

# PHASE II ENVIRONMENTAL SITE ASSESSMENT

Interstate 35W From Cliff Road to 106<sup>th</sup> Street  
Dakota and Hennepin Counties, Minnesota  
State Project Number 1981-124

February 12, 2015

MnDOT Contract Number: 05984



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State Project Number 1981-124

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# 1 Introduction

## 1.1 Purpose

WSP was retained by the Minnesota Department of Transportation (MnDOT) to complete a Phase II Environmental Site Assessment along a segment of Interstate 35W (I-35W) from Cliff Road in Burnsville to 106<sup>th</sup> Street West (project area) in Bloomington (State Project Number 1981-124), Dakota and Hennepin Counties, Minnesota (Figure 1). The property is owned by MnDOT and is the location of a project that will involve replacement of the I-35W bridge over the Minnesota River and highway reconstruction to the north and south of the bridge for additional travel lanes and MnPass lanes. The purpose of this Phase II investigation was to identify the potential presence, magnitude, and extent of contamination in soil and groundwater within the preliminary construction area from historic operations. The information obtained from this assessment will be used by MnDOT to determine final project design plans, specifications, and to obtain liability protections, if determined to be necessary.

WSP conducted the Phase II assessment in a manner consistent with the Scope of Work and general requirements of the Professional and Technical Services Contract between MnDOT and WSP (MnDOT Contract No. 05984) executed July 7, 2014.

## 1.2 Site Description

The I-35W Minnesota River Bridge project area is located south of the Minneapolis metropolitan area, in Dakota County (Burnsville) and Hennepin County (Bloomington), Minnesota (Figure 2). I-35W is a main highway connecting Burnsville with the south metropolitan areas of Minneapolis, Minnesota.

According to the aerial photograph reviewed from 1937 and historical topographic maps reviewed from 1896, 1901, and 1954, all of the current structures within the project area were constructed on cleared, vacant land or land with existing structures. No roadways were present at the I-35W Minnesota River Bridge project area location on the 1896 or the 1901 topographic maps. Based on a review of aerial photographs, the area were first developed for use as a roadway in approximately 1937.

Various land use activities are present within and adjacent to the I-35W Minnesota River Bridge project area including residential, commercial, and industrial. An active quarry (Kraemer Mining and Minerals Quarry) and an active landfill (Freeway Sanitary Landfill) are present adjacent to the western side of the project area. Former landfills (former Astleford Central Dump, former Old Freeway Dump) are present adjacent to the east side of the project area. Grass and tree-covered undeveloped land and portions of the Minnesota Valley Wildlife Refuge are also located within the project area. An overview of the I-35W Minnesota River Bridge project area is included in Figure 2.

## 1.3 Previous Environmental Reports

WSP completed a Phase I environmental site assessment of the project area in November 2014 (WSP, 2014), with Phase I site inspections completed in August 2014. As part of the Phase I, WSP reviewed previous environmental reports at the Dakota County Environmental Management offices and the Minnesota Pollution Control Agency (MPCA) regarding the Kraemer Mining and Minerals Quarry, the former Astleford Central Dump, the former Old Freeway Dump, and the Freeway Sanitary Landfill, and the Freeway Transfer Station. Based on the environmental reports, the Kraemer Quarry was a demolition and construction debris disposal site that has been cleaned up and discontinued. The former Astleford Central Dump (now occupied by Dodge of Burnsville), the Old Freeway Dump, and Freeway Sanitary Landfill are Superfund sites with active remediation activities and known groundwater contamination. The Freeway Transfer Station is an active landfill within the groundwater area of concern for the

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former Freeway Sanitary Landfill. Copies of relevant pages of the previous environmental reports were included in WSP's Phase I report.

Dakota County Environmental Management records also identified the western portion of the interchange between I-35W and Cliff Road as a former dump location called the "MnDOT Cloverleaf Dump". According to Dakota County information, MnDOT disposed of approximately 4,000 cubic yards of demolition and construction debris within the interchange location from 1990 to 1993. Oil staining was reportedly observed on or adjacent to some of the debris. This site is not identified in any database. There are no additional records to indicate whether the site was cleaned up. Dakota County Environmental Management noted that the site was a "low risk" dump.

During the Phase I site assessment, 20 high-risk sites were identified within the project area (Figure 2). The 20 high-risk sites include, but are not limited to, inactive and active Comprehensive Environmental Response, Compensation, and Liability Act Information System and Superfund sites, active State Assessment Sites, active and closed landfill sites, active and inactive MNVIC and SRS sites, and/or unpermitted dump sites. The sites identified as high-risk have the greatest potential for soil or groundwater contamination and have the highest potential to impact proposed construction activities.

WSP identified two medium-risk sites with known or suspect recognized environmental conditions that may affect construction within the project area (Figure 2). The two medium-risk sites are closed leaking underground storage tank (LUST) sites and are located within the I-35W Minnesota River Bridge project area. The known or suspect recognized environmental conditions include soil and groundwater contamination from documented underground storage tank releases, historic site use, or type of operations conducted on the property (i.e., vehicle maintenance).

WSP identified two recognized environmental conditions for the I-35W subject property:

- Freeway Sanitary Landfill – A known groundwater contamination plume in the bedrock aquifer from the Freeway Sanitary Landfill is present on the west side of I-35W, extending from the Minnesota River southward approximately 0.5 mile. The groundwater plume is also identified by the MPCA as possibly present beneath the entire Dakota County portion of the subject property (south of the Minnesota River) and much of the area has been designated as a "Methane Area of Concern" by the MPCA. The presence of known and likely groundwater contamination from the Freeway Sanitary Landfill beneath the I-35W roadway is a known recognized environmental condition for the portion of the subject property in Dakota County.
- MnDOT Cloverleaf Dump – A historic disposal site (1990-1993) identified as the "MnDOT Cloverleaf Dump" was located within the western half of the I-35W and Cliff Road interchange, near the southern end of the subject property in Dakota County. MnDOT reportedly used the location for unpermitted disposal of demolition and construction debris. There are no records that the area was investigated or cleaned up. Therefore, the MnDOT Cloverleaf Dump is identified as a recognized environmental condition for the subject property.

As a result of information gathered during the Phase I, WSP recommended that MnDOT conduct a Phase II environmental assessment for locations where contaminated soil or groundwater may be encountered during the construction, and follow a standard contingency plan or construction monitoring activities if contamination related to the high- or medium-risk sites is encountered. A work plan describing the proposed sample locations and analyses was submitted to the MnDOT Project Manager via electronic correspondence on October 29, 2014, and was approved on November 3, 2014. The work plan was modified, as needed, during the investigation based on electronic and telephone discussions with MnDOT.

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## 2 Soil and Groundwater Investigation

### 2.1 Field Investigation

#### 2.1.1 Overview

The soil and groundwater investigation plan was developed in consultation with MnDOT's Project Manager and included the following:

- Completion of 17 soil borings using direct-push drilling technology.
- Collection of soil samples for headspace (organic vapor) screening.
- Logging of subsurface materials by a WSP geologist.
- Collection of soil samples for analytical testing.
- Collection of groundwater samples for analytical testing.
- Collection of soil gas measurements for methane, carbon dioxide, and oxygen.

All of the work was completed in accordance with applicable WSP Standard Operating Procedures (SOPs) and applicable MPCA guidance documents. Methods and procedures used for the soil and groundwater investigation are provided in Appendix A. Table 1 summarizes soil boring placement, reason for selection, total depth, and samples submitted for laboratory analysis. Latitude and longitude coordinates for each boring are provided in Table 2, and boring locations are shown on Figure 2. Boring location elevations are included on the boring logs provided in Appendix B. Boring latitude, longitude, and elevations were measured by a MnDOT survey crew during the Phase II investigation.

Most of the investigation area was readily accessible for installation of the borings, with minor modification to boring locations based on underground utility locations. However, the center of the former MnDOT Cloverleaf Dump area is currently occupied by a storm water pond with steep, heavily vegetated banks, and was inaccessible to standard drilling equipment. The boring installed to evaluate the MnDOT Cloverleaf Dump area was located at the closest accessible point, within the west side of the former dump area.

#### 2.1.2 Soil Borings

WSP conducted the soil and groundwater investigation field activities from November 11 through 14, 2014. Soil borings were installed by Matrix Environmental, LLC (Matrix) of Maple Grove, Minnesota, using a truck-mounted Geoprobe 5400 direct-push technology drill rig. The locations of public utilities were identified through the Gopher One-Call system prior to beginning the intrusive work.

A total of 17 soil borings (DP-1 through DP-17) were installed to assess the potential for impacted soil or groundwater (Figure 2). With the exception of DP-4, all borings were advanced to groundwater or to refusal, whichever was encountered first. Boring DP-4 was advanced to 30 feet below ground surface (bgs) and the boring was terminated because groundwater had not been encountered. Boring depths ranged from 8 feet (DP-16) to 40 feet (DP-1). No borings were installed into the bedrock due to the limitations of the drilling equipment used.

Each soil boring was logged by a WSP geologist. Soils were screened for the presence of volatile organic compounds (VOCs) using a photoionization detector (PID) equipped with a 10.6 electron-volt lamp, calibrated to isobutylene and fresh air. Both ambient air and headspace measurements were collected in accordance with WSP SOPs and applicable MPCA guidance. The headspace measurements are included on the boring logs (Appendix B).

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In-situ measurements of methane in soil gas were collected during installation of each soil boring as a screening tool to determine if methane from the Freeway Sanitary Landfill might impact construction activities in the project area. Samples were collected by inserting polyethylene sample tubing secured inside a 1-inch diameter Schedule 40 polyvinyl chloride (PVC) casing and connected to a Landtec GEM 5000 landfill gas analyzer. Stagnant air was purged from the sample tubing using the Landtec's built-in air pump before recording gas measurements. Soil gas measurements as percent total air are provided in Table 3A.

All soil borings were sealed in accordance with Minnesota Department of Health (MDH) requirements. The MDH Well and Boring Sealing Records, required for the borings where groundwater samples were collected, are also included in Appendix B. Sampling equipment was decontaminated between collection of each sample using a non-phosphate detergent and rinsed with potable water. Drilling rods were decontaminated using the same methods between borings.

## 2.2 Analytical Testing

### 2.2.1 Soil Samples

Soil samples were collected from each boring for laboratory analysis. The soil samples were placed on ice immediately after collection. The soil samples that were analyzed and the analytical tests performed on each sample are listed in Table 1. Samples were submitted to Pace Analytical Services, Inc. of Minneapolis, Minnesota (Pace), for analytical testing under strict chain-of-custody.

The soil samples were analyzed for the following parameters, depending on the boring location (Table 1):

- Diesel Range Organics (DRO) by the Wisconsin Modified DRO method (WI Mod DRO)
- Gasoline Range Organics (GRO) by the Wisconsin Modified GRO method (WI Mod GRO)
- VOCs by U.S. Environmental Protection Agency (EPA) Method 8260
- Semi-Volatile Organic Compounds (SVOCs) by EPA Method 8270
- Resource Conservation and Recovery Act (RCRA) metals arsenic, barium, cadmium, total chromium, lead, selenium, and silver by EPA Method 6010 and mercury by EPA Method 7471

### 2.2.2 Groundwater Samples

Groundwater was encountered in the unconsolidated sediments of seven borings (DP-1, DP-2, DP-3, DP-5, DP-6, DP-7, DP-11, and DP-17). A groundwater sample was collected from each boring, with the exception of DP-1. At DP-1, the borehole collapsed, preventing installation of a temporary well for groundwater sampling.

Water samples were collected by installing a temporary well to facilitate collection of a groundwater grab sample. Each temporary well was constructed with new, one-inch diameter Schedule 40 PVC casing with a five-foot length of 0.010-inch slotted screen. Water was drawn from the wells using a check-valve hand pump and dedicated tubing. Upon completion of sampling activities, the wells were removed and the borings backfilled in accordance with MDH regulations. The samples were labeled and placed in a rigid cooler, on ice, immediately after collection. Samples were submitted to Pace for analytical testing under strict chain-of-custody.

The groundwater samples were analyzed for a combination of the following parameters (Table 4):

- DRO by WI Mod DRO
- GRO by WI Mod GRO
- VOCs by EPA Method 8260



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- SVOCs by EPA Method 8270
  - RCRA metals arsenic, barium, cadmium, total chromium, lead, selenium, and silver by EPA Method 6010 and mercury by EPA Method 7471.

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## 3 Investigation Results

### 3.1 Regional Geology

According to the U.S. Geological Survey's Bloomington, Minnesota, quadrangles (7.5-minute series) map, the ground elevation of the project area ranges from approximately 700 feet above mean sea level (feet amsl) at the Minnesota River to approximately 860 feet amsl at 106th Street West in Bloomington. Soils in the areas near the Minnesota River are comprised of clay- and organic-rich floodplain alluvium and organic-rich silt and clay and peat deposits (Meyer and Hobbs, 1989; Hobbs et al., 1990). South of the entrance and exit ramps at Black Dog Road, soils are primarily clean sand and gravel terrace deposits from the carving of the Minnesota River valley. Farther south, near the entrance and exit ramps at Cliff Road, glacial outwash deposits from the Des Moines Lobe glaciation can be found (Hobbs et al., 1990). The bedrock strata underlying the project area consists of rocks from the Jordan Sandstone and the Prairie du Chien Group. Bedrock depths are variable depending on the location within the project area and range from approximately 4 feet bgs south of the river to 120 feet bgs at the Minnesota Valley Wildlife Refuge north of the river (Bloomgren et al., 1989; Bloomgren et al., 1990).

