3	ND	1.0	03/28/14 10:20	
Dichlorotetrafluoroethane	ug/m3	ND	1.4	03/28/14 10:20	
Ethanol	ug/m3	ND	0.38	03/28/14 10:20	
Ethyl acetate	ug/m3	ND	0.73	03/28/14 10:20	
Ethylbenzene	ug/m3	ND	0.88	03/28/14 10:20	
Hexachloro-1,3-butadiene	ug/m3	ND	2.2	03/28/14 10:20	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

METHOD BLANK: 1646658

Matrix: Air

Associated Lab Samples: 10260521004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
m&p-Xylene	ug/m3	ND	1.8	03/28/14 10:20	
Methyl-tert-butyl ether	ug/m3	ND	0.73	03/28/14 10:20	
Methylene Chloride	ug/m3	ND	0.71	03/28/14 10:20	
n-Heptane	ug/m3	ND	0.83	03/28/14 10:20	
n-Hexane	ug/m3	ND	0.72	03/28/14 10:20	
Naphthalene	ug/m3	ND	1.1	03/28/14 10:20	
o-Xylene	ug/m3	ND	0.88	03/28/14 10:20	
Propylene	ug/m3	ND	0.35	03/28/14 10:20	
Styrene	ug/m3	ND	0.87	03/28/14 10:20	
Tetrachloroethene	ug/m3	ND	0.69	03/28/14 10:20	
Tetrahydrofuran	ug/m3	ND	0.60	03/28/14 10:20	
Toluene	ug/m3	ND	0.77	03/28/14 10:20	
trans-1,2-Dichloroethene	ug/m3	ND	0.81	03/28/14 10:20	
trans-1,3-Dichloropropene	ug/m3	ND	0.92	03/28/14 10:20	
Trichloroethene	ug/m3	ND	0.55	03/28/14 10:20	
Trichlorofluoromethane	ug/m3	ND	1.1	03/28/14 10:20	
Vinyl acetate	ug/m3	ND	0.72	03/28/14 10:20	
Vinyl chloride	ug/m3	ND	0.26	03/28/14 10:20	

LABORATORY CONTROL SAMPLE: 1646659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1-Trichloroethane	ug/m3	55.5	62.1	112	72-128	
1,1,2,2-Tetrachloroethane	ug/m3	69.8	76.2	109	72-136	
1,1,2-Trichloroethane	ug/m3	55.5	62.5	113	72-130	
1,1,2-Trichlorotrifluoroethane	ug/m3	77.9	92.1	118	68-126	
1,1-Dichloroethane	ug/m3	41.2	50.6	123	68-128	
1,1-Dichloroethene	ug/m3	40.3	50.2	124	68-130	
1,2,4-Trichlorobenzene	ug/m3	75.5	92.8	123	30-150	
1,2,4-Trimethylbenzene	ug/m3	50	59.4	119	71-140	
1,2-Dibromoethane (EDB)	ug/m3	78.1	89.7	115	73-136	
1,2-Dichlorobenzene	ug/m3	61.2	75.4	123	63-150	
1,2-Dichloroethane	ug/m3	41.2	46.0	112	71-132	
1,2-Dichloropropane	ug/m3	47	50.9	108	72-130	
1,3,5-Trimethylbenzene	ug/m3	50	63.1	126	73-136	
1,3-Butadiene	ug/m3	22.5	26.9	120	72-130	
1,3-Dichlorobenzene	ug/m3	61.2	73.8	121	69-142	
1,4-Dichlorobenzene	ug/m3	61.2	70.9	116	65-142	
2-Butanone (MEK)	ug/m3	30	34.6	115	71-135	
2-Hexanone	ug/m3	41.7	53.3	128	75-133	
2-Propanol	ug/m3	25	29.2	117	68-135	
4-Ethyltoluene	ug/m3	50	61.1	122	73-134	
4-Methyl-2-pentanone (MIBK)	ug/m3	41.7	50.2	120	72-137	
Acetone	ug/m3	24.2	24.9	103	68-136	
Benzene	ug/m3	32.5	36.4	112	69-134	

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

LABORATORY CONTROL SAMPLE: 1646659

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Benzyl chloride	ug/m3	52.5	68.7	131	71-136	
Bromodichloromethane	ug/m3	68.2	79.1	116	74-129	
Bromoform	ug/m3	105	129	123	69-138	
Bromomethane	ug/m3	39.5	48.7	123	68-127	
Carbon disulfide	ug/m3	31.7	39.1	124	68-130	
Carbon tetrachloride	ug/m3	64	76.5	120	66-134	
Chlorobenzene	ug/m3	46.8	53.8	115	72-137	
Chloroethane	ug/m3	26.8	32.6	121	69-128	
Chloroform	ug/m3	49.7	55.3	111	72-127	
Chloromethane	ug/m3	21	23.8	113	69-125	
cis-1,2-Dichloroethene	ug/m3	40.3	46.7	116	71-135	
cis-1,3-Dichloropropene	ug/m3	46.2	54.4	118	74-134	
Cyclohexane	ug/m3	35	39.8	114	72-130	
Dibromochloromethane	ug/m3	86.6	99.3	115	73-133	
Dichlorodifluoromethane	ug/m3	50.3	56.7	113	69-125	
Dichlorotetrafluoroethane	ug/m3	71.1	84.6	119	68-128	
Ethanol	ug/m3	19.2	21.5	112	70-134	
Ethyl acetate	ug/m3	36.6	43.5	119	71-134	
Ethylbenzene	ug/m3	44.2	55.4	125	73-139	
Hexachloro-1,3-butadiene	ug/m3	108	108	99	30-150	
m&p-Xylene	ug/m3	44.2	55.8	126	73-139	
Methyl-tert-butyl ether	ug/m3	36.7	41.9	114	72-132	
Methylene Chloride	ug/m3	35.3	40.3	114	64-134	
n-Heptane	ug/m3	41.7	50.7	122	70-130	
n-Hexane	ug/m3	35.8	42.9	120	69-128	
Naphthalene	ug/m3	53.3	58.5	110	61-150	
o-Xylene	ug/m3	44.2	56.1	127	71-138	
Propylene	ug/m3	17.5	20.1	115	69-133	
Styrene	ug/m3	43.3	60.4	139	74-136 L0	
Tetrachloroethene	ug/m3	69	77.1	112	69-136	
Tetrahydrofuran	ug/m3	30	35.1	117	73-131	
Toluene	ug/m3	38.3	38.9	101	67-133	
trans-1,2-Dichloroethene	ug/m3	40.3	44.5	110	70-131	
trans-1,3-Dichloropropene	ug/m3	46.2	59.5	129	72-135	
Trichloroethene	ug/m3	54.6	59.8	110	70-135	
Trichlorofluoromethane	ug/m3	57.1	66.9	117	67-125	
Vinyl acetate	ug/m3	35.8	46.4	130	72-133	
Vinyl chloride	ug/m3	26	31.9	123	69-132	

SAMPLE DUPLICATE: 1647012

Parameter	Units	92193420005 Result	Dup Result	RPD	Qualifiers
1,1,1-Trichloroethane	ug/m3	ND	ND		
1,1,2,2-Tetrachloroethane	ug/m3	ND	ND		
1,1,2-Trichloroethane	ug/m3	ND	ND		
1,1,2-Trichlorotrifluoroethane	ug/m3	ND	ND		
1,1-Dichloroethane	ug/m3	ND	ND		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

SAMPLE DUPLICATE: 1647012

Parameter	Units	92193420005 Result	Dup Result	RPD	Qualifiers
1,1-Dichloroethene	ug/m3	ND	ND		
1,2,4-Trichlorobenzene	ug/m3	ND	ND		
1,2,4-Trimethylbenzene	ug/m3	ND	ND		
1,2-Dibromoethane (EDB)	ug/m3	ND	ND		
1,2-Dichlorobenzene	ug/m3	ND	ND		
1,2-Dichloroethane	ug/m3	ND	ND		
1,2-Dichloropropane	ug/m3	ND	ND		
1,3,5-Trimethylbenzene	ug/m3	ND	ND		
1,3-Butadiene	ug/m3	ND	ND		
1,3-Dichlorobenzene	ug/m3	ND	ND		
1,4-Dichlorobenzene	ug/m3	ND	ND		
2-Butanone (MEK)	ug/m3	ND	ND		
2-Hexanone	ug/m3	ND	ND		
2-Propanol	ug/m3	ND	ND		
4-Ethyltoluene	ug/m3	ND	ND		
4-Methyl-2-pentanone (MIBK)	ug/m3	ND	ND		
Acetone	ug/m3	ND	153J		
Benzene	ug/m3	ND	ND		
Benzyl chloride	ug/m3	ND	ND		
Bromodichloromethane	ug/m3	ND	ND		
Bromoform	ug/m3	ND	ND		
Bromomethane	ug/m3	ND	ND		
Carbon disulfide	ug/m3	ND	57.9J		
Carbon tetrachloride	ug/m3	ND	ND		
Chlorobenzene	ug/m3	ND	ND		
Chloroethane	ug/m3	ND	ND		
Chloroform	ug/m3	ND	ND		
Chloromethane	ug/m3	ND	ND		
cis-1,2-Dichloroethene	ug/m3	ND	ND		
cis-1,3-Dichloropropene	ug/m3	ND	ND		
Cyclohexane	ug/m3	ND	ND		
Dibromochloromethane	ug/m3	ND	ND		
Dichlorodifluoromethane	ug/m3	ND	68.7J		
Dichlorotetrafluoroethane	ug/m3	ND	ND		
Ethanol	ug/m3	339	366	8	
Ethyl acetate	ug/m3	ND	ND		
Ethylbenzene	ug/m3	ND	ND		
Hexachloro-1,3-butadiene	ug/m3	ND	ND		
m&p-Xylene	ug/m3	ND	75.4J		
Methyl-tert-butyl ether	ug/m3	ND	ND		
Methylene Chloride	ug/m3	3770	3790	.7	
n-Heptane	ug/m3	ND	ND		
n-Hexane	ug/m3	162	146	11	
Naphthalene	ug/m3	ND	ND		
o-Xylene	ug/m3	ND	ND		
Propylene	ug/m3	121	127	5	
Styrene	ug/m3	ND	ND		
Tetrachloroethene	ug/m3	ND	ND		

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

SAMPLE DUPLICATE: 1647012

Parameter	Units	92193420005 Result	Dup Result	RPD	Qualifiers
Tetrahydrofuran	ug/m3	ND	ND		
Toluene	ug/m3	483	473	2	
trans-1,2-Dichloroethene	ug/m3	ND	ND		
trans-1,3-Dichloropropene	ug/m3	ND	ND		
Trichloroethene	ug/m3	ND	ND		
Trichlorofluoromethane	ug/m3	16300	16000	2	
Vinyl acetate	ug/m3	ND	ND		
Vinyl chloride	ug/m3	ND	ND		

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 4977-00 Former Food & Fuel
Pace Project No.: 10260521

DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PRL - Pace Reporting Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

TNI - The NELAC Institute.