### 3.2 Regional Hydrology

The nearest surface water body located within and near the project area is the Minnesota River and smaller tributaries of the Minnesota River are located to the east of the project area (Figure 1). The depth to groundwater within the project area is variable and dependent on location. Groundwater flow in the north section of the project area (Hennepin County) is to the south toward the Minnesota River and exhibits artesian conditions (Kanivetsky, 1989). The depth to groundwater in the north section ranges from approximately 65 feet bgs to 85 feet bgs. The natural direction of groundwater flow in the southern portion of the project area (Dakota County) is northward toward the Minnesota River (Palen, 1990). However, groundwater flow in this area is strongly influenced by a dewatering well located at the Kraemer Mining and Minerals Quarry, and flow is toward the dewatering well when it is actively pumping. The depth to groundwater south of the Minnesota River ranges from 4 feet bgs to greater than 30 feet bgs, depending on location.

### 3.3 Site Geology

Field observations including soil type, headspace measurements, and evidence of contaminant impact are summarized on soil boring logs in Appendix B. In developed portions of the project area, fill material was present at depths ranging from approximately 1 foot (DP-17) to 27.5 feet (DP-5). Fill material primarily consisted of poorly graded or well graded sand with silt and clay, with gravel present in some borings. At boring DP-6, a light brownish gray silt with highly vesicular gravel was encountered from 6 to 8 feet bgs; it was noted in the field logs that the gravel resembled slag from coal burning operations. A red sandstone-like boulder was encountered at approximately 5 feet bgs in boring DP-4. No fill material was encountered in borings DP-1 or DP-2, north of the Minnesota River. Native material observed in the soil borings consisted of organic-rich soils and peat (DP-8, DP-10, DP-11, DP-14, DP-15, DP-16, DP-17); grayish brown to gray silt riverbank deposits with sandy and clayey lenses (DP-1, DP-2, DP-3, and DP-4); and sand with silt. Weathered limestone-type bedrock was encountered in borings DP-8 through DP-16 and the borings were terminated at refusal at depths ranging from 7.8 feet bgs (DP-16) to 21 feet bgs (DP-11).

Local surface drainage within the project area is toward drainage ditches along the interstate. The surface water within ditches drains to retention areas within exit/entrance ramp clover leaves. Drainage from the bridge is diverted to retention ponds on the north bank of the Minnesota River. Surface water overflow is presumed to be toward the Minnesota River.

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Groundwater was encountered in the unconsolidated sediments of eight borings DP-1, DP-2, DP-3, DP-5, DP-6, DP-7, DP-11, and DP-17. Boring DP-11 is located adjacent to a stormwater retention area within the exit/entrance ramp area for Cliff Road and I-35W. At the time of sampling, the retention pond contained water and it is likely that groundwater encountered in this boring is infiltrated runoff from the retention pond. The other seven borings where groundwater was encountered are located relatively close to the Minnesota River and groundwater quality and groundwater level in these areas is expected to be heavily influenced by conditions in the Minnesota River. Because no borings were installed into bedrock, a bedrock aquifer was not encountered. According to the Minnesota County Well Index, monitoring wells in the area are screened in the bedrock aquifer; therefore groundwater levels and groundwater quality from the temporary borings may not be consistent with the results of ongoing monitoring efforts in the underlying bedrock aquifer.

### 3.4 Organic Vapor Screening and Field Observations

No elevated organic vapor measurements (greater than 1 part per million) were encountered in any boring. At boring DP-6, a gray silt with highly vesicular gray gravel resembling slag from coal burning operations was encountered from approximately 6 to 8 feet bgs and a soil sample was collected from this interval. No other visual or olfactory evidence of impacted soil or groundwater was noted in the soil borings.

### 3.5 In-Situ Soil Gas Observations

Methane was encountered in 11 of the 17 soil borings at concentrations ranging from 0.1 percent to 9.7 percent total air. The presence of methane in some borings may be partially attributed to natural decay processes in the native organic-rich soils, especially for locations a significant distance from the Freeway Sanitary Landfill site where high levels of methane have been documented. Methane was encountered in all borings located near the Freeway Sanitary Landfill: DP-3 (0.7 percent), DP-4 (0.5 percent), DP-5 (0.1 percent), DP-6 (6.0 percent), DP-7 (1.2 percent), DP-8 (0.9 percent), DP-16 (0.1 percent), and DP-17 (9.7 percent). The methane present in these borings may also be partially attributed to natural decay processes, but may also be attributed to impacts from the former landfill. The lower explosive limit (LEL) for methane is 5 percent. Measurements of methane exceeded the LEL in two borings, DP-6 and DP-17. Because of the high concentration of methane in these areas, special precautions may be required when disturbing the soil during construction activities. Soil gas measurements are summarized on Table 3A and are illustrated on Figure 3A.

### 3.6 Soil Analytical Results

Soil sample analytical results are summarized in Table 3B. The soil sample analytical results were evaluated with respect to the MPCA's screening soil leaching values (SLVs), Tier 1 (unrestricted property use) soil reference values (SRVs), Tier 2 (industrial exposure) SRVs, and MPCA's Petroleum Remediation Program (PRP) standards for GRO and DRO. Analytical results for compounds that exceeded one or more evaluation criteria are illustrated in Figure 3B. Copies of the laboratory analytical reports are included in Appendix C.

All soil samples were received by the laboratory in acceptable condition and were analyzed within the method hold times. Laboratory qualifiers, where present, are included and defined in the summary of results presented in Table 3. Non-detections are reported as less than the reporting limit for each analyte. Soil sample identifiers consist of the boring ID, followed by the depth interval from which the sample was taken. For example, DP-6(6-8) denotes a sample collected from soil boring DP-6 at the depth interval 6 to 8 feet-bgs.

One soil sample contained an organic compound at a concentration above applicable MPCA evaluation criteria (Table 3). The sample from DP-9 contained DRO at a concentration of 316 milligrams per kilogram (mg/kg), exceeding the MPCA PRP evaluation criterion of 100 mg/kg. DRO was also detected in soil from borings DP-6 and DP-7 at concentrations above the reporting limit but well below the evaluation criterion. No other organic compounds were detected at concentrations exceeding the reporting limit.

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Two soil samples contained one or more RCRA metals at a concentration exceeding applicable MPCA criteria. At DP-6, the concentration of arsenic (7.2 mg/kg) and selenium (6.3 mg/kg) exceeded the screening SLV and the concentration of barium (1,550 mg/kg) exceeded the Tier 1 SRV. At boring DP-15, the concentration of total chromium (48.5 mg/kg) exceeded the screening SLV for hexavalent chromium and the concentration of arsenic (20.3 mg/kg) exceeded Tier 1 and Tier 2 SRVs. The concentration of arsenic in these two samples is within or very near the range for naturally occurring arsenic in soil in Minnesota [6 to 20 mg/kg] (MDH, 2006). Therefore, the arsenic concentrations detected in the samples from DP-6 and DP-15 may be attributed to natural conditions and do not necessarily indicate contamination is present. Note that the samples were analyzed for total chromium but the analytical results are being evaluated with respect to the screening SLV for hexavalent chromium; the actual concentration of hexavalent chromium in the sample from DP-15 is probably less than the screening SLV.

The concentrations of barium and selenium from soil at DP-6 are slightly outside the range of concentrations shown to be present naturally in Minnesota soils. The range of concentrations for barium are 30 mg/kg – 1,000 mg/kg and the range for selenium is 0 mg/kg – 1.2 mg/kg (Dragun and Chekiri, 2005). The sample collected from DP-6 was collected from a layer of fill material that may have contained waste product from coal burning operations, which typically contain higher concentrations of heavy metals.

### 3.7 Groundwater Analytical Results

Analytical results of groundwater sampling are summarized in Table 4. The groundwater sample analytical results were evaluated with respect to the MDH Health Risk Limits (HRLs) and Health-Based Values (HBVs). Analytical results for compounds that exceeded evaluation criteria are illustrated in Figure 4. Copies of the laboratory analytical reports are included in Appendix C.

All groundwater samples were received by the laboratory in acceptable condition and were analyzed within the method hold times. Laboratory qualifiers, where present, are included and defined in the summary of results presented in Table 4. Non-detections are reported as less than the reporting limit for each analyte.

No organic compounds were detected at concentrations above the reporting limit in any groundwater sample. Concentrations of barium, cadmium, total chromium, and/or selenium in samples from borings DP-2, DP-3, DP-5, and DP-11 exceeded HBVs. However, the groundwater samples were not filtered and contained fine sediment from the unconsolidated formation. Therefore, it is likely that the high concentration of metals in these samples is a result of suspended sediment and do not indicate that contamination is present.

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## 4 Conclusions and Recommendations

The purpose of this Phase II investigation was to identify the potential presence, magnitude, and extent of contamination in soil and groundwater from historic operations near the planned project area for the replacement of the I-35W bridge over the Minnesota River and highway reconstruction to the north and south of the bridge. The information obtained from this assessment will be used by MnDOT to determine final project design plans, specifications, and to obtain liability protections, if determined to be necessary.

During a Phase I site assessment conducted in 2014, WSP identified 20 high-risk and two medium-risk sites located within 500 feet of the construction area. These sites include closed landfills, active and inactive Superfund sites, unpermitted dump sites, and LUST sites. Two recognized environmental conditions were identified within the project area: groundwater and methane contamination from the Freeway Sanitary Landfill, and the MnDOT Cloverleaf Dump, an unpermitted dump site for demolition and construction debris. In November 2014, WSP conducted a soil and groundwater investigation to determine if historic activities had impacted the I-35W and Minnesota River bridge construction corridor.

The Phase II investigation included completion of 17 soil borings, field screening of soil samples for organic vapors and evidence of soil contamination, in-situ measurements of methane, and associated sampling for analytical testing. A total of seventeen soil samples were collected for analysis of organic compounds and RCRA metals. Groundwater was encountered in the unconsolidated materials in seven borings, and groundwater samples were collected from temporary wells installed in six of the borings for analysis of organic compounds and RCRA metals. Groundwater could not be collected from the seventh boring due to borehole collapse; however, groundwater at this location is represented by the water sample from an adjacent boring.

Methane was encountered in 11 of the 17 soil borings at concentrations ranging from 0.1 percent to 9.7 percent. Methane was encountered in all borings in proximity to the Freeway Sanitary Landfill at concentrations as high as 6.0 percent (DP-6) and 9.7 percent (DP-17), above the LEL of 5 percent. The presence of methane in some borings may be partially attributed to natural decay processes in the native organic-rich soils. However, the methane present in borings located near the former sanitary landfill, in particular borings DP-6 and DP-17, is attributed to impacts from the former landfill.

No other evidence of soil contamination was encountered in any boring. Organic vapor measurements did not exceed 1 ppm and no other visual or olfactory evidence of contamination was observed during drilling. No VOCs or SVOCs were detected in any soil sample above the reporting limit. DRO was detected above the PRP evaluation criterion in one sample of fill material from boring DP-9; however, the source of the DRO is unclear, as there is no source of contamination proximate to this location, there was no field evidence of contamination at the sample depth or in shallower soil, and the sample was collected from native materials. No groundwater was encountered in DP-9; therefore, migration of DRO to this location via groundwater is unlikely.

Concentrations of arsenic, barium, and selenium in soils from DP-6 and concentrations of arsenic and total chromium in soils from DP-15 exceeded SLVs or SRVs. The concentrations of arsenic in these soils are within or near the range for naturally occurring arsenic in soil in Minnesota and therefore may not indicate that contamination is present. The concentration of total chromium exceeds criterion for hexavalent chromium at DP-15; however the concentration of hexavalent chromium in that sample is likely far below any SLV or SRV for this analyte, such that there is no concern regarding hexavalent chromium in soils within the construction area. Concentrations of barium and selenium in the fill material that may have contained waste product from coal burning operations, which typically contain higher concentrations of heavy metals.

No organic compounds were detected at concentrations above the reporting limit in any groundwater sample. Concentrations of barium, cadmium, total chromium, and/or selenium in samples from borings DP-2, DP-3, DP-5, and DP-11 exceeded HBVs. However, the groundwater samples were not filtered and contained fine sediment from the unconsolidated formation. Therefore, it is likely that the high concentration of metals in these samples is a result of suspended sediment and may not reflect high concentrations of dissolved metals in the unconsolidated aquifer.

The presence of impacted soil may require special handling during construction, as described below.

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- Methane in Soil Gas - Because of the high concentration of methane found in borings near the Freeway Sanitary Landfill, it is recommended that MnDOT conduct a methane gas survey within one year prior to beginning construction activities. The survey should consist of installation of temporary soil vapor monitoring points along the construction corridor and collection of soil gas samples for analytical testing in a laboratory. Based on the findings of the soil gas survey, MnDOT may need to consider special provisions to address methane in soil gas during intrusive activities.
  - Metals in Fill Materials - Elevated concentrations of arsenic, barium, and selenium were encountered in the fill material in soil from boring DP-6. During excavation of soils during road construction, fill material fitting the description of the material found in DP-6 should be segregated and sampled for RCRA metals. Pending the results of the analytical testing, fill material may need to be disposed of offsite.
  - Metals in Soil – Elevated concentrations of arsenic were detected in a native soil sample collected from DP-15. Although the arsenic concentration detected in this sample is within the range of naturally-occurring arsenic in soil in Minnesota, the concentration detected in DP-15 is approximately an order of magnitude higher than the concentrations of arsenic detected in the other soil samples from the project area and the sample was collected adjacent to a former landfill site (Old Freeway/McGowan’s Dump). Because arsenic exceeded the SRV in soil, special provisions for handling and management of soil from the DP-15 area should be incorporated into the construction plan.
  - Groundwater – Although no evidence of contamination was found in the groundwater from the unconsolidated sediment, environmental investigations conducted at adjacent properties have noted the presence of contamination in the bedrock aquifer underlying the unconsolidated sediments. If MnDOT anticipates removal of bedrock material or dewatering of the bedrock aquifer, it is recommended that additional investigation of the bedrock aquifer be conducted. The investigation would consist of installing several permanent or temporary bedrock monitoring wells within or near the construction corridor and collection of groundwater samples for laboratory analysis. Results of the analysis can then be used to determine whether special provisions need to be developed for dewatering operations.