SAMPLE QUALIFIERS

Sample: 10260521001

- [1] The Total Hydrocarbon (THC) pattern is evenly distributed throughout the chromatogram (before and after toluene).
- [2] Analysis occurred beyond the recommended MPCA Guidance Document 4-01a 14 day holding time. Analysis occurred within 30 days of collection, the EPA method TO-15 recommended holding time.

Sample: 10260521002

- [1] The Total Hydrocarbon (THC) pattern is evenly distributed throughout the chromatogram (before and after toluene).
- [2] Analysis occurred beyond the recommended MPCA Guidance Document 4-01a 14 day holding time. Analysis occurred within 30 days of collection, the EPA method TO-15 recommended holding time.

Sample: 10260521003

- [1] The Total Hydrocarbon (THC) pattern is evenly distributed throughout the chromatogram (before and after toluene).

Sample: 10260521004

- [1] The Total Hydrocarbon (THC) pattern occurred in the first half of the chromatogram (before toluene).

Sample: 1647012

- [1] This result is reported from a serial dilution.

ANALYTE QUALIFIERS

E Analyte concentration exceeded the calibration range. The reported result is estimated.

LO Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 4977-00 Former Food & Fuel

Pace Project No.: 10260521

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10260521001	VP-1 (8')	TO-15	AIR/19799		
10260521002	VP-2 (8')	TO-15	AIR/19799		
10260521003	VP-3 (8')	TO-15	AIR/19799		
10260521004	VP-4 (8')	TO-15	AIR/19807		

REPORT OF LABORATORY ANALYSIS

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Section A
Required Client Information:

Company: Carlson McLean, Inc.
Address: P.O. Box 429
Email To: Maple Plain, MN 55359
Phone: 952-346-3913 Fax: 952-346-3901
Requested Due Date/TAT: _____

Section B
Required Project Information:

Report To: CHAS LOCH
Copy To: "Same"
Purchase Order No.: 4977-00
Project Name: Seamless Food & Fuel
Project Number: 4977-00

Section C
Invoice Information:

Attention: CHAS LOCH
Company Name: Carlson McLean
Address: "Same"
Pace Quote Reference: MAA STATE CONTRACT RATES
Pace Project Manager/Sales Rep. STEVEN LARSON
Pace Profile #: _____

Page: 1 of 1

15195

Program

☒ UST ☐ Superfund ☐ Emissions ☐ Clean Air Act

☐ Voluntary Clean Up ☐ Dry Clean ☐ RCRA ☐ Other

Location of Sampling by State MN

Reporting Units
ug/m³ ☒ mg/m³ _____
ppbv _____ ppmv _____
Other _____

Report Level II. _____ III. _____ IV. _____ Other _____

Section D Required Client Information

AIR SAMPLE ID

Sample IDs MUST BE UNIQUE

VP-1 (8')
VP-2 (8')
VP-3 (8')
VP-4 (8')

Valid Media Codes

MEDIA

CODE

TB

1 Liter Summa Can

1LC

6 Liter Summa Can

6LC

Low Volume Puff

LVP

High Volume Puff

HVP

PM10

Other

COLLECTED

PID Reading (Client only)

MEDIA CODE

COMPOSITE START
END/GRAB

DATE

TIME

DATE

TIME

COMPOSITE -

DATE

TIME

Canister Pressure

Canister Pressure

Summa Can Number

Flow Control Number

Method:

PM10

3C-Fixed Gas (%)

TO-3

TO-3M (Methane)

TO-13 (PAH)

TO-14

TO-15

TO-15 Short List

Pace Lab ID

001
002
003
004
005

RELINQUISHED BY / AFFILIATION

DATE

TIME

ACCEPTED BY / AFFILIATION

DATE

TIME

SAMPLE CONDITIONS

Comments :

Temp In °C

Received on

Custody

Sealed Cooler

Samples Intact

ORIGINAL

	Document Name:	Document Revised: 26Dec2013
	Air Sample Condition Upon Receipt	Page 1 of 1
	Document No.: F-MN-A-106-rev.09	Issuing Authority: Pace Minnesota Quality Office

Air Sample Condition Upon Receipt

Client Name:

Carlson McCain

Project #:

WO#: 10260521



Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☒ Pace ☐ Other: _____

Tracking Number: _____

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

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

Packing Material: ☐ Bubble Wrap ☐ Bubble Bags ☒ Foam ☐ None ☐ Other: _____ **Temp Blank rec:** ☐ Yes ☒ No

Temp. (TO17 and TO13 samples only) (°C): _____ **Corrected Temp (°C):** _____ **Thermom. Used:** ☐ B88A912167504 ☐ 72337080
☐ B88A9132521491 ☐ 80512447 **Date & Initials of Person Examining Contents:** *3/17/14*

Temp should be above freezing to 6°C **Correction Factor:** _____

Type of ice Received ☐ Blue ☐ Wet ☒ None

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.
Media: <i>air can</i>		11.
Sample Labels Match COC?	☒ Yes ☐ No ☐ N/A	12.

Samples Received:

Canisters		Flow Controllers		Stand Alone G	
Sample Number	Can ID	Sample Number	Can ID	Sample Number	Can ID
<i>VP-1</i>	<i>0656</i>		<i>0657</i>		
<i>VP-2</i>	<i>1698</i>		<i>0676</i>		
<i>VP-3</i>	<i>0257</i>		<i>0899</i>		
<i>VP-4</i>	<i>0633</i>		<i>0664</i>		
<i>unused</i>	<i>1571</i>		<i>0953</i>		

CLIENT NOTIFICATION/RESOLUTION

Field Data Required? ☐ Yes ☐ No

Person Contacted: _____ **Date/Time:** _____

Comments/Resolution: _____

Project Manager Review:

Date: *3/17/14*

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)

Pace Analytical Services, Inc.

TENTATIVELY IDENTIFIED COMPOUNDS

Client Name:
Lab Smp Id: 10260521001
Operator : AH2
Sample Location:
Sample Matrix: AIR
Analysis Type: VOA
Inj Date: 28-MAR-2014 00:34

Client SDG: 032714.b

Sample Date:
Sample Point:
Date Received:
Level: LOW

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	Unknown	3.551	28.5	J
2. 1632-16-2	Heptane, 3-methylene-	8.624	2.65	NJ
3. 111-65-9	Octane	8.841	4.39	NJ
4.	Unknown	12.674	3.33	J
5. 872-05-9	1-Decene	13.094	1.34	NJ
6. 124-18-5	Decane	13.274	2.98	NJ
7. 74645-98-0	Dodecane, 2,7,10-trimethyl-	14.215	3.54	NJ
8.	Unknown	14.537	2.13	J
9. 2051-30-1	Octane, 2,6-dimethyl-	14.609	2.61	NJ
10.	Unknown	14.681	2.14	J

Pace Analytical Services, Inc.

TO15 Analysis (UNIX)

Data file : \\192.168.10.12\chem\10airD.i\032714.b\08634.d
 Lab Smp Id: 10260521001
 Inj Date : 28-MAR-2014 00:34
 Operator : AH2
 Smp Info :
 Misc Info : 19799
 Comment : Volatile Organic COMPOUNDS in Air
 Method : \\192.168.10.12\chem\10airD.i\032714.b\TO15_086-14.m
 Meth Date : 27-Mar-2014 16:27 10airD.i Quant Type: ISTD
 Cal Date : 27-MAR-2014 14:40 Cal File: 08613.d
 Als bottle: 34
 Dil Factor: 1.49000
 Integrator: HP RTE
 Target Version: 4.14

Inst ID: 10airD.i

Compound Sublist: all.sub

Concentration Formula: Amt * DF * Uf * CpndVariable

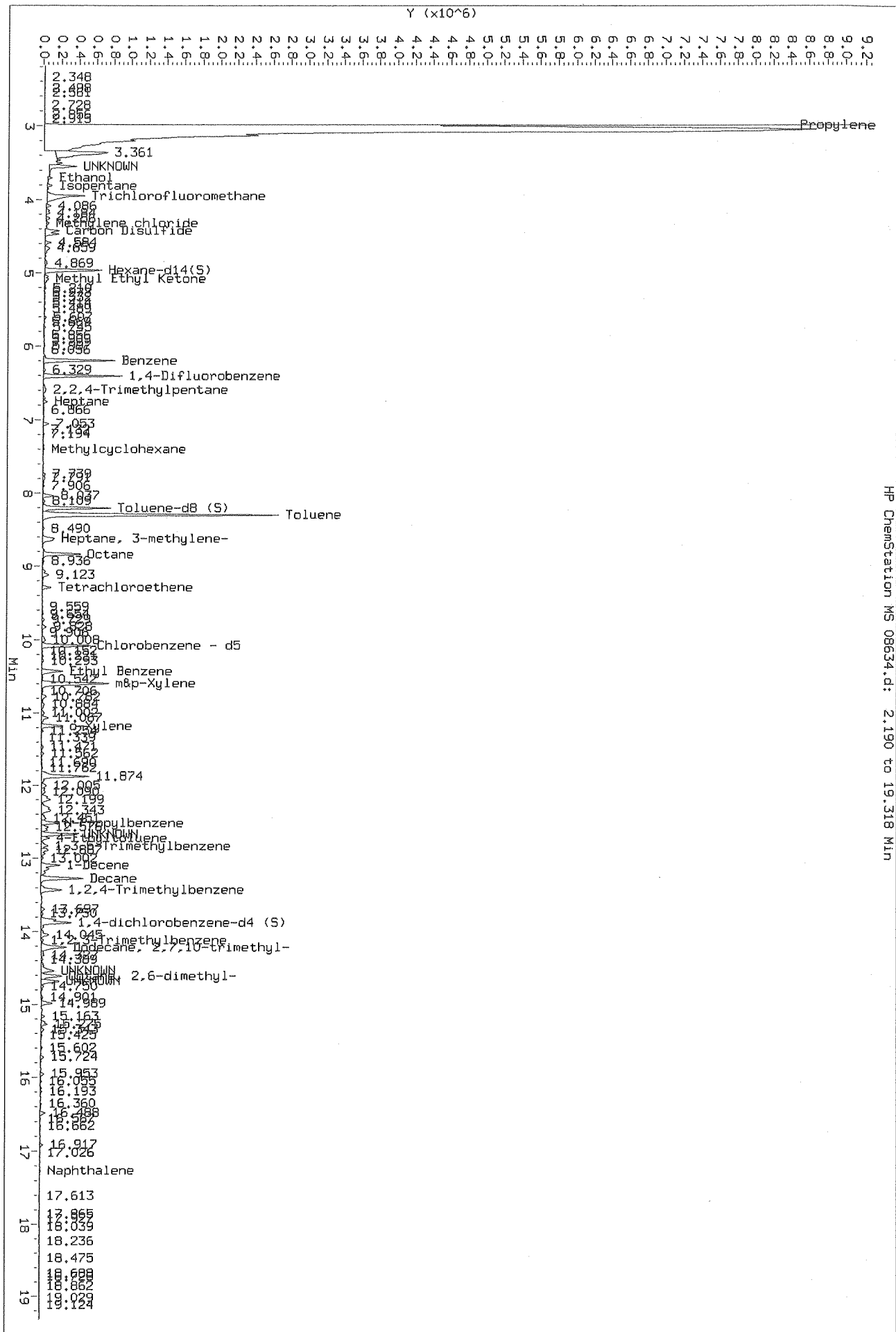
Name	Value	Description
DF	1.490	Dilution Factor
Uf	1.000	ng unit correction factor
Cpnd Variable		Local Compound Variable