It is recommended that a contingency plan approach be incorporated into MnDOT’s special provisions for this project to address the potential for encountering impacted soils, compounds of concern, and/or debris at other locations within the project area that were not detected during this Phase II investigation. Segregation and disposal of contaminated soil encountered during the project, and any onsite reuse of contaminated materials within the construction area should be observed and documented by an environmental consultant.

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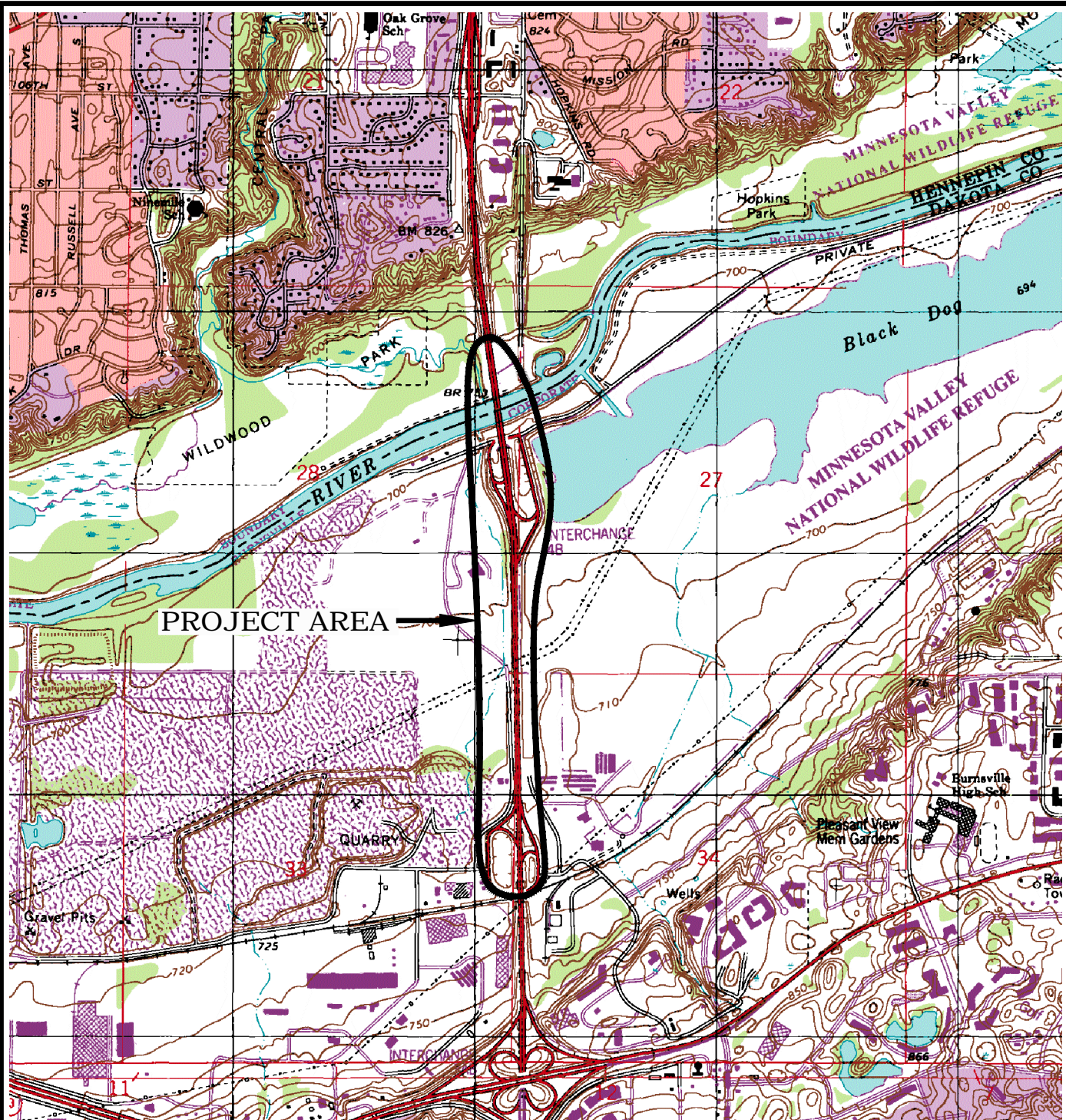
# Figures



DWG Name: 14M2370-001

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Checked: Approved:

A

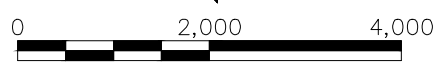
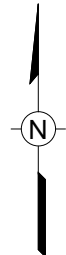


PROJECT AREA

REFERENCE  
7.5 MINUTE SERIES TOPOGRAPHIC QUADRANGLE  
BLOOMINGTON, MINNESOTA  
1997



QUADRANGLE LOCATION



APPROXIMATE SCALE IN FEET



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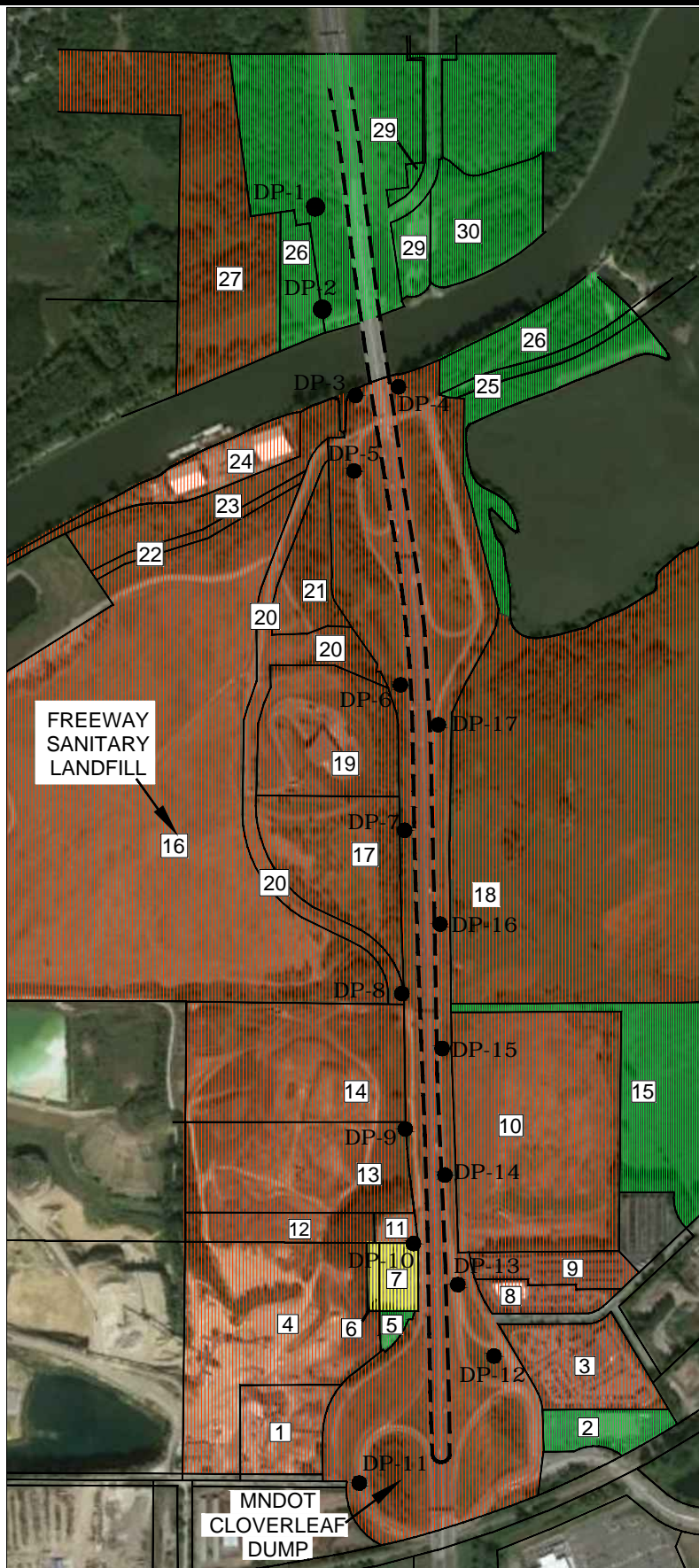
Figure 1

SITE LOCATION

INTERSTATE 35W MINNESOTA RIVER BRIDGE  
PROJECT AREA  
STATE PROJECT NUMBER 1981-124  
DAKOTA AND HENNEPIN COUNTIES, MINNESOTA  
PREPARED FOR  
MNDOT

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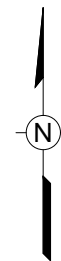


REFERENCE: AERIAL FROM GOOGLE EARTH PRO, 10/11/2014.

Site #	Name	Ranking
3	Burnsville Dodge Ram (Dodge of Burnsville)	High
4, 12, 13 & 14	Kraemer Mining & Materials Inc. (Edward Kraemer & Sons)	High
5	Kraemer Mining & Materials Inc. (Edward Kraemer & Sons)	Low
6 & 7	Commercial Property (Former Burnsville Volkswagen)	Medium
8	Waiser Subaru - Burnsville	High
9	All State Self Storage	High
10	Chalet Golf Shop and Driving Range (Old Freeway/McGowan's Dump)	High
11	Commercial Property (Former Burnsville Volkswagen)	High
15	Federal Property	Low
16, 17 & 21	Freeway Sanitary Landfill/ R B McGowan Co Inc (McGowan Property)	High
18	Northern States Power Co (Xcel Energy)	High
19, 20, 22 & 23	Freeway Transfer Inc. (Transfer Station)	High
24	Port Marilyn LLC (U.S. Salt Inc)	High
25 & 26	Northern States Power Co (Xcel Energy)	Low
27	City of Bloomington (Former Bloomington Tree Disposal)	High
28	City of Bloomington	Low
29 & 30	US Fish & Wildlife Service Minnesota Valley Wildlife Refuge Russell Sorenson Landing	Low

LEGEND

- SOIL SAMPLING LOCATION
- SITES WITH HIGH RISK
- SITES WITH MEDIUM RISK
- SITES WITH LOW RISK
- APPROXIMATE CONSTRUCTION LIMITS



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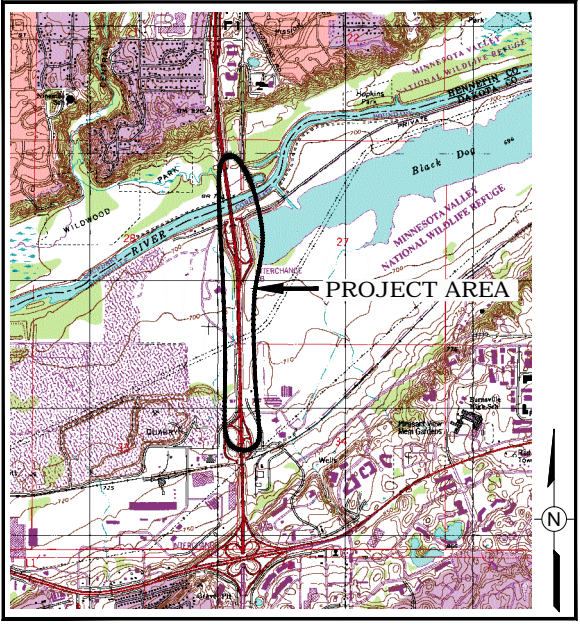
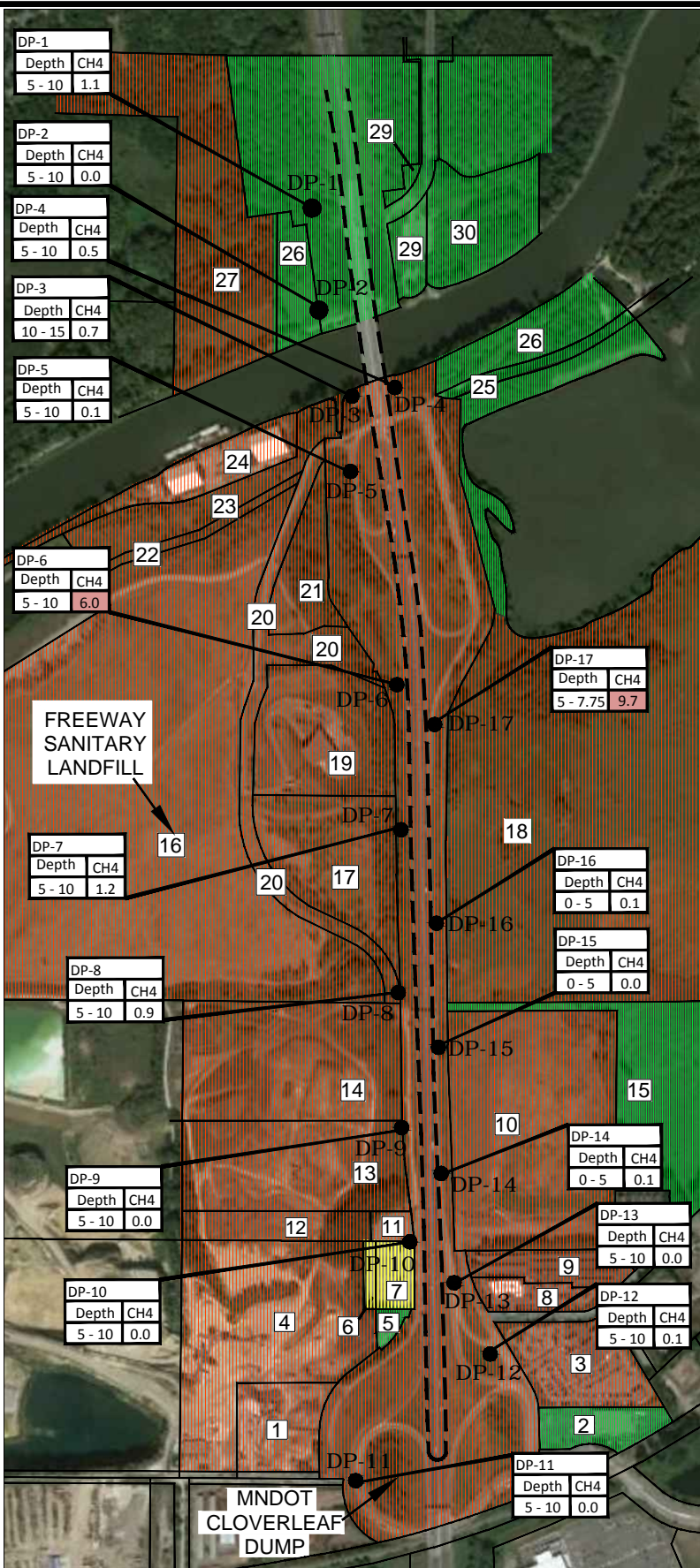
Figure 2