COMPOUND	RT	AREA	AMOUNT
10 Ethanol	3.702	75147	2.196
55 Toluene	8.299	4888734	20.070
60 Tetrachloroethene	9.296	174809	0.649
71 4-Ethyltoluene	12.723	201176	0.570
72 1,3,5-Trimethylbenzene	12.825	212590	0.269
74 1,2,4-Trimethylbenzene	13.428	545392	1.123
81 1,2,3-Trimethylbenzene	14.120	63149	0.200

RT	AREA	CONCENTRATIONS		QUAL	QUANT		CPND #
		ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
Unknown							
3.551	655088	19.1434427	28.5	0		0	10
Heptane, 3-methylene-							
8.624	433304	1.77890719	2.65	91	NIST05.L	6521	55

RT	CONCENTRATIONS			QUAL	QUANT		CPND #
	AREA	ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
====	====	=====	=====	====	=====	=====	=====
Octane					CAS #: 111-65-9		
8.841	794009	2.94800602	4.39	91	NIST05.L	7419	60
Unknown					CAS #:		
12.674	789468	2.23511274	3.33	0		0	71
1-Decene					CAS #: 872-05-9		
13.094	710259	0.89983144	1.34	86	NIST05.L	17320	72
Decane					CAS #: 124-18-5		
13.274	969804	1.99731337	2.98	91	NIST05.L	18488	74
Dodecane, 2,7,10-trimethyl-					CAS #: 74645-98-0		
14.215	752505	2.37788573	3.54	72	NIST05.L	66079	81
Unknown					CAS #:		
14.537	453089	1.43174477	2.13	0		0	81
Octane, 2,6-dimethyl-					CAS #: 2051-30-1		
14.609	555296	1.75471333	2.61	72	NIST05.L	18524	81
Unknown					CAS #:		
14.681	454631	1.43661664	2.14	0		0	81

Data File: \\192.168.10.12\chem\10airD.1\032714.b\08634.d
Injection Date: 28-MAR-2014 00:34
Instrument: 10airD.1
Client Sample ID:



Pace Analytical Services, Inc.

TENTATIVELY IDENTIFIED COMPOUNDS

Client Name:
Lab Smp Id: 10260521002
Operator : AH2
Sample Location:
Sample Matrix: AIR
Analysis Type: VOA
Inj Date: 28-MAR-2014 01:30

Client SDG: 032714.b

Sample Date:
Sample Point:
Date Received:
Level: LOW

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1. 1632-16-2	Heptane, 3-methylene-	8.624	6.39	NJ
2. 111-65-9	Octane	8.840	9.05	NJ
3. 16746-85-3	1-Hexene, 4-ethyl-	12.153	0.544	NJ
4. 16746-86-4	2,3-Dimethyl-1-hexene	12.999	2.04	NJ
5. 74663-86-8	Cyclopropane, 1-ethyl-2-hep	13.097	2.86	NJ
6. 124-18-5	Decane	13.277	5.63	NJ
7.	Unknown	14.215	1.12	J
8.	Unknown	14.615	0.719	J
9.	Unknown	14.986	0.720	J
10.	Unknown	15.661	13.9	J

Pace Analytical Services, Inc.

TO15 Analysis (UNIX)

Data file : \\192.168.10.12\chem\10airD.i\032714.b\08636.d
Lab Smp Id: 10260521002
Inj Date : 28-MAR-2014 01:30
Operator : AH2
Smp Info :
Misc Info : 19799
Comment : Volatile Organic COMPOUNDS in Air
Method : \\192.168.10.12\chem\10airD.i\032714.b\TO15_086-14.m
Meth Date : 27-Mar-2014 16:27 10airD.i Quant Type: ISTD
Cal Date : 27-MAR-2014 14:40 Cal File: 08613.d
Als bottle: 36
Dil Factor: 1.34000
Integrator: HP RTE
Target Version: 4.14
Inst ID: 10airD.i
Compound Sublist: all.sub

Concentration Formula: Amt * DF * Uf * CpndVariable

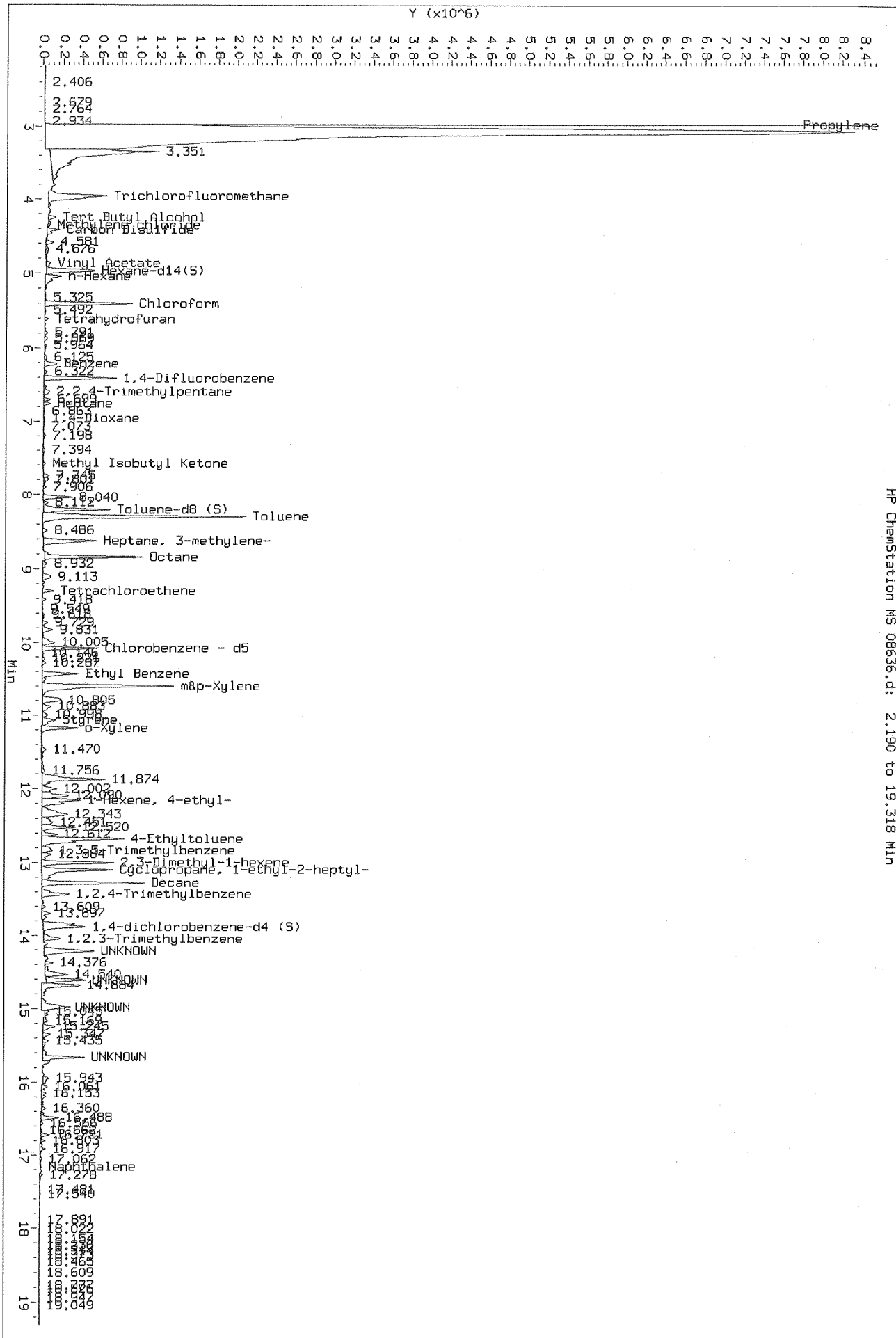
Name	Value	Description
DF	1.340	Dilution Factor
Uf	1.000	ng unit correction factor
Cpnd Variable		Local Compound Variable

COMPOUND	RT	AREA	AMOUNT
55 Toluene	8.303	4641839	15.593
60 Tetrachloroethene	9.303	195061	0.696
71 4-Ethyltoluene	12.723	2465327	0.790
72 1,3,5-Trimethylbenzene	12.828	378994	0.380
74 1,2,4-Trimethylbenzene	13.431	792377	1.519
81 1,2,3-Trimethylbenzene	14.117	469200	0.259
85 Naphthalene	17.219	13170	0.142

CONCENTRATIONS					QUANT		
RT	AREA	ON-COL(ppbv)	FINAL(ppbv)	QUAL	LIBRARY	LIB ENTRY	CPND #
Heptane, 3-methylene-							
8.624	1420330	4.77126440	6.39	91	CAS #: 1632-16-2 NIST05.L	6521	55
Octane							
8.840	1893004	6.75675603	9.05	93	CAS #: 111-65-9 NIST05.L	7419	60

RT	CONCENTRATIONS			QUAL	QUANT		CPND #
	AREA	ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
====	====	=====	=====	====	=====	=====	=====
1-Hexene, 4-ethyl-					CAS #: 16746-85-3		
12.153	1268370	0.40631335	0.544	78	NIST05.L	6477	71
2,3-Dimethyl-1-hexene					CAS #: 16746-86-4		
12.999	1516038	1.52126560	2.04	87	NIST05.L	6512	72
Cyclopropane, 1-ethyl-2-heptyl-					CAS #: 74663-86-8		
13.097	2127129	2.13446307	2.86	72	NIST05.L	35059	72
Decane					CAS #: 124-18-5		
13.277	2191421	4.19985645	5.63	94	NIST05.L	18488	74
Unknown					CAS #:		
14.215	1507877	0.83252196	1.12	0		0	81
Unknown					CAS #:		
14.615	971715	0.53649916	0.719	0		0	81
Unknown					CAS #:		
14.986	973893	0.53770163	0.720	0		0	81
Unknown					CAS #:		
15.661	967282	10.4083630	13.9	0		0	85

Data File: \\192.168.10.12\chem\10aird.1\032714.b\08636.d
Injection Date: 28-MAR-2014 01:30
Instrument: 10aird.1
Client Sample ID:



HP ChemStation MS 08636.d: 2.190 to 19.318 Min

Pace Analytical Services, Inc.