SITE LAYOUT AND SAMPLE LOCATIONS

INTERSTATE 35W MINNESOTA RIVER BRIDGE PROJECT AREA  
STATE PROJECT NUMBER 1981-124  
DAKOTA AND HENNEPIN COUNTIES, MINNESOTA  
PREPARED FOR MNDOT



DWG Name: 14M2370-003  
 Drawn By: LS 1/19/2015  
 Checked: Approved:



**LEGEND**

- SOIL SAMPLING LOCATION
  - SITES WITH HIGH RISK
  - SITES WITH MEDIUM RISK
  - SITES WITH LOW RISK
  - - - APPROXIMATE CONSTRUCTION LIMITS
- DEPTH IS MEASURED IN FEET BELOW GROUND SURFACE  
 CH4=METHANE GAS IN SOIL VAPOR  
 METHANE CONCENTRATIONS ARE SHOWN IN PERCENT (%)  
 SHADED VALUES INDICATE AN EXCEEDANCE OF THE LOWER EXPLOSIVE LIMIT OF 5% FOR METHANE

DP-14
Depth CH4
0-5 0.1

DP-17
Depth CH4
5-7.75 9.7

DP-16
Depth CH4
0-5 0.1

DP-15
Depth CH4
0-5 0.0

DP-14
Depth CH4
0-5 0.1

DP-13
Depth CH4
5-10 0.0

DP-12
Depth CH4
5-10 0.1

DP-11
Depth CH4
5-10 0.0

DP-7
Depth CH4
5-10 1.2

DP-8
Depth CH4
5-10 0.9

DP-9
Depth CH4
5-10 0.0

DP-10
Depth CH4
5-10 0.0

DP-1
Depth CH4
5-10 1.1

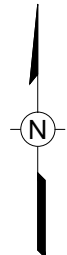
DP-2
Depth CH4
5-10 0.0

DP-4
Depth CH4
5-10 0.5

DP-3
Depth CH4
10-15 0.7

DP-5
Depth CH4
5-10 0.1

DP-6
Depth CH4
5-10 6.0



REFERENCE: AERIAL FROM GOOGLE EARTH PRO, 10/11/2014.



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Figure 3A

METHANE GAS CONCENTRATIONS IN SOIL

INTERSTATE 35W MINNESOTA RIVER BRIDGE PROJECT AREA  
 STATE PROJECT NUMBER 1981-124  
 DAKOTA AND HENNEPIN COUNTIES, MINNESOTA  
 PREPARED FOR MNDOT

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DP-1						
Depth	DRO	As	Ba	Cr	Se	
4-5	<7.4	5.3	111	15.0	0.72 J	

DP-2						
Depth	DRO	As	Ba	Cr	Se	
4-5	1.4 J	5.4	120	16.7	0.87 J	

DP-4						
Depth	DRO	As	Ba	Cr	Se	
4-5	5.8 J	0.81	20.3	5.2	0.50 J	

DP-3						
Depth	DRO	As	Ba	Cr	Se	
4-5	1.4 J	0.90 J	39.2	6.4	0.33 J	

DP-5						
Depth	DRO	As	Ba	Cr	Se	
9-10	<5.3	2.7	45.1	10.7	0.42 J	

DP-6						
Depth	DRO	As	Ba	Cr	Se	
6-8	20.2	7.2	1,550	27.0	6.3 J	

DP-7						
Depth	DRO	As	Ba	Cr	Se	
8-10	<7.9	2.9	47.1	7.0	<0.74	

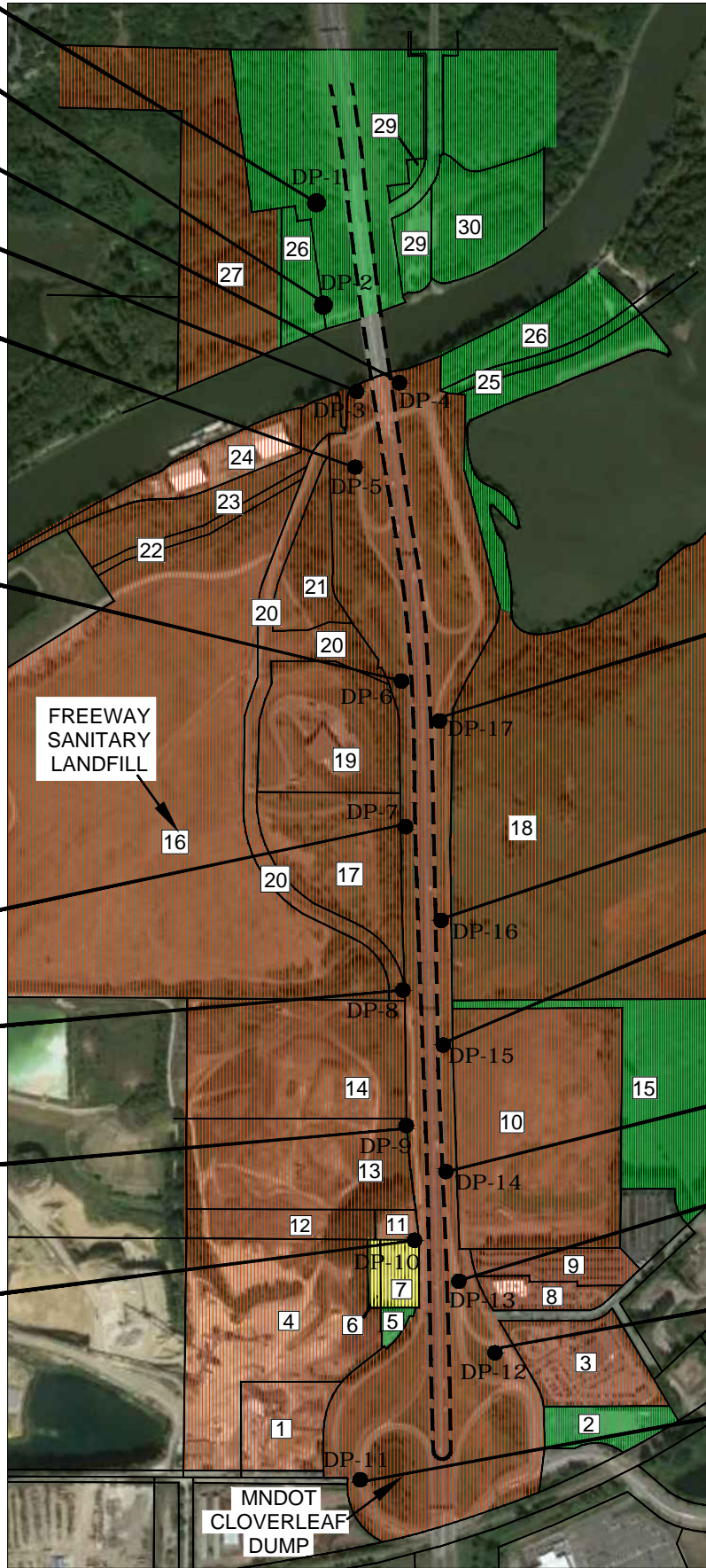
DP-8						
Depth	DRO	As	Ba	Cr	Se	
5-6	11.7	2.8	61.0	11.3	0.78	

DP-9						
Depth	DRO	As	Ba	Cr	Se	
4-5	316	3.1	52.4	7.6	0.49 J	

DP-10						
Depth	DRO	As	Ba	Cr	Se	
4-5	<3.9	3.3	53.2	7.5	0.41 J	



DP-17						
Depth	DRO	As	Ba	Cr	Se	
6-7	18.0	1.9	106	11.1	0.90	

DP-16						
Depth	DRO	As	Ba	Cr	Se	
4-5	11.0 J	2.6	207	13.3	2.4	

DP-15						
Depth	DRO	As	Ba	Cr	Se	
2-3	2.7 J	20.3	172	48.5	1.9	

DP-14						
Depth	DRO	As	Ba	Cr	Se	
3-4	11.8	5.7	90.7	23.9	0.93	

DP-13						
Depth	DRO	As	Ba	Cr	Se	
4-5	4.9 J	2.4	71.8	8.0	1.0	

DP-12						
Depth	DRO	As	Ba	Cr	Se	
4-5	<5.4	2.5	61.4	5.7	0.50 J	

DP-11						
Depth	DRO	As	Ba	Cr	Se	
4-5	2.0 J	1.9	58.2	9.5	1.0	

**LEGEND**

- SOIL SAMPLING LOCATION
- SITES WITH HIGH RISK
- SITES WITH MEDIUM RISK
- SITES WITH LOW RISK
- - - APPROXIMATE CONSTRUCTION LIMITS

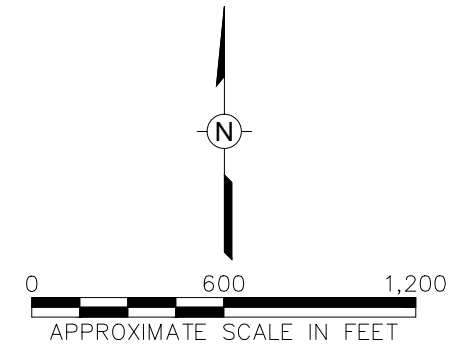
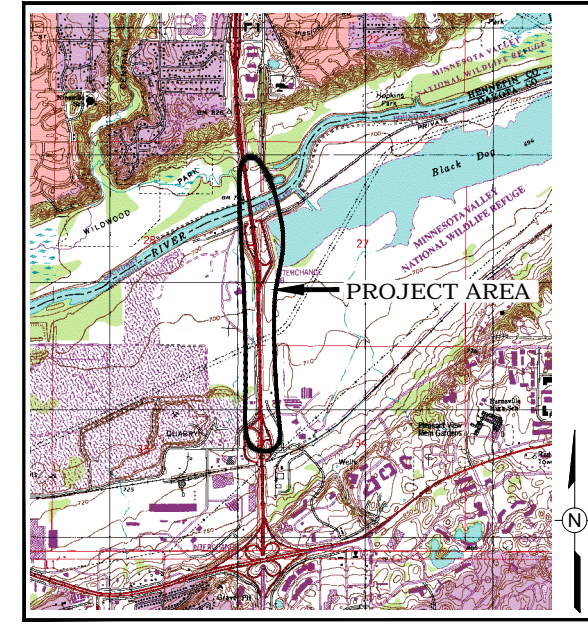
DP-15						
Depth	DRO	As	Ba	Cr	Se	
2-3	2.7 J	20.3	172	48.5	1.9	

DEPTH IS MEASURED IN FEET BELOW GROUND SURFACE  
 DIESEL RANGE ORGANICS (DRO), ARSENIC (As),  
 BARIUM (Ba), TOTAL CHROMIUM (Cr), AND  
 SELENIUM (Se) CONCENTRATIONS IN SOIL  
 REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)  
 SHADED VALUES INDICATE AN EXCEEDANCE OF A  
 REGULATORY CRITERION FOR THAT ANALYTE  
 J ANALYTE WAS DETECTED ABOVE THE METHOD  
 DETECTION LIMIT, BUT BELOW THE PRACTICAL  
 QUANTITATION LIMIT. VALUE IS AN ESTIMATE.