TENTATIVELY IDENTIFIED COMPOUNDS

Client Name:
Lab Smp Id: 10260521003
Operator : AH2
Sample Location:
Sample Matrix: AIR
Analysis Type: VOA
Inj Date: 28-MAR-2014 01:58

Client SDG: 032714.b

Sample Date:
Sample Point:
Date Received:
Level: LOW

Number TICs found: 10

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1. 1632-16-2	Heptane, 3-methylene-	8.624	8.14	NJ
2. 111-65-9	Octane	8.841	9.63	NJ
3.	Unknown	12.097	0.144	J
4.	Unknown	12.153	0.207	J
5.	Unknown	12.346	0.184	J
6. 51655-64-2	Nonane, 3-methylene-	12.999	1.01	NJ
7. 872-05-9	1-Decene	13.097	1.08	NJ
8. 124-18-5	Decane	13.277	1.88	NJ
9.	Unknown	14.215	10.5	J
10.	Unknown	14.612	7.59	J

Pace Analytical Services, Inc.

TO15 Analysis (UNIX)

Data file : \\192.168.10.12\chem\10airD.i\032714.b\08637.d
 Lab Smp Id: 10260521003
 Inj Date : 28-MAR-2014 01:58
 Operator : AH2 Inst ID: 10airD.i
 Smp Info :
 Misc Info : 19799
 Comment : Volatile Organic COMPOUNDS in Air
 Method : \\192.168.10.12\chem\10airD.i\032714.b\TO15_086-14.m
 Meth Date : 27-Mar-2014 16:27 10airD.i Quant Type: ISTD
 Cal Date : 27-MAR-2014 14:40 Cal File: 08613.d
 Als bottle: 37
 Dil Factor: 1.34000
 Integrator: HP RTE Compound Sublist: all.sub
 Target Version: 4.14

Concentration Formula: Amt * DF * Uf * CpndVariable

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

COMPOUND	RT	AREA	AMOUNT
55 Toluene	8.299	3784404	10.514
60 Tetrachloroethene	9.296	71012	0.205
71 4-Ethyltoluene	12.723	2012508	0.276
72 1,3,5-Trimethylbenzene	12.825	312123	0.160
74 1,2,4-Trimethylbenzene	13.432	460575	0.514
\$ 77 1,4-dichlorobenzene-d4	13.881	1388988	10.003

CONCENTRATIONS					QUANT		
RT	AREA	ON-COL(ppbv)	FINAL(ppbv)	QUAL	LIBRARY	LIB ENTRY	CPND #
Heptane, 3-methylene-					CAS #: 1632-16-2		
8.624	2187743	6.07797391	8.14	91	NIST05.L	6519	55
Octane					CAS #: 111-65-9		
8.841	2495241	7.18765824	9.63	81	NIST05.L	7421	60
Unknown					CAS #:		
12.097	787592	0.10789103	0.144	0		0	71

RT	CONCENTRATIONS				QUANT			CPND #
	AREA	ON-COL(ppbv)	FINAL(ppbv)	QUAL	LIBRARY	LIB ENTRY		
====	====	=====	=====	====	=====	=====	=====	
Unknown					CAS #:			
12.153	1127109	0.15440087	0.207	0		0	71	
Unknown					CAS #:			
12.346	1003680	0.13749265	0.184	0		0	71	
Nonane, 3-methylene-					CAS #: 51655-64-2			
12.999	1473128	0.75399594	1.01	91	NIST05.L	17365	72	
1-Decene					CAS #: 872-05-9			
13.097	1575375	0.80632940	1.08	91	NIST05.L	17320	72	
Decane					CAS #: 124-18-5			
13.277	1256331	1.40078846	1.88	90	NIST05.L	18488	74	
Unknown					CAS #:			
14.215	1093236	7.87271079	10.5	0		0	77	
Unknown					CAS #:			
14.612	786183	5.66153085	7.59	0		0	77	

HP ChemStation MS 08637.d: 2.190 to 19.318 Min



Pace Analytical Services, Inc.

TENTATIVELY IDENTIFIED COMPOUNDS

Client Name:
Lab Smp Id: 10260521004
Operator : AH2
Sample Location:
Sample Matrix: AIR
Analysis Type: VOA
Inj Date: 28-MAR-2014 13:49

Client SDG: 032814.b
Sample Date:
Sample Point:
Date Received:
Level: LOW

Number TICs found: 9

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

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1. 96-14-0	Pentane, 3-methyl-	4.879	11.4	NJ
2. 111-84-2	Nonane	11.070	2.25	NJ
3. 1074-43-7	Benzene, 1-methyl-3-propyl-	14.599	2.44	NJ
4. 934-80-5	Benzene, 4-ethyl-1,2-dimeth	15.278	2.74	NJ
5. 933-98-2	Benzene, 1-ethyl-2,3-dimeth	15.963	1.50	NJ
6. 824-90-8	1-Phenyl-1-butene	16.360	2.26	NJ
7.	Unknown	16.501	1.54	J
8. 824-22-6	1H-Indene, 2,3-dihydro-4-me	16.570	2.03	NJ
9. 119-64-2	Naphthalene, 1,2,3,4-tetra	16.809	2.17	NJ

Pace Analytical Services, Inc.

TO15 Analysis (UNIX)

Data file : \\192.168.10.12\chem\10airD.i\032814.b\08711.d
Lab Smp Id: 10260521004
Inj Date : 28-MAR-2014 13:49
Operator : AH2
Smp Info :
Misc Info : 19807
Comment : Volatile Organic COMPOUNDS in Air
Method : \\192.168.10.12\chem\10airD.i\032814.b\TO15_086-14.m
Meth Date : 28-Mar-2014 14:11 ahamilton Quant Type: ISTD
Cal Date : 27-MAR-2014 14:40 Cal File: 08613.d
Als bottle: 11
Dil Factor: 2.34500
Integrator: HP RTE
Target Version: 4.14
Processing Host: 10MNSKAUFMANM72

Inst ID: 10airD.i

Compound Sublist: all.sub

Concentration Formula: Amt * DF * Uf * CpndVariable

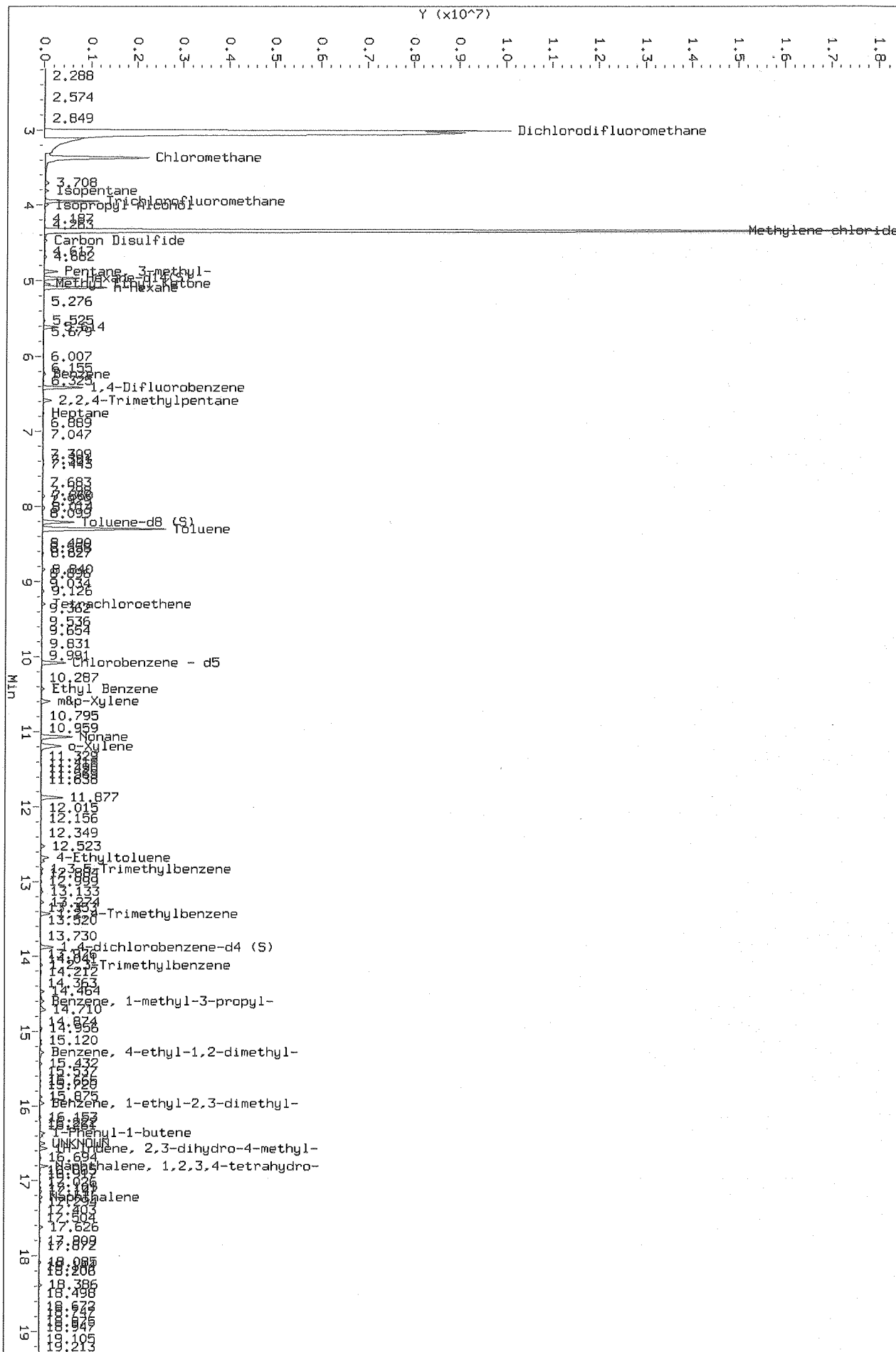
Name	Value	Description
DF	2.345	Dilution Factor
Uf	1.000	ng unit correction factor
Cpnd Variable		Local Compound Variable

COMPOUND	RT	AREA	AMOUNT
\$ 28 Hexane-d14 (S)	4.964	1167662	11.988
67 o-Xylene	11.179	1050360	0.792
81 1,2,3-Trimethylbenzene	14.123	78582	0.357
85 Naphthalene	17.226	138387	0.407

CONCENTRATIONS					QUANT		
RT	AREA	ON-COL(ppbv)	FINAL(ppbv)	QUAL	LIBRARY	LIB ENTRY	CPND #
Pentane, 3-methyl-							
4.879	475226	4.87898120	11.4	91	NIST05.L	1794	28
Nonane							
11.070	1274888	0.96139046	2.25	87	NIST05.L	12267	67
Benzene, 1-methyl-3-propyl-							
14.599	228518	1.03958064	2.44	90	NIST05.L	14366	81
Benzene, 4-ethyl-1,2-dimethyl-							
15.278	257204	1.17007752	2.74	95	NIST05.L	14401	81

RT	CONCENTRATIONS			QUAL	QUANT		CPND #
	AREA	ON-COL(ppbv)	FINAL(ppbv)		LIBRARY	LIB ENTRY	
====	====	=====	=====	====	=====	=====	=====
Benzene, 1-ethyl-2,3-dimethyl-					CAS #: 933-98-2		
15.963	217858	0.64116413	1.50	78	NIST05.L	14399	85
1-Phenyl-1-butene					CAS #: 824-90-8		
16.360	327959	0.96519343	2.26	94	NIST05.L	13590	85
Unknown					CAS #:		
16.501	222937	0.65611122	1.54	0		0	85
1H-Indene, 2,3-dihydro-4-methyl-					CAS #: 824-22-6		
16.570	294478	0.86665742	2.03	91	NIST05.L	13627	85
Naphthalene, 1,2,3,4-tetrahydro-					CAS #: 119-64-2		
16.809	314015	0.92415742	2.17	96	NIST05.L	13632	85

HP ChemStation MS 08711.d: 2.190 to 19.318 Min



Appendix F

Appendix G

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. 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.

Soil Vapor sampling

Soil vapor samples were collected from boreholes advanced across the Site using direct-push technology to appropriate depths. An expendable screen with polyethylene tubing was then inserted into the hole. At least two volumes of air was removed from the sampling point and tubing. The soil vapor samples were collected by attaching the top end of the tubing to the Summa Canister, which was instrumented with a regulator gauge. The initial vacuum gauge reading was recorded and subsequent readings were conducted to identify when the canister was full. Subsequent to sample collection, a PID reading was collected from each sample tubing and recorded for laboratory confirmation. Soil vapor sampling was conducted in accordance with MPCA Guidance Document 4-01a "*Vapor Intrusion Assessments Performed during Site Investigations*".

The Summa canisters were carefully labeled with the name of the sampler, date, time, initial/final vacuum gauge readings and PID readings from the sample tubing. This information was recorded on a chain-of-custody form. Samples were placed in a box with bubble wrap and delivered to a certified laboratory in accordance with chain-of-custody procedures.

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).

Collected soil vapor samples were submitted to a MPCA certified, fixed based laboratory and analyzed using the Environmental Protection Agency (EPA) TO-15 method for compounds in the Minnesota Soil Gas List. To minimize cross contamination of samples, clean disposable gloves, sampling Summa canisters, vacuum gauges, tubing and fittings were used. Summa canisters received from the laboratory are tracked and tagged to make sure "clean" canisters are used.

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.).

Vapor Receptor Survey

A walking survey was conducted and potential receptors were identified within 500 feet of the Site. Basements, sumps, man ways and other subsurface utility structures were identified and incorporated into the Vapor Receptor survey. Local utility departments, municipalities and fire departments were contacted. Requests for knowledge of petroleum vapor complaints or reports were made as well as efforts to contact residence, business and/or property owners.

During the walking survey as vapor monitoring points were identified, vapor was sampled via inert poly tubing, using a PID/LEL meter. Tubing was slowly inserted into the sewer grates or through holes in man way covers. Readings were allowed to stabilize and were collected at varying depths within the structure. Total depth and orientation/type of each structure was collected and noted in the field. Receptor surveys were mailed to each property owner within 500 feet of the Site, and documented within the LSI Report. Receptor surveys were conducted in accordance with MPCA Guidance Document 4-02 "*Potential Receptor Surveys and Risk Evaluation Procedures at Petroleum Release Sites.*"

Appendix I

Former Food & Fuel - St. Francis, MN (MPCA Leak #18925)

Hazen

Sample	C	D10 (mm)	D10 (cm)	D10^2 (cm^2)	K (cm/s)	K (ft/day)
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0
			0	0	0	0

Krumbein and Monk

Sample	phi 95	phi 95 (mm)	phi 84	phi 84 (mm)	phi 50	phi 50 (mm)	phi 16	phi 16 (mm)	phi 5	phi 5 (mm)
GP-1 (30-34')	-2.906890596	7.5	-1.584962501	3	2.251538767	0.21	3.49005	0.089	4.32193	0.05
GP-3 (26-30')	1.395928676	0.38	1.736965594	0.3	2.64385619	0.16	3.75633	0.074	4.64386	0.04
GP-4 (30-34')	1	0.5	1.514573173	0.35	2.64385619	0.16	4.13289	0.057	9.58727	0.0013
	#NUM!	0	#NUM!	0	#NUM!	0	#NUM!	0	#NUM!	0
	#NUM!		#NUM!		#NUM!		#NUM!		#NUM!	
	#NUM!		#NUM!		#NUM!		#NUM!		#NUM!	

	GM	Theta	k (darcies)	K (m/s)	K (cm/s)	K (ft/day)
GP-4 (16-18')	1.099666667	1.85653788	80.74273744	9.93667E-05	0.009936666	28.16647465
	0.178	0.10801515	20.90263291	2.5724E-05	0.002572398	7.291720576
	0.189	0.14881061	22.33958041	2.74924E-05	0.002749237	7.792988513
	0	0	0	0	0	0
	0	0	0	0	0	0
	0	0	0	0	0	0

K(high) =	28.17
K(low) =	7.29
b(high) =	11.5
b(low) =	5

K(avg.)=	14.42
b(avg.)=	8.25

T(High)	323.96
T(Low)	36.45

March 26, 2014

Justin Benjamin
Pace Analytical Services Inc.
1700 Elm Street
Suite 200
Minneapolis, MN 55414

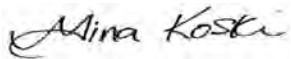
RE: Project: 10260546
Pace Project No.: 1231471

Dear Justin Benjamin:

Enclosed are the analytical results for sample(s) received by the laboratory on March 20, 2014. The results relate only to the samples included in this report.

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

Sincerely,



Gina M Koski
gina.koski@pacelabs.com
Project Manager

Enclosures

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, Inc., M&E Lab.

Chain of Custody

WO#: 1231471

PM GMK Due Date: 03/31/14
CLIENT: 14PACE MPLS

Workorder: 10260546

Workorder Name: 4977-00 Former Food & Fuel

Owner Received Date: 3/17/2014 Results Requested By: 3/28/2014

Justin Benjamin
Pace Analytical Services, Inc.
1700 Elm Street, Suite 200
Minneapolis, MN 55414
Phone (612)607-1700
Fax (612)607-6444

Pace Analytical Virginia MN
315 Chestnut Street
Virginia, MN 55792
Phone (218)742-1042

Subcontract To

Requested Analysis

Preserved Containers

Item	Sample ID	Sample Type	Collect Date/Time	Lab ID	Matrix	MeQ	LAB USE ONLY
1	GP-1 (30-34')	PS	3/13/2014 11:30	10260546008	Solid	1	
2	GP-3 (26-30')	PS	3/13/2014 17:40	10260546009	Solid	1	
3	GP-4 (30-34')	PS	3/14/2014 09:40	10260546010	Solid	1	
4							
5							

Transfers	Released By	Date/Time	Received By	Date/Time	Received on Ice	Y or N	Samples Intact	Y or N
1	<i>Justin Benjamin</i>	3/18/14	<i>Justin Benjamin</i>	3/19/14 10:50				
2								
3								
Cooler Temperature on Receipt 25 °C								

	Document Name:	Document Revised: 03Dec2013
	Sample Condition Upon Receipt Form	Page 1 of 1
	Document No.: F-VI-C-001-Rev.06	Issuing Authority: Pace Virginia, Minnesota Quality Office

Sample Condition Upon Receipt

Client Name:

Project #:

Pace

Courier: ☐ Fed Ex ☐ UPS ☐ USPS ☐ Client
☐ Commercial ☐ Pace ☒ Other: Speeder

Tracking Number:

Custody Seal on Cooler/Box Present? ☒ Yes ☐ No

Seals Intact? ☒ Yes ☐ No

Optional: Proj. Due Date: Proj. Name:

Packing Material: ☒ Bubble Wrap ☐ Bubble Bags ☐ None ☐ Other:

Temp Blank? ☒ Yes ☐ No

Thermometer Used: ☒ 1226393 25

Type of Ice: ☐ Wet ☐ Blue ☒ None

☐ Samples on Ice, cooling process has begun

Cooler Temp Read °C: 7.5 Cooler Temp Corrected °C: 7.5

Biological Tissue Frozen? ☐ Yes ☐ No ☒ N/A

Temp should be above freezing to 6°C

Correction Factor: 0

Date and Initials of Person Examining Contents:

3-17-14 TM

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 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?	☐ Yes ☒ No ☐ N/A	12. <u>no sample for COC blank</u>
-Includes Date/Time/ID/Analysis Matrix: <u>So.1</u>		
All containers needing acid/base preservation will be checked and documented in the pH logbook.	☐ Yes ☐ No ☒ N/A	See pH log for results and additional preservation documentation
Headspace in Methyl Mercury Container	☐ Yes ☐ No ☒ N/A	13.
Headspace in VOA Vials (>6mm)?	☐ Yes ☐ No ☒ N/A	14.
Trip Blank Present?	☐ Yes ☐ No ☒ N/A	15.
Trip Blank Custody Seals Present?	☐ Yes ☐ No ☒ N/A	
Pace Trip Blank Lot # (if purchased):		

CLIENT NOTIFICATION/RESOLUTION

Person Contacted:

Field Data Required? ☐ Yes ☒ No

Date/Time: 3-20-14

Comments/Resolution:

Temp for Samples has no bearing on ASTM D6022 they do not need to be on Ice.