**Regulatory Criteria:**

DRO	As	Ba	Cr (a)	Se
100 (b)	15.1 (c)	1,700	18 (c)	1.5 (c)
---	9 (d)	1,100	87 (d)	160 (d)
---	20 (e)	18,000	650 (e)	1,300 (e)

- (a) REGULATORY CRITERION PROVIDED Cr IV; CONCENTRATIONS ARE PROVIDED AS TOTAL Cr
- (b) MPCA PETROLEUM REMEDIATION PROGRAM (mg/kg)
- (c) MPCA SCREENING SOIL LEACHING VALUE (mg/kg)
- (d) MPCA TIER 1 SOIL REFERENCE VALUE (mg/kg)
- (e) MPCA TIER 2 SOIL REFERENCE VALUE (mg/kg)



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 Checked:  
 Approved:  
 DWG Name: 14M2370-004

INTERSTATE 35W MINNESOTA RIVER BRIDGE  
 PROJECT AREA  
 STATE PROJECT NUMBER 1981-124  
 DAKOTA AND HENNEPIN COUNTIES, MINNESOTA  
 PREPARED FOR  
 MNDOT

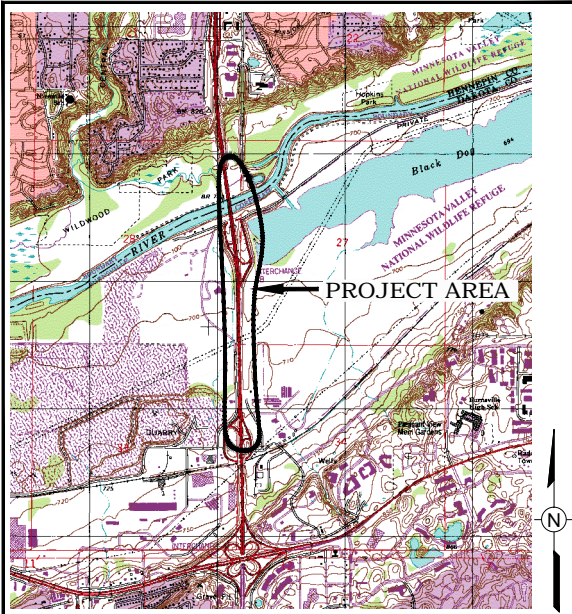
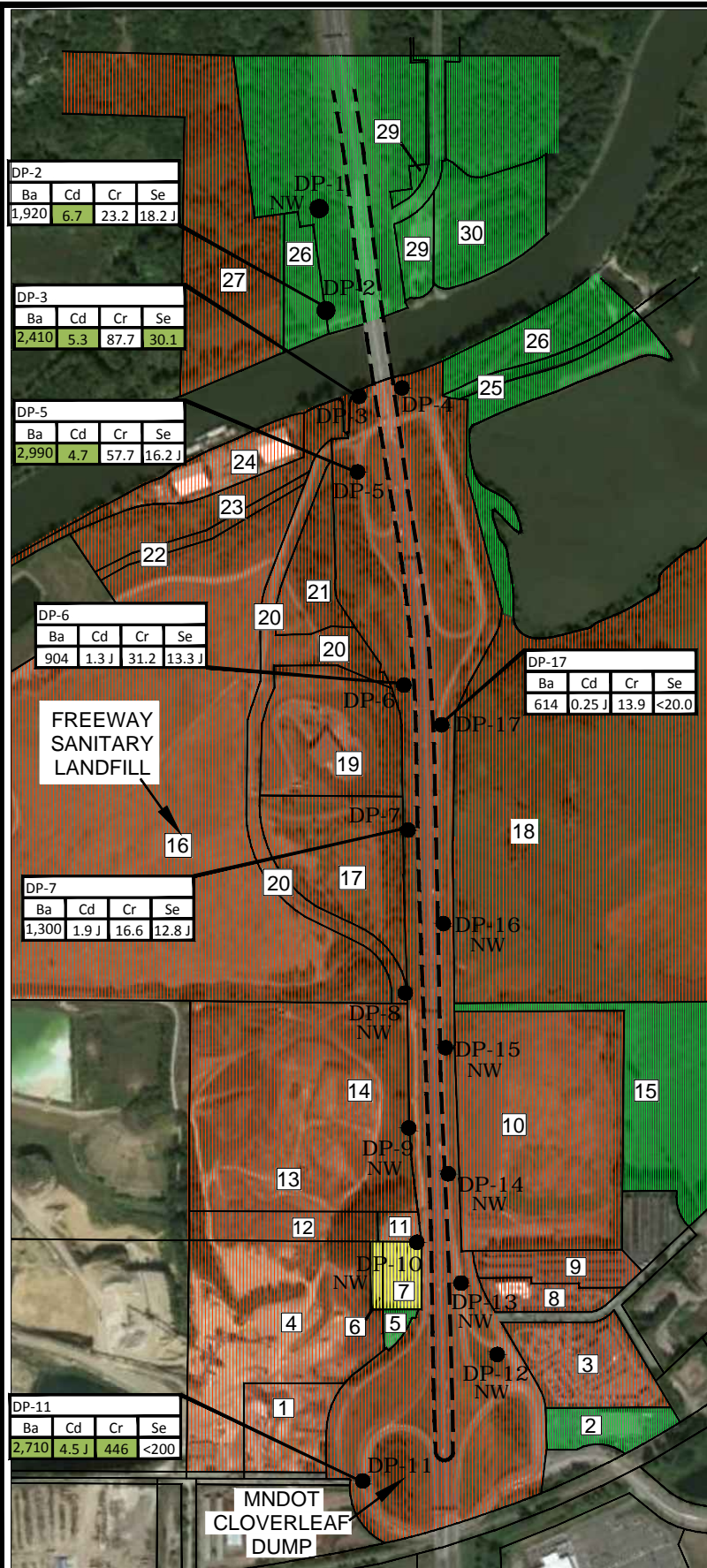
Figure 3B

ORGANIC COMPOUNDS AND METALS IN SOIL

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 Minneapolis, Minnesota 55401  
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 www.wspgroup.com/usa



DWG Name: 14M2370-003  
 Checked: Approved:  
 Drawn By: LS 1/19/2015



**LEGEND**

- SOIL SAMPLING LOCATION
- SITES WITH HIGH RISK
- SITES WITH MEDIUM RISK
- SITES WITH LOW RISK
- - - APPROXIMATE CONSTRUCTION LIMITS

Ba	Cd	Cr	Se
2,990	4.7	57.7	16.2 J

DEPTH IN THE DEPTH TO GROUNDWATER, MEASURED IN FEET BELOW GROUND SURFACE

BARIUM (Ba), CADMIUM (Cd), TOTAL CHROMIUM (Cr), AND SELENIUM (Se) CONCENTRATIONS IN GROUNDWATER REPORTED IN MICROGRAMS PER LITER ( $\mu\text{g/l}$ )

SHADED VALUES INDICATE AN EXCEEDANCE OF REGULATORY CRITERIA

J ANALYTE WAS DETECTED ABOVE THE METHOD DETECTION LIMIT, BUT BELOW THE PRACTICAL QUANTITATION LIMIT. VALUE IS AN ESTIMATE.

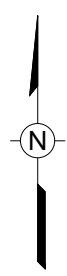
NW NO WATER AVAILABLE FOR SAMPLING

Ba	Cd	Cr	Se
2,000 (a)	4 (a)	100 (b)	30 (a)

(a) MDH HEALTH RISK LIMIT ( $\mu\text{g/l}$ )

(b) MDH HEALTH-BASED VALUE ( $\mu\text{g/l}$ ) FOR Cr IV; CONCENTRATIONS ARE PROVIDED AS TOTAL Cr.

NE=NOT ESTABLISHED



REFERENCE: AERIAL FROM GOOGLE EARTH PRO, 10/11/2014.



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Figure 4

METALS IN GROUNDWATER

INTERSTATE 35W MINNESOTA RIVER BRIDGE  
 PROJECT AREA  
 STATE PROJECT NUMBER 1981-124  
 DAKOTA AND HENNEPIN COUNTIES, MINNESOTA  
 PREPARED FOR  
 MNDOT

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# Tables

**Table 1**  
**Soil Boring Placement and Analytical Testing Summary**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (a)**

Boring ID	Installation Date	Reason for Selection	Thickness of Fill (feet)	Depth to Groundwater (feet bgs) (a)	Depth to Bedrock (feet bgs)	Total Boring Depth (feet bgs)	Soil Sampling Intervals (feet bgs)	Soil Analytical Testing Parameters	Groundwater Analytical Testing Parameters
DP-1	11/14/14	Former Bloomington Tree Disposal Site (unpermitted dump site)	0	35	Not encountered	40	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	Groundwater not sampled due to borehole collapse.
DP-2	11/14/14	Former Bloomington Tree Disposal Site (unpermitted dump site)	0	26.1	Not encountered	20	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.
DP-3	11/11/14	Freeway Transfer Station, Freeway Sanitary Landfill, U.S. Salt loading and unloading facility (unpermitted dump site, closed and open landfills, federal and state Superfund project, SRS site, inactive CERCLIS and NPL site)	9	13.4	Not encountered	25	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.
DP-4	11/12/14	Freeway Transfer Station, Freeway Sanitary Landfill, U.S. Salt loading and unloading facility (unpermitted dump site, closed and open landfills, federal and state Superfund project, SRS site, inactive CERCLIS and NPL site)	0	Not encountered	Not encountered	30	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-5	11/13/14	Freeway Transfer Station, Freeway Sanitary Landfill, U.S. Salt loading and unloading facility (unpermitted dump site, closed and open landfills, federal and state Superfund project, SRS site, inactive CERCLIS and NPL site)	27.5	28.7	Not encountered	35	9-10	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.
DP-6	11/13/14	Freeway Transfer Station, Freeway Sanitary Landfill, Kramer Mining and Materials (closed and open landfills, federal and state Superfund project, SRS site, inactive CERCLIS and NPL site)	8	16.8	Not encountered	30	6-8	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.
DP-7	11/13/14	Freeway Transfer Station, Freeway Sanitary Landfill, Kramer Mining and Materials (closed and open landfills, federal and state Superfund project, SRS site, inactive CERCLIS and NPL site)	19.7	15.4	Not encountered	20	8-10	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.
DP-8	11/14/14	Freeway Transfer Station, Freeway Sanitary Landfill, Kramer Mining and Materials (closed and open landfills, federal and state Superfund project, SRS site, inactive CERCLIS and NPL site)	0	Not encountered	10	10	5-6	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-9	11/14/14	Kramer Mining and Materials (part of active quarry and within the MPCA groundwater area of concern for the Freeway Landfill site)	0	Not encountered	9.8	10	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-10	11/14/14	Kramer Mining and Materials, Former Burnsville Volkswagen (closed LUST sites)	9	Not encountered	11	11	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-11	11/12/14	MnDOT Cloverleaf Dump (unpermitted dump site)	19	18.6	21	21	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.
DP-12	11/13/14	Astleford Central Dump site (Superfund project, SRS site, inactive CERLIS site, inactive MNVIC site; former LUST site)	12	Not encountered	12.7	13	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-13	11/12/14	Astleford Central Dump site (Superfund project, SRS site, inactive CERLIS site, inactive MNVIC site)	8.5	Not encountered	10.5	11	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	

**Table 1**  
**Soil Boring Placement and Analytical Testing Summary**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (a)**

Boring ID	Installation Date	Reason for Selection	Thickness of Fill (feet)	Depth to Groundwater (feet bgs) (a)	Depth to Bedrock (feet bgs)	Total Boring Depth (feet bgs)	Soil Sampling Intervals (feet bgs)	Soil Analytical Testing Parameters	Groundwater Analytical Testing Parameters
DP-14	11/11/14	Old Freeway/McGowan's Dump (State Superfund project, SRS site, active SAS site, inactive CERCLIS site, inactive unpermitted dump site, and two MNVIC sites)	3.5	Not encountered	11	11	3-4	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-15	11/11/14	Old Freeway/McGowan's Dump (State Superfund project, SRS site, active SAS site, inactive CERCLIS site, inactive unpermitted dump site, and two MNVIC sites)	1.2	Not encountered	9	9	2-3	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-16	11/11/14	NSP fly ash unpermitted dump, McGowan's Dump, Freeway Sanitary Landfill (State Superfund project, SRS sites, NPL site, active SAS site, inactive CERCLIS site, inactive unpermitted dump site, MNVIC sites)	1.2	Not encountered	7.8	8	4-5	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	
DP-17	11/11/14	NSP fly ash unpermitted dump, McGowan's Dump, Freeway Sanitary Landfill (State Superfund project, SRS sites, NPL site, active SAS site, inactive CERCLIS site, inactive unpermitted dump site, MNVIC sites)	1	7.0	Not encountered	15	6-7	VOCs, SVOCs, GRO, DRO, and RCRA Metals.	VOCs, SVOCs, GRO, DRO, and RCRA Metals.

(a) Groundwater level measured using Heron water level interface probe.

feet bgs = feet below ground surface.

SB = southbound.

NB = northbound.

NA = Not available.

VOCs = Volatile organic compounds by U.S. Environmental Protection Agency (EPA) Method 8260.

SVOCs = Semi-volatile organic compounds by U.S. Environmental Protection Agency (EPA) Method 8270.

GRO = Gasoline range organics by Wisconsin Modified GRO.

DRO = Diesel range organics by Wisconsin Modified DRO.

RCRA Metals = Resource Conservation and Recovery Act Metals: Arsenic, Barium, Cadmium, Chromium, Lead, Selenium, and Silver by EPA Method 6010 and Mercury by EPA Method 7471.



**Table 2**  
**Boring Location Latitude and Longitude**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (a)**

<b>Boring ID</b>	<b>Northing (a)</b>	<b>Easting</b>	<b>Elevation (feet-amsl)</b>
DP-1	220370.196	506563.538	700.11
DP-2	219835.448	506698.194	700.49
DP-3	219338.883	506869.194	706.65
DP-4	219391.606	507116.165	703.71
DP-5	218908.369	506869.228	724.17
DP-6	217755.816	507128.428	716.00
DP-7	216624.977	507166.195	714.88
DP-8	216076.558	507139.135	706.04
DP-9	215351.255	507155.892	710.42
DP-10	214787.136	507204.639	714.02
DP-11	213409.315	506898.193	730.32
DP-12	214074.867	507658.010	721.97
DP-13	214447.776	507466.181	717.00
DP-14	215154.115	507372.751	711.79
DP-15	215728.733	507355.943	708.92
DP-16	216427.996	507340.530	703.07
DP-17	217649.161	507340.106	705.25

- (a) Coordinates surveyed by MnDOT surveyor using Minnesota, Dakota County coordinate system.  
Horizontal datum is NAD83-1996 adjusted(North American Datum of 1983).  
Vertical datum is NAVD88(North American Vertical Datum of 1988).
- (b) feet-amsl = feet above mean sea level.