FECAL WAIVER ON FILE Y N

TEMPERATURE WAIVER ON FILE Y N

Project Manager Review:

AK Koski

Date: 3-20-14

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)

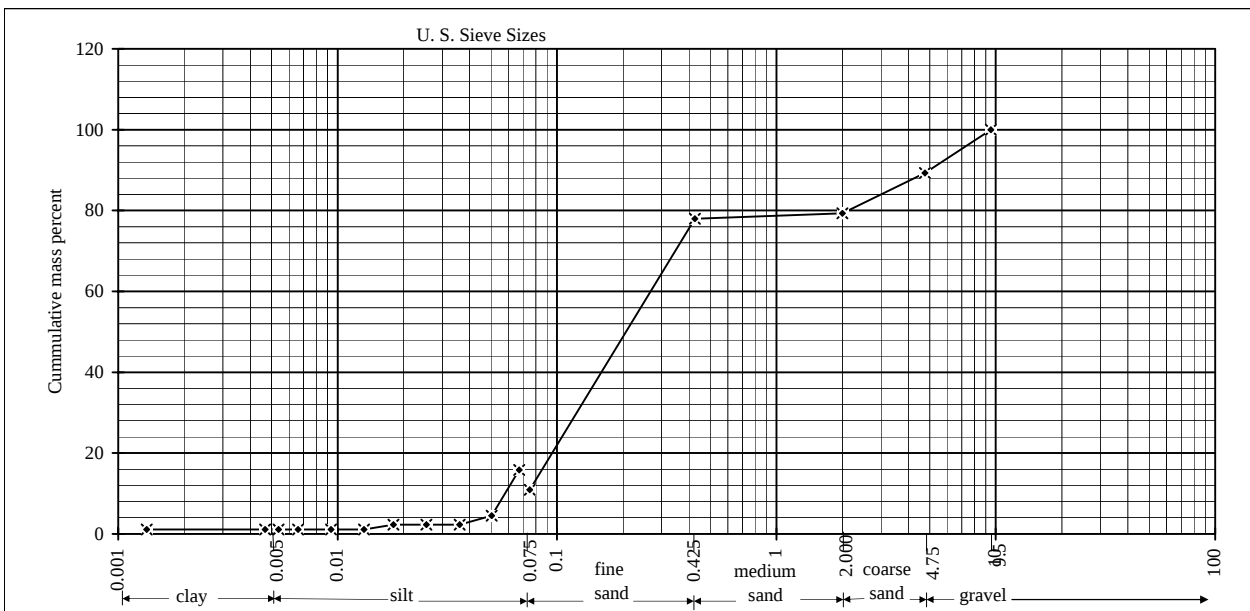


Mine & Energy Lab
206 2nd Avenue West
PO Box 1212
Virginia, MN 55792
(218) 735-6740

GRAIN SIZE DISTRIBUTION REPORT

ASTM D 422

Project: 4977-00 Former Food & Fuel	Date Reported 3/26/2014
Sample ID GP-1 (30-34')	Date Collected 3/13/2014
Pace MPLS WO # 10260546	Lab ID# 10260546-008
	Pace Va WO # 1231471



Size	Percentages	Specifications (% passing)	Percent Moisture	LL	PL	PI
Clay	1.1%		20.1%			
Silt	9.8%			Specifications (LL and PI)		
Fine Sand	67.1%					
Medium Sand	1.3%					
Coarse Sand	10.0%			USCS Classification (ASTM D2487)		
Gravel	10.7%			(SP-SC) Poorly graded sand with silty clay		
Sieve Size	Percent Passing					
5/8"	0.0%					
1/2"	0.0%					
3/8"	100.0%					
#4	89.3%					
#10	79.3%					
#40	78.0%					
#100	48.3%					
#200	10.9%					

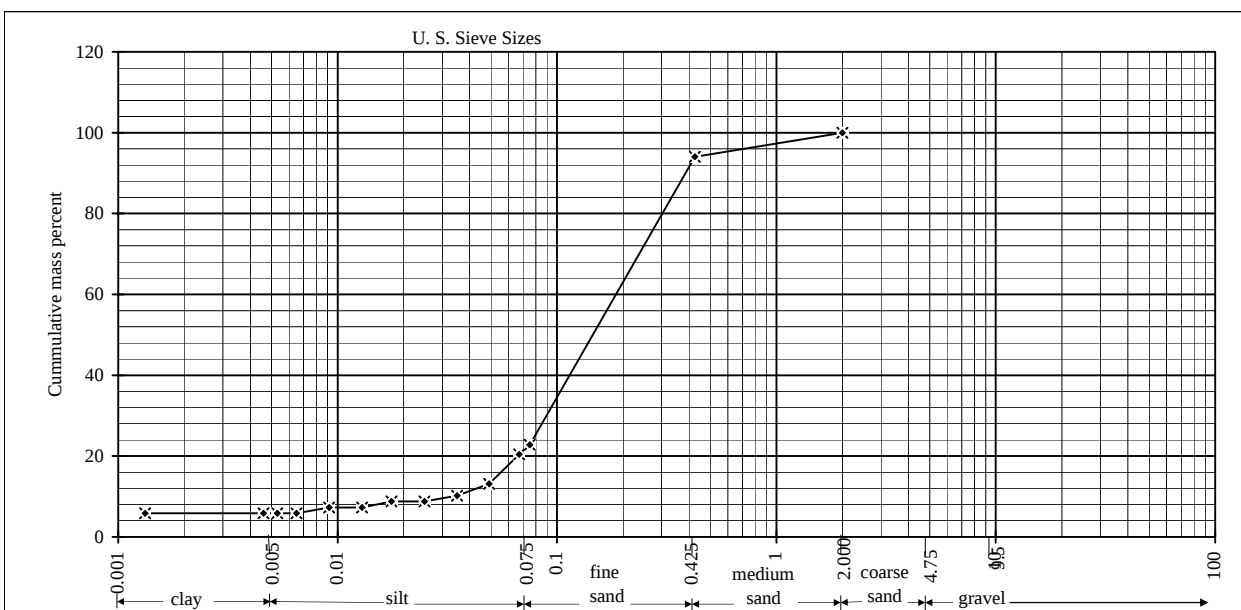


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GRAIN SIZE DISTRIBUTION REPORT

ASTM D 422

Project: 4977-00 Former Food & Fuel	Date Reported 3/26/2014
Sample ID GP-4 (30-34')	Date Collected 3/14/2014
Pace MPLS WO # 10260546	Lab ID# 10260546-010
	Pace Va WO # 1231471



Size	Percentages	Specifications (% passing)	Percent Moisture	LL	PL	PI
Clay	5.8%		20.4%			
Silt	17.0%			Specifications (LL and PI)		
Fine Sand	71.2%					
Medium Sand	6.0%					
Coarse Sand	0.0%			USCS Classification (ASTM D2487)		
Gravel	0.0%			(SC-SM) Silty, clayey sand		
Sieve Size	Percent Passing					
5/8"	0.0%					
1/2"	0.0%					
3/8"	0.0%					
#4	0.0%					
#10	100.0%					
#40	94.0%					
#100	61.8%					
#200	22.8%					

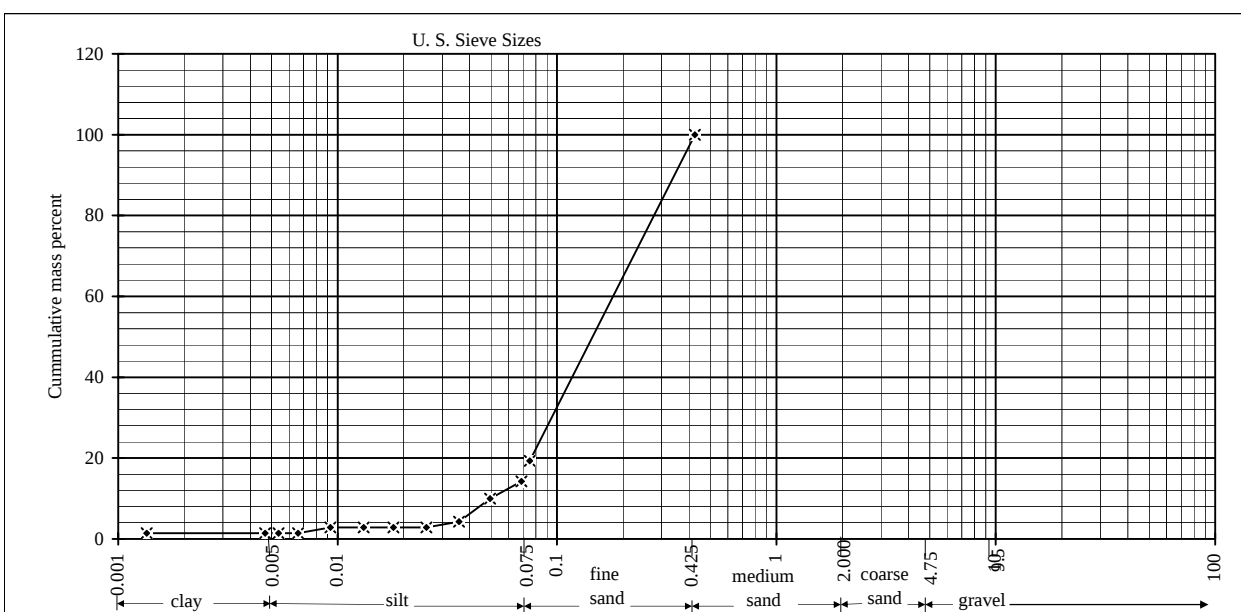


Mine & Energy Lab
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PO Box 1212
Virginia, MN 55792
(218) 735-6740

GRAIN SIZE DISTRIBUTION REPORT

ASTM D 422

Project: 4977-00 Former Food & Fuel	Date Reported 3/26/2014
Sample ID GP-3 (26-30')	Date Collected 3/13/2014
Pace MPLS WO # 10260546	Lab ID# 10260546-009
	Pace Va WO # 1231471



Size	Percentages	Specifications (% passing)	Percent Moisture	LL	PL	PI
Clay	1.4%		22.3%			
Silt	17.9%			Specifications (LL and PI)		
Fine Sand	80.7%					
Medium Sand	0.0%					
Coarse Sand	0.0%			USCS Classification (ASTM D2487)		
Gravel	0.0%			(SC-SM) Silty, clayey sand		
Sieve Size	Percent Passing					
5/8"	0.0%					
1/2"	0.0%					
3/8"	0.0%					
#4	0.0%					
#10	0.0%					
#40	100.0%					
#100	82.0%					
#200	19.3%					

Appendix K

Minnesota Unique Well No.