**Table 3A**  
**Summary of In-Situ Soil Gas Measurements**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (a)**

	Depth (feet bgs)	Methane (CH <sub>4</sub> )	Carbon Dioxide (CO <sub>2</sub> )	Oxygen (O <sub>2</sub> )
		LEL = 5 %		
<b>DP-1</b>	5 - 10	1.1	4.4	18.5
<b>DP-2</b>	5 - 10	0.0	14.6	0.0
<b>DP-3</b>	10 - 15	0.7	11.0	4.4
<b>DP-4</b>	5 - 10	0.5	6.9	6.4
<b>DP-5</b>	5 - 10	0.1	5.4	14.5
<b>DP-6</b>	5 - 10	6.0	1.2	19.8
<b>DP-7</b>	5 - 10	1.2	8.7	5.4
<b>DP-8</b>	5 - 10	0.9	16.5	0.0
<b>DP-9</b>	5 - 10	0.0	4.3	16.5
<b>DP-10</b>	5 - 10	0.0	6.7	14.4
<b>DP-11</b>	5 - 10	0.0	6.2	13.9
<b>DP-12</b>	5 - 10	0.1	0.5	19.9
<b>DP-13</b>	5 - 10	0.0	1.7	15.4
<b>DP-14</b>	0 - 5	0.1	14.5	1.0
<b>DP-15</b>	0 - 5	0.0	14.2	3.5
<b>DP-16</b>	0 - 5	0.1	12.0	12.0
<b>DP-17</b>	5 - 7.75	9.7	10.7	2.0

(a) Soil gas measurements provided as percentages.  
feet bgs = feet below ground surface.





LEL = lower explosive limit (shown as a percent).

Shaded values indicate and exceedance of the LEL.

**Table 3B**  
**Summary of Analytical Results in Soil Samples**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (mg/kg) (a)**

CAS Number	MPCA Screening Soil Leaching Value (b)	MPCA Tier 1 Soil Reference Value (c)	MPCA Tier 2 Soil Reference Value (d)	GRO/DRO Criteria (e)	Boring ID (Sample Depth in feet bgs) and Date Collected (a)											
					DP-1(4-5) 11/14/14	DP-2(4-5) 11/14/14	DP-3(4-5) 11/11/14	DP-4(4-5) 11/12/14	DP-5(9-10) 11/13/14	DP-6(6-8) 11/13/14	DP-7(8-10) 11/13/14	DP-8(5-6) 11/14/14	DP-9(4-5) 11/14/14	DP-10(4-5) 11/14/14	DP-11(4-5) 11/12/14	
<b>Petroleum Hydrocarbons</b>																
Diesel Range Organics (WI Mod DRO)	N/A	NE	NE	NE	100	<7.4	1.4 J	1.4 J	5.8 J	<5.3	<b>20.2</b>	<7.9	<b>11.7</b>	<b>316</b>	<3.9	2.0 J
Gasoline Range Organics (WI Mod GRO)	N/A	NE	NE	NE	100	<12.7	<13.0	<26.8	5.2 J	5.7 J	<16.9	<11.3	<11.9	<10.2	<10.8	6.1 J
<b>Volatile Organic Compounds (EPA Method 8260)</b>																
1,2,4-Trichlorobenzene	120-82-1	0.23	200	985	N/A	<0.0785	<0.0675	<0.0551	<0.0500	<0.0537	<0.0753	<0.0584	<0.0659	<0.0531	<0.0538	<0.0529
Ethylbenzene	100-41-4	1.0	200	200	N/A	<0.0785	<0.0675	<0.0551	0.0122 J	<0.0537	<0.0753	<0.0584	<0.0659	<0.0531	<0.0538	<0.0529
Toluene	108-88-3	2.5	107	305	N/A	<0.0785	<0.0675	0.0075 J	0.0108 J	<0.0537	<0.0753	<0.0584	<0.0659	<0.0531	<0.0538	<0.0529
n-Butylbenzene	104-51-8	NE	30	92	N/A	<0.0785	<0.0675	<0.0551	0.0102 J	<0.0537	<0.0753	<0.0584	<0.0659	<0.0531	<0.0538	<0.0529
n-Propylbenzene	103-65-1	NE	30	93	N/A	<0.0785	<0.0675	<0.0551	<0.0500	<0.0537	<0.0753	<0.0584	<0.0659	0.0139 J	<0.0538	<0.0529
sec-Butylbenzene	135-98-8	NE	25	70	N/A	<0.0785	<0.0675	<0.0551	<0.0500	<0.0537	<0.0753	<0.0584	<0.0659	<0.0531	<0.0538	<0.0529
<b>Semi-Volatile Organic Compounds (EPA Method 8270)</b>																
Benzo(b)fluoranthene	205-99-2	(f)	(f)	(f)	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	0.243 J	1.15 J	<0.352	<0.357
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	0.119 J	0.674 J	<0.352	<0.357
Benzo(a)pyrene	50-32-8	(f)	(f)	(f)	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	<0.393	0.935 J	<0.352	<0.357
Chrysene	218-01-9	(f)	(f)	(f)	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	0.177 J	0.779 J	<0.352	<0.357
Fluoranthene	206-44-0	670	1,080	6,800	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	0.345 J	1.12 J	<0.352	<0.357
Phenanthrene	85-01-8	NE	NE	NE	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	0.131 J	0.425 J	<0.352	<0.357
Pyrene	129-00-0	440	890	5,800	N/A	<0.403	<0.433	<0.370	<0.341	<0.366	<0.502	<0.372	0.266 J	0.987 J	<0.352	<0.357
<b>Benzo(a)pyrene Equivalents (f)</b>	NA	1.4	2	3	N/A	ND	ND	ND	ND	ND	ND	ND	0.026 J	1.058 J	ND	ND
<b>Metals (EPA Methods 6010, 7471)</b>																
Arsenic	7440-38-2	5.8	9	20	N/A	<b>5.3</b>	<b>5.4</b>	0.90 J	<b>0.81</b>	<b>2.7</b>	<b>7.2</b>	<b>2.9</b>	<b>2.8</b>	<b>3.1</b>	<b>3.3</b>	<b>1.9</b>
Barium	7440-39-3	1,700	1,100	18,000	N/A	<b>111</b>	<b>120</b>	<b>39.2</b>	<b>20.3</b>	<b>45.1</b>	<b>1,550</b>	<b>47.1</b>	<b>61.0</b>	<b>52.4</b>	<b>53.2</b>	<b>58.2</b>
Cadmium	7440-43-9	8.8	25	200	N/A	<b>0.30</b>	<b>0.40</b>	0.13 J	0.089 J	0.10 J	<b>0.33</b>	0.11 J	<b>0.20</b>	0.077 J	0.094 J	0.093 J
Chromium, Total	7440-47-3	1,000,000,000/36 (g)	44,000/87 (g)	100,000/650 (g)	N/A	<b>15.0</b>	<b>16.7</b>	<b>6.4</b>	<b>5.2</b>	<b>10.7</b>	<b>27.0</b>	<b>7.0</b>	<b>11.3</b>	<b>7.6</b>	<b>7.5</b>	<b>9.5</b>
Lead	7439-92-1	2,700	300	700	N/A	<b>8.2</b>	<b>8.7</b>	<b>4.4</b>	<b>15.1</b>	<b>3.0</b>	<b>10.5</b>	<b>3.1</b>	<b>6.2</b>	<b>5.4</b>	<b>3.5</b>	<b>3.6</b>
Mercury	7439-97-6	3.3	0.5	1.5	N/A	0.031	<b>0.033</b>	<0.022	<0.020	0.010 J	0.056	0.0087 J	0.018 J	0.0079 J	0.0083 J	0.0076 J
Selenium	7782-49-2	2.6	160	1,300	N/A	0.72 J	0.87 J	0.33 J	0.50 J	0.42 J	<b>6.3 J</b>	<0.74	<b>0.78</b>	0.49 J	0.41 J	<b>1.0</b>
Silver	7440-22-4	7.9	160	1,300	N/A	<0.57	<0.62	<0.46	<0.34	<0.55	<0.76	<0.49	<0.44	<0.40	<0.39	<0.44

(a) Analytical laboratory results reported in milligrams per kilogram (mg/kg).  
 Only those organic compounds detected in one or more soil samples are shown on this table.  
 MPCA = Minnesota Pollution Control Agency.  
 GRO/DRO = Gasoline range organics/diesel range organics.  
 feet bgs = feet below ground surface.  
 NA = Not analyzed.  
 NE = Not established.  
 N/A = Not applicable.  
 EPA = U.S. Environmental Protection Agency  
 ND = None detected.  
Laboratory Data Qualifiers:  
 J = Analyte was detected above the method detection limit, but below the practical quantitation limit. Value is an estimate.

**Boldface** type denotes a detection above the reporting limit.  
 Indicates an exceedance of the MPCA Petroleum Remediation Program (PRP) criterion for GRO or DRO  
 Indicates an exceedance of the Screening Soil Leaching Value  
 Indicates an exceedance of the Tier 1 Soil Reference Value.  
 Indicates an exceedance of the Tier 1 and Tier 2 Soil Reference Values.  
 (b) MPCA Screening Soil Leaching Values, updated 2013.  
 (c) MPCA Tier 1 Residential Soil Reference Values, updated 2009.  
 (d) MPCA Tier 2 Soil Reference Value for Industrial Exposure, updated 2009.  
 (e) Evaluation criteria per MPCA PRP Guidance Document 3-01 Excavation of Petroleum Contaminated Soil and Tank Removal Sampling, March 2012.  
 (f) Selected compounds combined and adjusted to Benzo(a)pyrene (BaP) equivalents using MPCA Spreadsheet. Evaluated against BaP equivalents criteria.  
 (g) MPCA Soil Leaching Values and Soil Reference Values are for Chromium III and Chromium VI, respectively. Sample concentrations reported as total chromium.

**Table 3B**  
**Summary of Analytical Results in Soil Samples**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (mg/kg) (a)**

	CAS Number	MPCA Screening Soil Leaching Value (b)	MPCA Tier 1 Soil Reference Value (c)	MPCA Tier 2 Soil Reference Value (d)	GRO/DRO Criteria (e)	Boring ID (Sample Depth in feet bgs) and Date Collected								
						DP-12(4-5) 11/13/14	DP-13(4-5) 11/12/14	DP-14(3-4) 11/11/14	DP-15(2-3) 11/11/14	DP-16(4-5) 11/11/14	DP-17(6-7) 11/11/14	Trip Blank 11/12/14	TB 111314 11/13/14	TB 111414-A 11/14/14
<b>Petroleum Hydrocarbons</b>														
Diesel Range Organics (WI Mod DRO)	N/A	NE	NE	NE	100	<5.4	4.9 J	11.8	2.7 J	11.0 J	18.0	NA	NA	NA
Gasoline Range Organics (WI Mod GRO)	N/A	NE	NE	NE	100	<10.3	<10.3	10.1 J	7.3 J	12.7 J	6.1 J	NA	NA	NA
<b>Volatile Organic Compounds (EPA Method 8260)</b>														
1,2,4-Trichlorobenzene	120-82-1	0.23	200	985	N/A	<0.0504	<0.0515	<0.0615	<0.0662	<0.0924	0.0172 J	0.0290 J	<0.0500	<0.0500
Ethylbenzene	100-41-4	1.0	200	200	N/A	<0.0504	<0.0515	<0.0615	<0.0662	<0.0924	0.0081 J	<0.0500	<0.0500	<0.0500
Toluene	108-88-3	2.5	107	305	N/A	<0.0504	<0.0515	0.0123 J	<0.0662	<0.0924	<0.0596	<0.0500	<0.0500	<0.0500
n-Butylbenzene	104-51-8	NE	30	92	N/A	<0.0504	<0.0515	<0.0615	<0.0662	0.0141 J	0.0109 J	0.0307 J	<0.0500	<0.0500
n-Propylbenzene	103-65-1	NE	30	93	N/A	<0.0504	<0.0515	<0.0615	<0.0662	<0.0924	<0.0596	<0.0500	<0.0500	<0.0500
sec-Butylbenzene	135-98-8	NE	25	70	N/A	<0.0504	<0.0515	<0.0615	<0.0662	<0.0924	0.0070 J	0.0181 J	<0.0500	<0.0500
<b>Semi-Volatile Organic Compounds (EPA Method 8270)</b>														
Benzo(b)fluoranthene	205-99-2	(f)	(f)	(f)	N/A	<0.343	<0.352	0.120 J	<0.442	0.308 J	0.193 J	NA	NA	NA
Benzo(g,h,i)perylene	191-24-2	NE	NE	NE	N/A	<0.343	<0.352	<0.392	<0.442	<0.605	<0.378	NA	NA	NA
Benzo(a)pyrene	50-32-8	(f)	(f)	(f)	N/A	<0.343	<0.352	<0.392	<0.442	<0.605	<0.378	NA	NA	NA
Chrysene	218-01-9	(f)	(f)	(f)	N/A	<0.343	<0.352	0.0766 J	<0.442	0.209 J	0.152 J	NA	NA	NA
Fluoranthene	206-44-0	670	1,080	6,800	N/A	<0.343	<0.352	<0.392	<0.442	0.332 J	0.250 J	NA	NA	NA
Phenanthrene	85-01-8	NE	NE	NE	N/A	<0.343	<0.352	<0.392	<0.442	0.114 J	0.119 J	NA	NA	NA
Pyrene	129-00-0	440	890	5,800	N/A	<0.343	<0.352	0.110 J	<0.442	0.292 J	0.210 J	NA	NA	NA
<b>Benzo(a)pyrene Equivalents (f)</b>	NA	1.4	2	3	N/A	ND	ND	0.013 J	ND	0.033 J	0.021 J	NA	NA	NA
<b>Metals (EPA Methods 6010, 7471)</b>														
Arsenic	7440-38-2	5.8	9	20	N/A	<b>2.5</b>	<b>2.4</b>	<b>5.7</b>	<b>20.3</b>	<b>2.6</b>	<b>1.9</b>	NA	NA	NA
Barium	7440-39-3	1,700	1,100	18,000	N/A	<b>61.4</b>	<b>71.8</b>	<b>90.7</b>	<b>172</b>	<b>207</b>	<b>106</b>	NA	NA	NA
Cadmium	7440-43-9	8.8	25	200	N/A	0.062 J	0.098 J	<b>0.79</b>	<b>2.2</b>	<b>0.39</b>	<b>0.21</b>	NA	NA	NA
Chromium, Total	7440-47-3	1,000,000,000/36 (g)	44,000/87 (g)	100,000/650 (g)	N/A	<b>5.7</b>	<b>8.0</b>	<b>23.9</b>	<b>48.5</b>	<b>13.3</b>	<b>11.1</b>	NA	NA	NA
Lead	7439-92-1	2,700	300	700	N/A	<b>2.2</b>	<b>6.6</b>	<b>49.4</b>	<b>27.4</b>	<b>23.3</b>	<b>7.9</b>	NA	NA	NA
Mercury	7439-97-6	3.3	0.5	1.5	N/A	<0.021	<0.019	0.020 J	<b>0.049</b>	<b>0.044</b>	0.012 J	NA	NA	NA
Selenium	7782-49-2	2.6	160	1,300	N/A	0.50 J	<b>1.0</b>	<b>0.93</b>	<b>1.9</b>	<b>2.4</b>	<b>0.90</b>	NA	NA	NA
Silver	7440-22-4	7.9	160	1,300	N/A	<0.52	<0.38	<0.48	<0.60	<0.85	<0.49	NA	NA	NA

(a) Analytical laboratory results reported in milligrams per kilogram (mg/kg).

Only those organic compounds detected in one or more soil samples are shown on this table.

MPCA = Minnesota Pollution Control Agency.

GRO/DRO = Gasoline range organics/diesel range organics.

feet bgs = feet below ground surface.

NA = Not analyzed.

NE = Not established.

N/A = Not applicable.

EPA = U.S. Environmental Protection Agency

ND = None detected.

Laboratory Data Qualifiers:

J = Analyte was detected above the method detection limit, but below the practical quantitation limit. Value is an estimate.

**Boldface** type denotes a detection above the practical quantitation limit.

- Indicates an exceedance of the MPCA Petroleum Remediation Program (PRP) criterion for GRO or DRO
- Indicates an exceedance of the Screening Soil Leaching Value
- Indicates an exceedance of the Tier 1 Soil Reference Value.
- Indicates an exceedance of the Tier 1 and Tier 2 Soil Reference Values.

(b) MPCA Screening Soil Leaching Values, updated 2013.

(c) MPCA Tier 1 Residential Soil Reference Values, updated 2009.

(d) MPCA Tier 2 Soil Reference Value for Industrial Exposure, updated 2009.

(e) Evaluation criteria per MPCA PRP Guidance Document 3-01 Excavation of Petroleum Contaminated Soil and Tank Removal Sampling, March 2012.

(f) Selected compounds combined and adjusted to Benzo(a)pyrene (BaP) equivalents using MPCA Spreadsheet. Evaluated against BaP equivalents criteria.

(g) MPCA Soil Leaching Values and Soil Reference Values are for Chromium III and Chromium VI, respectively. Sample concentrations reported as total chromium.

**Table 4**  
**Summary of Analytical Results in Groundwater Samples**  
**I-35W Minnesota River Bridge**  
**S.P. 1981-124**  
**Dakota and Hennepin Counties, Minnesota (ug/l) (a)**

CAS Number	MDH Regulatory Criteria	Sample ID and Date Collected									
		DP-2 11/14/14	DP-3 11/11/14	DP-5 11/14/14	DP-6 11/13/14	DP-7 11/13/14	DP-11 11/12/14	DP-17 11/11/14	Trip Blank 11/11/14	Trip Blank 11/12/14	
<b>Petroleum Hydrocarbons</b>											
Diesel Range Organics (WI Mod DRO)	NA	NE	<130	55 J	73 J	39 J	36 J	27 J	37 J	NA	NA
Gasoline Range Organics (WI Mod GRO)	NA	NE	<100	<500	<100	<100	<100	<100	<100	<100	<100
<b>Volatile Organic Compounds (EPA Method 8260)</b>											
Benzene	71-43-2	2 (b)	<5.0	<5.0	<2.0	<1.0	<1.0	1.9 J	<1.0	<1.0	<1.0
Ethylbenzene	100-41-4	50 (b)	<5.0	<5.0	<2.0	<1.0	0.28 J	0.42 J	<1.0	<1.0	<1.0
p-Isopropyltoluene	99-87-6	NE	<5.0	<5.0	<2.0	<1.0	<1.0	<2.0	0.75 J	<1.0	<1.0
4-Methyl-2-pentanone (MIBK)	108-10-1	300 (c)	<25.0	<25.0	<10.0	<5.0	<5.0	<10.0	3.3 J	<5.0	<5.0
Toluene	108-88-3	200 (b)	<5.0	<5.0	0.24 J	0.14 J	0.23 J	1.6 J	<1.0	<1.0	<1.0
<b>Semi-Volatile Organic Compounds (EPA Method 8270)</b>											
No Semi-Volatile Organic Compounds were detected in any sample.											
<b>Metals (Total - unfiltered)</b>											
Arsenic	7440-38-2	NE	13.0 J	<b>26.6</b>	18.6 J	13.2 J	3.2 J	141 J	10.7 J	NA	NA
Barium	7440-39-3	2,000 (c)	<b>1,920</b>	<b>2,410</b>	<b>2,990</b>	<b>904</b>	<b>1,300</b>	<b>2,710</b>	<b>614</b>	NA	NA
Cadium	7440-43-9	4 (c)	<b>6.7</b>	<b>5.3</b>	<b>4.7</b>	1.3 J	1.9 J	<b>4.5 J</b>	0.25 J	NA	NA
Chromium (Total)	7440-47-3	20,000/100 (d,e)	<b>23.2</b>	<b>87.7</b>	<b>57.7</b>	<b>31.2</b>	<b>16.6</b>	<b>446</b>	<b>13.9</b>	NA	NA
Lead	7439-92-1	NE	<b>32.7</b>	<b>33.9</b>	<b>28.3</b>	<b>28.3</b>	<b>11.4</b>	<b>286</b>	<b>13.7</b>	NA	NA
Mercury	7439-97-6	NE	<b>1.7</b>	<0.20	<b>1.2</b>	0.027 J	0.042 J	<0.20	<0.20	NA	NA
Selenium	7782-49-2	30 (c)	18.2 J	<b>30.1</b>	16.2 J	13.3 J	12.8 J	<200	<20.0	NA	NA
Silver	7440-22-4	30 (c)	<10.0	<10.0	<10.0	<10.0	<10.0	<100	<10.0	NA	NA

(a) All results reported in micrograms per liter (ug/l).

Only those compounds detected in one or more groundwater samples are shown on this table

CAS = Chemical Abstracts Service.

MDH = Minnesota Department of Health.

feet bgs = feet below ground surface.

NA = Not analyzed.

NE = Not established.

EPA = U.S. Environmental Protection Agency.

**Boldface** type denotes a detection above the reporting limit.

**Green** indicates a detection in exceedance of the Health Risk Limit or Health-Based Value for that compound

Laboratory Data Qualifiers:

J = Analyte was detected above the method detection limit, but below the practical quantitation limit. Listed value is an estimate

(b) MDH Health Risk Limit; Minnesota Administrative Rule 4717.7860.

(c) MDH Health-Based Value (most conservative exposure duration).

(d) MDH Health-Based Value; chronic exposure.

(e) MDH Health-Based Values are for Chromium III and Chromium VI, respectively. Sample concentrations reported as total chromium

# Appendix A – Applicable WSP Standard Operating Procedures

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# FIELD STANDARD OPERATING PROCEDURE #1

## Note Taking and Field Book Entries Procedure

The field book is a record of the day's activities that serves as a reference for future reporting and analyses. The field book is also a legal record for projects that may become involved in litigation. It is of the utmost importance that your notes be complete and comprehensive. The user is advised to read the entire standard operating procedure (SOP) and review the site health and safety plan (HASP) before beginning any onsite activities.

### 1.1 Acronyms and Abbreviations

HASP	health and safety plan
IDW	investigation-derived waste
SOP	standard operating procedure

### 1.2 Materials

- Permanently-bound waterproof field book (e.g., Rite-in-the-Rain® #550, or equivalent)
- Black or blue ballpoint pen (waterproof ink recommended; do not use felt-tip pens)

### 1.3 Preconditions and Background

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

The purpose of the field book is to provide a log of all of field events and conditions. The notes must include sufficient detail (i.e., who, what, when, where, why, and how) to enable others to reconstruct the day's activities for analysis, reporting, or litigation. It is important to be objective, factual, and thorough. Language must be free of personal comments or terminology that might prove inappropriate. Additional data logs or worksheets, such as low flow groundwater sampling sheets, may be used as a supplement; however, under no circumstances should the data sheets be used as a substitute for the daily record of events to be recorded in the field book.

The field book forms the foundation upon which most of the project work (reports, subsequent work plans, etc.) will be based. It is critical that field book chain of custody is maintained at all times.

### 1.4 Set-Up Procedures

The first step in setting up a new field book is to add the information necessary for you to identify the field book in the future and for others to return the book to WSP, should it be lost. On the first page of the field book (or, for some field books, the inside cover), place a "Return for Reward" notice. Include the following information:

- 
- An “If Found – Return for Reward” notice in bold letters
  - Our company name
  - Our company address (usually the office where the project is being managed)
  - Our company phone number

Reserve the second page of the field book for project-specific information, such as:

- The project name and number
- The project manager’s name
- The site telephone number, address, and onsite contact (if appropriate)
- The names and telephone numbers for all key (onsite) personnel
- The emergency telephone numbers including the police, fire, and ambulance (found in the HASP)

Business cards from individuals who visit the site, (including the person in charge of the field book) can be affixed to the inside back cover.

## 1.5 Field Book Entries

Start each day on a new page. Include the following information in the header of the first page (and all subsequent pages):

- The date
- The project name
- The page number (often pre-printed in Rite-in-the-Rain® style field books)

Precede field book entries by the time entered along the left margin of the page using a 24-hour or military clock (e.g., 1330 for 1:30 PM). The first entry of the day must include your and your subcontractor’s arrival time at the site, a description of the planned activities, key onsite personnel (including subcontractors), and the weather forecast. The first entry must also detail the tailgate review of the site-specific HASP with the onsite personnel. Be sure that field book entries are LEGIBLE and contain factual, accurate, and inclusive documentation of project field activities. Do not leave blank lines between field book entries. If a mistake is made in an entry, cross out the mistake with a single line and place your initials the end of the line. Any acronyms written in the field book (including your initials) must be spelled out prior to the first use. Record your initials and date at the bottom of each page.

Subsequent log entries must document the day’s activities in sequence and must be completed throughout the day as events occur (i.e., do not wait until the end of the work day to complete the notes); should out of sequence notes need to be entered, please identify using a footnote or by clearly indicating “Late Entry.” Notes must be descriptive and provide location information or diagrams (if appropriate) of the work area or sample locations. Note any changes in the weather and document all deviations from the work plan. Arrival and departure times of all personnel, and operational periods of standby, decontamination, and specific activities must be recorded.

List all field equipment used (e.g., photoionization detector, water testing equipment, personal protective equipment, etc.) and equipment calibration activities, and record field measurements, including distances, monitoring and testing instrument readings. Include the following information in entries describing sampling activities:

- The equipment and materials used by subcontractors, if appropriate (e.g., drill rig type, boring sizes, well casing materials, etc.)
- The sample media and analyses to be performed



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- The sampling procedures (e.g., split-spoon sampling, hand trowel, low flow, etc.)
  - The equipment used to obtain the sample (e.g., bailers, pump types, geochemical monitoring equipment, etc.)
  - The sizes and types of containers, preservation (if any), and any resulting reactions
  - The sample identification (especially for duplicate samples)
  - The sample collection time
  - The shipping and handling procedures, including chain-of-custody, air bill, and seal numbers
  - If supplemental data recording logs (digital or hard copy), such as low flow groundwater sheets, the above information must be entered in the field book and the supplemental records cross-referenced.

For most sampling activities, the log entries must also include:

- The decontamination and disposal procedures for all equipment, samples, and protective clothing
- An inventory of the investigation-derived waste (IDW) materials generated during the site activities
- A description of the IDW labeling procedures and the onsite staging information

Maintain a sequential log if the sample locations and areas of interest are photographed (strongly recommended). The photographic log must include:

- The date and time of the photograph
- The sequential number of the photograph (e.g., photograph-1, photograph-2, etc.)
- The general direction faced when the photograph was made
- A description of the subject in the image

## 1.6 Closing Notes

The last entry of the day must include a brief wrap up of the work accomplished, a description of how the site is being secured, and a description of any near hits, accidents, and incidents that occurred during the day's work. Draw a line through the remainder of the page from the row of text diagonally through any blank lines and initial at the end of the diagonal line.

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# FIELD STANDARD OPERATING PROCEDURE #2

## Utility Locating Procedure

The purpose of this procedure is to ensure that all required and appropriate procedures are followed to locate and mark subsurface utilities (e.g., electrical lines, natural gas lines, communication lines) before initiating any intrusive field activities (e.g., drilling, test pits, trenching). Compliance with this procedure is mandatory. **ALL** deviations from this standard operating procedure (SOP) **MUST** be approved by the project manager and a member of the Environmental Leadership Team (ELT) **BEFORE** beginning intrusive work.