562963

County Anoka
 Quad St Francis
 Quad ID 136A

MINNESOTA DEPARTMENT OF
 HEALTH
**WELL AND
 BORING RECORD**
 Minnesota Statutes Chapter 103I

Entry Date 04/21/1999
 Update Date 02/14/2014
 Received Date

Well Name ST. FRANCIS SCH. IR. WEL Township Range Dir Section Subsections Elevation 917 ft. 34 24 W 32 CBCADD Elevation Method 7.5 minute topographic map (+/- 5 feet)		Well Depth 451 ft. Depth Completed 420 ft. Date Well Completed 10/23/1996 Drilling Method Non-specified Rotary	
Well Address 23026 AMBASSADOR BL ST FRANCIS MN 55070		Drilling Fluid Bentonite Well Hydrofractured? ☐ Yes ☐ No From Ft. to Ft.	
Geological Material		Use Irrigation	
TOP SOIL SAND (DIRTY) CLAY CLAY CLAY SANDY CLAY/GRAVEL CLAY & SAND CLAY & SAND ST. LAWRENCE FRANCONIA SANDSTONE IRONTON/GALESVILLE	Color BLACK BROWN GRAY RED BROWN GRAY BROWN GRAY WHT/GRN BLU/BRN WHITE	Hardness HARD SOFT HARD HARD MEDIUM MEDIUM MEDIUM MEDIUM HARD MEDIUM MEDIUM	From To 0 3 3 35 35 50 50 75 75 110 110 135 135 175 175 225 225 246 246 410 410 451
Casing Type Steel (black or low carbon) Joint Welded ☒ Drive Shoe? ☒ Yes ☐ No Above/Below ft.		Casing Diameter 8 in. to 316 ft. Weight 28.5 lbs./ft. Hole Diameter 14 in. to 316 ft.	
Open Hole from 251 ft. to 420 ft.		Screen NO Make Type	
Diameter Slot/Gauze Length Set Between			
Static Water Level 7 ft. from Land surface Date Measured 10/23/1996			
PUMPING LEVEL (below land surface) 21 ft. after 20 hrs. pumping 200 g.p.m.			
Well Head Completion Pitless adapter manufacturer Model ☐ Casing Protection ☒ 12 in. above grade ☐ At-grade (Environmental Wells and Borings ONLY)			
NO REMARKS		Grouting Information Well Grouted? ☒ Yes ☐ No Grout Material: Neat Cement from 0 to 251 ft. 6 yds.	
Located by: Minnesota Department of Health Method: GPS SA On (averaged) Unique Number Verification: Information from owner Input Date: 10/03/1996 System: UTM - Nad83, Zone15, Meters X: 471422 Y: 5026217		Nearest Known Source of Contamination _feet _direction _type Well disinfected upon completion? ☒ Yes ☐ No	
		Pump ☒ Not Installed Date Installed 09/10/1996 Manufacturer's name GRUNDFOS Model number 225S200-7 HP 20 Volts 460 Length of drop Pipe 42 ft. Capacity 200 g.p.m. Type Submersible Material Steel (black or low carbon)	
First Bedrock Eau Claire Formation Aquifer Eau Claire-Mt.Simon Last Strat Mt.Simon Sandstone Depth to Bedrock 225 ft.		Abandoned Wells Does property have any not in use and not sealed well(s)? ☐ Yes ☒ No	
		Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No	
		Well Contractor Certification Renner E.H. Well 71015 SHAFFER, R. License Business Name Lic. Or Reg. No. Name of Driller	
County Well Index Online Report		562963 Printed 6/23/2014 HE-01205-07	

Minnesota Unique Well No.

503082

County Anoka
 Quad St Francis
 Quad ID 136A

MINNESOTA DEPARTMENT OF
 HEALTH
**WELL AND
 BORING RECORD**

Entry Date 04/15/1991
 Update Date 02/14/2014
 Received Date 07/19/1990

Minnesota Statutes Chapter 103I

Well Name NIELSEN, MARK H.		Well Depth 60 ft.		Depth Completed 60 ft.		Date Well Completed 07/10/1990	
Township Range Dir Section Subsections Elevation		917 ft.					
34 24 W 32 BBDDAC Elevation Method		7.5 minute topographic map (+/- 5 feet)					
Well Address		Drilling Fluid		Well Hydrofractured?			
23519 AMBASSADOR BL NW		Bentonite		From Ft. to Ft.		☐ Yes ☐ No	
ST FRANCIS MN 55070		Use Domestic					
Geological Material		Color		Hardness		From To	
SAND		BROWN		SOFT		0 7	
CLAY/ROCK		BROWN		HARD		7 41	
COARSE GRAVEL		BLACK		MEDIUM		41 60	
		Casing Type		Plastic Joint No Information		Drive Shoe? ☐ Yes ☒	
		No Above/Below 1 ft.					
		Casing Diameter		Weight		Hole Diameter	
		4 in. to 55 ft.		lbs./ft.		6.25 in. to 60 ft.	
		Open Hole		from ft. to ft.			
		Screen YES		Make JOHNSON		Type stainless steel	
		Diameter		Slot/Gauze		Length Set Between	
		2		12		5 55 ft. and 60 ft.	
		Static Water Level					
		15 ft. from Land surface		Date Measured 07/10/1990			
		PUMPING LEVEL (below land surface)					
		50 ft. after 1 hrs. pumping		30 g.p.m.			
		Well Head Completion					
		Pitless adapter manufacturer MERRILL		Model SPK			
		☐ Casing Protection		☒ 12 in. above grade			
		☐ At-grade (Environmental Wells and Borings ONLY)					
NO REMARKS		Grouting Information		Well Grouted? ☒ Yes ☐ No			
		Grout Material: Bentonite		from to ft.			
Located by:		Method: Digitization (Screen) - Map					
(1:12,000)							
Unique Number Verification: Address		Input Date: 06/23/2010					
verification							
System: UTM - Nad83, Zone15, Meters		X: 471574 Y: 5027008					
		Nearest Known Source of Contamination					
		100 feet S direction Sewer type					
		Well disinfected upon completion?		☒ Yes ☐ No			
		Pump ☐ Not Installed		Date Installed 07/10/1990			
		Manufacturer's name MYERS		Model number S3N52-N510			
		HP 0.5 Volts 230					
		Length of drop Pipe 40 ft.		Capacity 10 g.p.m.			
		Type Submersible		Material Plastic			
		Abandoned Wells		Does property have any not in use and not sealed well(s)? ☒			
		Yes ☐ No					
		Variance		Was a variance granted from the MDH for this well? ☐ Yes ☐ No			
First Bedrock		Aquifer Quat. Buried Artes. Aquifer					
Last Strat gravel (+larger)-black		Depth to Bedrock ft.					
County Well Index Online Report		503082		Printed 6/23/2014		HE-01205-07	

Minnesota Unique Well No.

165996County Anoka
Quad Crown
Quad ID 136BMINNESOTA DEPARTMENT OF
HEALTH
**WELL AND
BORING RECORD**Entry Date 04/15/1991
Update Date 02/14/2014
Received Date

Minnesota Statutes Chapter 103I

Well Name NIELSEN, CHARLES		Well Depth 161 ft.		Depth Completed 161 ft.		Date Well Completed 10/10/1979	
Township Range Dir Section Subsections Elevation		918 ft.					
34 24 W 31 DBBDAB Elevation Method		7.5 minute topographic map (+/- 5 feet)					
Well Address		Drilling Fluid		Well Hydrofractured?			
23229 PEDERSON DR NW		--		☐ Yes ☐ No			
ST FRANCIS MN 55070				From Ft. to Ft.			
Geological Material		Use Domestic		Casing Type		Joint Threaded Drive Shoe? ☐	
SAND				Steel (black or low carbon)			
CLAY				Yes ☐ No Above/Below ft.			
WATER SAND				Casing Diameter		Weight	
				4 in. to 158 ft.		lbs./ft.	
				Hole Diameter			
				Open Hole from ft. to ft.			
				Screen YES Make JOHNSON Type stainless steel			
				Diameter		Slot/Gauze Length Set Between	
				4		ft. and ft.	
				Static Water Level			
				3 ft. from Land surface Date Measured 10/10/1979			
				PUMPING LEVEL (below land surface)			
				ft. after hrs. pumping g.p.m.			
				Well Head Completion			
				Pitless adapter manufacturer Model			
				☐ Casing Protection ☐ 12 in. above grade			
				☐ At-grade (Environmental Wells and Borings ONLY)			
NO REMARKS		Grouting Information		Well Grouted? ☒ Yes ☐ No			
		Grout Material: Well grouted, type unknown		from to ft.			
Located by: Minnesota Geological Survey		Method: Digitized - scale 1:24,000 or larger (Digitizing Table)		Nearest Known Source of Contamination			
Unique Number		Input Date: 01/01/1990		_feet _direction _type			
Verification: Address verification				Well disinfected upon completion? ☒ Yes ☐ No			
System: UTM - Nad83, Zone15, Meters		X: 470530 Y: 5026446		Pump ☒ Not Installed Date Installed 10/15/1979			
				Manufacturer's name AERMOTOR Model number HP 0.5 Volts			
				Length of drop Pipe 36 ft. Capacity 60 g.p.m.			
				Type Submersible Material Galvanized			
				Abandoned Wells Does property have any not in use and not sealed well(s)? ☐			
				Yes ☐ No			
				Variance Was a variance granted from the MDH for this well? ☐ Yes ☐ No			
				Well Contractor Certification			
First Bedrock		Aquifer Quat. Buried Artes. Aquifer		Torgerson Well Co.		27056 OTTEN, D.	
Last Strat sand		Depth to Bedrock ft.		License Business Name		Lic. Or Reg. No. Name of Driller	
County Well Index Online Report		165996		Printed 6/23/2014		HE-01205-07	



March 31, 2014

City of St. Francis Public Works
Attn: Mr. Paul Teicher
23340 Cree Street Northwest
St. Francis, Minnesota 55070

**Re: Water/Sanitary Sewer Supply Confirmation
Addresses Connected to City of St. Francis Public Utilities**

Dear Mr. Teicher:

Carlson McCain, Inc. (Carlson McCain) is currently conducting an environmental Limited Site Investigation (LSI) for the Minnesota Pollution Control Agency (MPCA) in regards to a historical petroleum release associated with the Former Food and Fuel (Site) located at 4020 - 233rd Avenue Northwest in St. Francis, Minnesota. The LSI was conducted to assess vertical and horizontal subsurface soil contamination and potential groundwater impacts from a petroleum release identified during underground storage tank (UST) and fuel dispenser removal activities. As part of our investigation, we are required by the MPCA to confirm that the Site and surrounding properties are/are not connected to the City of St. Francis public water and sanitary sewer services. In addition, providing any information associated with the construction material, diameter and depth of buried water/sewer mains and service lines (to the Site).

Enclosed is a list of the addresses of concern for our investigation. We would like to request that the City of St. Francis confirm that each property is/is not connected to City water and sanitary sewer services. Responding **YES** (address is served by City of St. Francis water and sewer services) or **NO** (address is not served by City of St. Francis water and sewer services) placed/circled next to each property address would suffice the MPCA requirements. In addition, information about the construction and depth of public service utilities to the Site and surrounding properties would be appreciated. Also, please state if there are any plans for groundwater development within 1/2 mile of the Site. Please add your name, title and telephone number on the attached page and return this survey to us in the enclosed, self-addressed and pre-paid envelope or via scan/email.

We greatly appreciate your time and effort for this task. We are hoping to receive confirmation by **April 11, 2014**. You can send or email the documentation. If you have any questions, you may contact me at 952-346-3913 or cloth@carlsonmccain.com.

Sincerely,

A handwritten signature in black ink, appearing to read "Chris Loch", written over a light blue horizontal line.

Christopher J. Loch
Environmental Project Manager

	Addresses of Concern	Connection	Water Size & Material	Sewer Size & Material	Depth
1	4020 233rd Avenue Northwest - St. Francis, MN (Subject Site)	YES	1" Copper	4" PVC	7.5'
2	23307 St. Francis Boulevard Northwest - St. Francis, MN (Municipal Liquor)	YES	3/4" Copper	4" PVC	7.5'
3	Unknown address (Abandoned carwash building north of Site)	YES	1" Copper	4" PVC	7.5'
4	Unknown address (Storage Stables)	YES	1" Copper	4" PVC	7.5'
5	23340 Cree Street Northwest - St. Francis, MN (St. Francis City Hall)	YES	1" Copper	4" PVC	7.5'
6	23306 Cree Street Northwest - St. Francis, MN (Edward Jones/The Ink Well Tattoo)	YES	1" Copper	4" PVC	7.5'
7	233325 - 233rd Lane - St. Francis, MN	YES	1" Copper	4"	7.5'
8	2331129 - 233rd Lane - St. Francis, MN	YES	1" Copper	4"	7.5'
9	233333 - 233rd Lane - St. Francis, MN	YES	1" Copper	4"	7.5'
10	4062 - 234 Avenue Northwest - St. Francis, MN	YES	1" Copper	4"	7.5'
11	4059 - 244 Avenue Northwest - St. Francis, MN	YES	1" Copper	4"	7.5'
12	4067 - 244 Avenue Northwest - St. Francis, MN	YES	1" Copper	4"	7.5'
13	4078 - 233rd Lane - St. Francis, MN	YES	1" Copper	4"	7.5'
14	4088 - 233rd Lane - St. Francis, MN	YES	1" Copper	4"	7.5'
15	4087 - 233rd Lane - St. Francis, MN	YES	1" Copper	4"	7.5'
16	4080 - 234 Avenue Northwest - St. Francis, MN	YES	1" Copper	4"	7.5'
17	23280 St. Francis Boulevard Northwest - St. Francis, MN (Anoka Hennepin Credit Union)	YES	6" PVC	6" PVC	7.0'
18	23256 St. Francis Boulevard Northwest - St. Francis, MN (Kids Country Childcare)	YES	6" PVC	6" PVC	7.5'
19	23212 St. Francis Boulevard Northwest #1300 - St. Francis, MN (Dairy Queen)	YES	6" PVC	6" PVC	7.5'
20	23180 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
21	23176 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
22	23170 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
23	23162 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
24	23154 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
25	23148 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
26	23142 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
27	23157 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
28	23163 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
29	23171 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
30	23177 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
31	23181 Dakota Street Northwest - St. Francis, MN	YES	1" Copper	4" PVC	7.5'
32	4100 233rd Avenue Northwest - St. Francis, MN – Address Not Found	NO			

Are there any plans for groundwater development within ½ of the Site?

No, but there are municipal wells within a ½ mile of the site.

See above for construction information regarding the material, depth, and size of water and sewer services.

Please state your name, title and phone number:

Paul Teicher, Public Works Director, 763.235.2304

NAME: Kim Murphy

ADDRESS: 23177 Dakotah St NW
St Francis MN 55070

PHONE NUMBER: 612 408 8857

1. Are you currently hooked up to the city water supply (*circle one*)? YES NO

2. To the best of your knowledge, does your property have an active private water well?
(*circle one*) YES NO

If YES, Please supply as much information about the well as possible:

Date installed: _____

Depth (below ground surface) the well is completed to: _____

Diameter of well casing: _____

Use (irrigation/industrial/primary water supply): _____

3. To the best of my knowledge, the property does not (*circle one*) have an abandoned water well. If so, supply as much information about the abandoned well as possible.

4. Does your property have a sump or pit where natural water accumulates?
(*Circle one*) YES NO

5. Do you have a basement?
(*Circle one*) YES NO

6. Have you noticed any unusual petroleum odors on your property especially in basements or underground structures (if present)? (*Circle one*) YES NO

If YES, please describe where and when you identified the vapors.

NAME: _____

ADDRESS: _____



Kids Country Childcare

23256 St. Francis Blvd NW

Saint Francis, MN 55070

www.kidscountrychildcare.com

PHONE NUMBER: _____

763- 753- 5010

1. Are you currently hooked up to the city water supply (*circle one*)? **YES** NO
2. To the best of your knowledge, does your property have an active private water well?
(*circle one*) YES **NO**

If YES, Please supply as much information about the well as possible:

Date installed: _____

Depth (below ground surface) the well is completed to: _____

Diameter of well casing: _____

Use (irrigation/industrial/primary water supply): _____

3. To the best of my knowledge, the property does / **does not** (*circle one*) have an abandoned water well. If so, supply as much information about the abandoned well as possible.
4. Does your property have a sump or pit where natural water accumulates?
(*Circle one*) YES **NO**
5. Do you have a basement?
(*Circle one*) YES **NO**
6. Have you noticed any unusual petroleum odors on your property especially in basements or underground structures (if present)? (*Circle one*) YES **NO**

If YES, please describe where and when you identified the vapors.

NAME:

Kathy Jensen

ADDRESS:

23176 Dakota St NW
St Francis MN 55070

(renter)

PHONE NUMBER:

612-803-6300

1. Are you currently hooked up to the city water supply (circle one)? ☒ YES NO
2. To the best of your knowledge, does your property have an active private water well?
(circle one) YES ☒ NO

If YES, Please supply as much information about the well as possible:

Date installed: _____

Depth (below ground surface) the well is completed to: _____

Diameter of well casing: _____

Use (irrigation/industrial/primary water supply): _____

3. To the best of my knowledge, the property does / (does not (circle one)) have an abandoned water well. If so, supply as much information about the abandoned well as possible.
4. Does your property have a sump or pit where natural water accumulates?
(Circle one) YES ☒ NO
5. Do you have a basement?
(Circle one) ☒ YES NO
6. Have you noticed any unusual petroleum odors on your property especially in basements or underground structures (if present)? (Circle one) YES ☒ NO

If YES, please describe where and when you identified the vapors.

NAME:

Jill C. Pederson

ADDRESS:

23171 Dakota St NW
St. Francis, MN 55070

PHONE NUMBER:

763-224-8696

1. Are you currently hooked up to the city water supply (circle one)? YES NO
2. To the best of your knowledge, does your property have an active private water well? (circle one) YES NO

If YES, Please supply as much information about the well as possible:

Date installed: _____

Depth (below ground surface) the well is completed to: _____

Diameter of well casing: _____

Use (irrigation/industrial/primary water supply): _____

3. To the best of my knowledge, the property does / does not (circle one) have an abandoned water well. If so, supply as much information about the abandoned well as possible.

??

4. Does your property have a sump or pit where natural water accumulates? (Circle one) YES NO

my back yard Cree St

5. Do you have a basement? (Circle one) YES NO

Country Market

6. Have you noticed any unusual petroleum odors on your property especially in basements or underground structures (if present)? (Circle one) YES NO

If YES, please describe where and when you identified the vapors.

NAME:

Anoka Hennepin Credit Union-Shannon

ADDRESS:

23280 St Francis Blvd NW

Mart

St Francis, MN 55070

PHONE NUMBER:

763-253-2790

1. Are you currently hooked up to the city water supply (circle one)? YES NO
2. To the best of your knowledge, does your property have an active private water well? (circle one) YES NO

If YES, Please supply as much information about the well as possible:

Date installed: _____

Depth (below ground surface) the well is completed to: _____

Diameter of well casing: _____

Use (irrigation/industrial/primary water supply): _____

3. To the best of my knowledge, the property does (does not) (circle one) have an abandoned water well. If so, supply as much information about the abandoned well as possible.
4. Does your property have a sump or pit where natural water accumulates? (Circle one) YES NO
5. Do you have a basement? (Circle one) YES NO
6. Have you noticed any unusual petroleum odors on your property especially in basements or underground structures (if present)? (Circle one) YES NO

If YES, please describe where and when you identified the vapors.

NAME:

Matt Kylene

ADDRESS:

23340 Cree Street NW

PHONE NUMBER:

763-235-2301

1. Are you currently hooked up to the city water supply (circle one)? YES NO
2. To the best of your knowledge, does your property have an active private water well?
(circle one) YES NO

If YES, Please supply as much information about the well as possible:

Date installed: _____

Depth (below ground surface) the well is completed to: _____

Diameter of well casing: _____

Use (irrigation/industrial/primary water supply): _____
3. To the best of my knowledge, the property does / does not (circle one) have an abandoned water well. If so, supply as much information about the abandoned well as possible.
4. Does your property have a sump or pit where natural water accumulates?
(Circle one) YES NO
5. Do you have a basement?
(Circle one) YES NO
6. Have you noticed any unusual petroleum odors on your property, especially in basements or underground structures (if present)? (Circle one) YES NO

If YES, please describe where and when you identified the vapors.