Field personnel have the authority and responsibility to postpone intrusive activities if sufficient information, as stipulated in this SOP, is not available, or if onsite reconnaissance identifies inconsistencies in the findings of utility locators. In these instances, notify the project manager or the WSP health and safety officer, or their designee, before proceeding with the proposed work; approval from a member of the ELT is required before the work commences.

The user is advised to read the entire SOP and review the site health and safety plan (HASP) before beginning any onsite activities.

### 2.1 Acronyms and Abbreviations

HASP	health and safety plan
ELT	Environmental Leadership Team
SOP	standard operating procedure

### 2.2 Materials

- Public and Private Utility Locating Form (Attachment 1)
- Field book
- Wood stakes
- Spray paint
- Flagging tape
- As-built drawings for sub grade utilities (if available)
- Hand auger or post-hole digger

### 2.3 Preconditions and Background

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review

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relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This procedure is intended to allow the work to proceed safely and minimize the potential for damaging underground and aboveground utilities. Intrusive work includes all activities that require WSP's employees or its subcontractors to penetrate the ground surface. Examples of intrusive work include, but are not limited to, probing, drilling, injections, test pit excavations, trenching, and remedial excavations.

This SOP assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1).

## 2.4 Pre-Field Mobilization Procedures

Clear public right-of-ways and private property of potential buried utilities before any intrusive work can begin. The first step in this process is notifying the state public utility locating service of the planned work. These services provide a link between the entities performing the work and the various utility operators (e.g., the water company, the electric company, etc.). All of the public utility locating service call centers in the United States have been streamlined under a single "Call Before You Dig" phone number: 811.

Once you contact the center, you will need to provide the operator with any requested information concerning the site (e.g., location, nearest cross street, township, etc.) and work activity (e.g., drilling, excavation) to aid in locating the likely utilities at the work site. The information provided on WSP's utility locating form (Attachment 1) must be recorded and a completed copy of this form must be maintained as part of the project file. Be aware that several states, including California, require that the proposed drilling locations be marked with white spray paint before contacting the locating services.

The following information must accompany the WSP field team at all times during the field project :

- The utility clearance ticket number
- The ticket's legal dig date
- The ticket's expiration date
- Utility providers that were contacted

The ticket number serves as a point of reference for both the utility service providers and for WSP personnel should follow up (e.g., renewing the ticket) with the locating service be required. The legal dig and expiration dates reflect the times when it will be legal to perform the proposed work. The legal dig date reflects the lead time necessary, typically between 48 and 72 hours after you call, for the utility service providers to mark the utilities in your work area. Be sure to include this delay when planning your work. Most utility clearance tickets expire about two weeks after the legal dig date. If your work is delayed beyond the expiration date, you will need to call 811 again and renew the ticket. The renewed ticket will have a new legal dig date that incorporates the same lead-time as the original ticket.

The locating service will also provide you with a list of utility companies that will be notified. Compare this list with utilities generally expected at all sites (e.g., sewer, water, gas, communication, and electric). Some utilities (e.g., sewer, water, cable TV) may not be included. If any expected utilities are absent from the contact list, you **MUST** contact the utilities directly for clearance before the start of intrusive activities. Record all contacts on the utility locating record of communication form.

### 2.4.1 Private Utility Locators and Other Sources

Public utility service providers will generally mark their underground lines within the public right-of-way up to the private property boundary. You can request that the utility companies locate their utilities in work areas on private property; however, be aware that most service providers will not mark their utilities on private property. If your work is to be conducted on private property, you **MUST** use a private utility locating service. These companies typically

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use a variety of methods (e.g., electromagnetic detectors, ground-penetrating radar, acoustic plastic pipe locator, trace wire, etc.) to locate buried utilities in both inside and outside locations.

For all operating facilities and the extent possible for closed facilities, identify a site contact familiar with the utilities on the property (e.g., plant manager, facility engineer, maintenance supervisor), and provide this individual with a site plan showing the proposed locations of all soil borings, monitoring wells, test pits, and other areas where intrusive activities will be conducted. These individuals often have knowledge of buried structures or process-specific utilities that may not be identified by the private utility locator. This is particularly important for work performed inside industrial buildings where reinforced concrete and other metallic components of the structure may interfere with the scanning devices used by the private utility locator. You should ask the site contact for all drawings concerning underground utilities in the proposed work areas for future reference.

Keep in mind that no intrusive work may be done before the legal dig date provided by the state utility locating service and no digging, drilling, or other ground-breaking activities may be begin until all utilities on the list have been marked and visually verified in the work area (see below). It is **NOT ACCEPTABLE** to rely solely on as-built drawings or verbal utility clearances from the site contact (these should be used as guides only). A private locator may not be necessary in rare instances; however, nonconformity with the private locate requirement must be approved by the project manager **AND** a member of the ELT before work proceeds.

## 2.5 Site Mobilization Procedures

Upon arrival, the first step in determining if you are clear of buried and overhead utilities is to locate all of the proposed drilling and trenching locations and mark them with spray paint, stakes, or other appropriate markers. This will help you judge distances from marked utilities and minimizes any potential misunderstandings regarding the locations between you, the subcontractors (drillers, excavators, private utility locator), and the site contact.

Once you have the proposed work areas marked, verify that ALL utility companies listed by the state public utility locating service, and any contacted directly by WSP, have either marked the underground lines in the specified work areas or have responded (via telephone, facsimile, or e-mail) with “no conflict.” Document on the utility record of communication form and in the field book as each utility mark is visually confirmed. When receiving verbal clearances by telephone from utility companies, or their subcontractors, it is imperative that you verify which utilities are being cleared, particularly when dealing with subcontractors that may be marking more than one utility.

Review all available as-built utility diagrams and plans and conduct a site walk to identify potential areas where underground lines may be present; include the site contact in these activities. It is a good idea to survey your surroundings during the walk to identify any features that may indicate the presence of underground utilities, such as linear depressions in the ground, old road cuts, catch basins, or manholes. Keep in mind that many sewer lines can be offset from catch basins. The presence of aboveground utilities, such as parking lot lights or pad-mounted transformers, is also a good indicator of buried electrical lines. Check these items against the utility locating form checklist and discuss the locations with the private utility locating service.

### 2.5.1 Safe Working Distances and Hand Clearing

A minimum of 4 feet clearance must exist between utilities and proposed drilling locations, and a minimum of 6 feet between utilities and proposed trenching locations. Be aware that some states and localities (e.g., New York City, Long Island) may require greater minimum working distances, depending on the utility (e.g., for high pressure gas mains). A minimum distance of 15 feet must be maintained by heavy equipment (e.g., excavator buckets, drill rig towers and rods) from overhead power lines and a safe distance of 25 feet must be maintained from high-tension overhead power lines. In the event that work must be conducted within 25 feet of high tension wires, the lines must be wrapped and insulated by the local utilities. Increase these minimum distances whenever possible to offer additional assurance that buried or overhead utilities will not be encountered.

If a utility conflict is identified within the minimum safe clearance distance, adjust the proposed location(s) using the criteria given above. It is a good idea to have your private utility locator sweep a relatively large area (e.g., a 20-foot

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circle around a proposed drilling location) to provide room for adjustment should the proposed drilling or excavation area need to be moved to avoid a buried utility.

Uncertainty may exist in some circumstances (inside a building, for example) even after the area has been swept for utilities. In these cases, it is advisable to advance the first few feet of a soil boring (or probe the area for excavation) using a hand auger or post-hole digger. If hand digging is unable to penetrate the subsurface soils, soft dig or air knife equipment service providers are often retained to clear the location. This equipment applies high pressure air to penetrate, loosen, and extract subsurface soils in the borehole, thereby safely exposing any utilities. If using either hand digging or soft digging, the probe hole should be advanced a minimum of 4 feet below ground surface at each proposed drilling or excavation location. Complete a sufficient number of probe holes so that the area is cleared for the proposed intrusive activity (i.e., use several holes for a proposed excavation). The use of hand digging or soft digging methods **does not** replace the need for state and private utility locating services.

### 2.5.2 Expanded Work Areas and Ticket Renewal

Many projects begin with well-defined work areas only to expand quickly as the investigation or remediation progresses. If the scope of the intrusive activity locations changes, the scope of intrusion expands or includes new onsite or offsite area(s), you will need to review the existing ticket and work performed by the private utility locator to determine whether work can progress into the new area safely. It may be necessary, depending on the scope, to contact the state locating service and request another clearance for the new area(s) of investigation and retain a private locating service. Remember, the new request will provide a new legal dig date before which **NO INTRUSIVE WORK CAN BEGIN**. Additionally, if a clearance ticket will expire while the work is ongoing (typically after 14 days), request a new clearance before the first ticket expires so that work can continue uninterrupted. Refer to the Public and Private Utility Locating Form for the legal dig date time frame required by the state locating service.

### 2.5.3 Utility Damage

It is possible, even if you followed all of the procedures outlined in this SOP, to damage an underground or overhead utility. Assuming it can be done safely, quickly turn off the drilling or excavating equipment, or move the equipment from the damaged line. Avoid contact with escaping liquids, live wires, and open flames. Abandon the equipment, evacuate the personnel from the area, and maintain a safe perimeter if there are any concerns about safety. If a fiber optic cable is damaged, do not handle the cable or look into the end of the cable as serious eye damage may occur. Once personnel are in a secure location, immediately notify the facility operator or site contact, 811, and the WSP project manager. If the damaged utility has the potential to cause, or is causing, dangerous conditions, immediately notify the local emergency response number listed in your HASP.

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**PUBLIC and PRIVATE UTILITY LOCATING FORM**

Project: \_\_\_\_\_ Project Manager: \_\_\_\_\_

Project Number: \_\_\_\_\_

Project Start Date: \_\_\_\_\_ Duration of Project: \_\_\_\_\_

Project Location (Site Address): \_\_\_\_\_

Project Site Description (complete the following with all information available before calling):

Work Being Done For: (Company or Individual Name): \_\_\_\_\_

State: \_\_\_\_\_ County: \_\_\_\_\_ City/Place: \_\_\_\_\_

Street: \_\_\_\_\_ (Only one street per ticket) Zip Code: \_\_\_\_\_

Nearest Intersecting Street: \_\_\_\_\_

Lat/Long: \_\_\_\_\_ Parcel/Tax map ID: \_\_\_\_\_

Description of the area to be marked (Provide the following: Street working on, which side of street, how far in which direction from nearest intersecting street; etc.):

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Locations for proposed borings or digging identified with paint and/or stakes? (circle one): YES NO N/A

NOW, MAKE THE CALL:

Call Placed to Phone No.: \_\_\_\_\_

Date of Call: \_\_\_\_\_ Time of Call: \_\_\_\_\_ a.m. / p.m.

Ticket No. Assigned to Location Request: \_\_\_\_\_

Assigned Legal Dig Date: \_\_\_ / \_\_\_ / \_\_\_ Assigned Legal Dig Time: \_\_\_ AM / PM

**The Following Table Must Be Completed Before Work Can Begin:**

CALL BACK/FAX BACK INFORMATION RECORD						
	Gas	Communication	Electric	Water	Sewer	Other
Responsible Company (provided by OneCall operator)						
Date Notified						
Time Notified						
Notified By						
Phone Number						
Marks Complete						
No Conflict						
No Facilities						

Calls Made By: \_\_\_\_\_ Form Completed By: \_\_\_\_\_

Project Manager Notified of Results (initial if completed): \_\_\_\_\_

**Onsite Underground and Overhead Utility Clearance Checklist**

Visual Confirmation of Marked Public Utilities:

Marking Color	Utility types	Marks Confirmed (initial)	No Markings Seen (initial)
Blue	Potable water		
Yellow	Gas, oil steam, petroleum		
Red	Electric power lines, lighting cables, parking lot lights, overhead lines (telephone poles), conduit		
Green	Sewer and drain lines		
Orange	Communication, alarm or signal lines, cables or conduits		
Purple	Reclaimed water, irrigation, and slurry lines		
Pink	Survey markings		
White	Proposed locations for excavation and drilling		

**Visual Confirmation of Marked Private Utilities (at onsite drilling/digging locations):**

Utility Type	Visual Cues	Marks Confirmed	No Markings Seen (initial)	Not Applicable (initial)
Water	fire hydrant, manholes; water meter, ASTs, interior connections, hose bib, valve box			
Irrigation	sprinkler heads, hose bibs			
Gas	gas meter, manholes; yellow bollards, interior connections, valve box			
Electric	parking lot lights, interior connections, overhead lines, underground vaults, manholes, transformers/switchgear; conduit on buildings			
Sanitary/Storm/Septic System	underground vaults, manholes, drain grates, leach field, sand mound, no evidence of sanitary sewer (for septic system)			
Production Equipment	USTs (fill pipes and vent pipes), ASTs (overhead and underground pipelines), manholes/valve pits; pump islands			
Communication	Red/orange bollards, telephone poles, interior connections; manholes; conduit on buildings			

**If any Utilities have “No Marking Seen” checked, private locating must be conducted to clear each drilling/digging area.**

Site Visit Made By: \_\_\_\_\_

Form Completed By: \_\_\_\_\_



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# FIELD STANDARD OPERATING PROCEDURE #3

## Sample Shipment Procedure

Shipping samples is a basic but important component of field work. Nearly all of the WSP activities include the collection of environmental samples. Proper packing and preservation of those samples is critical to ensuring the integrity of WSP's work product. The user is advised to read the entire standard operating procedure (SOP) and review the site health and safety plan (HASP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

### 3.1 Acronyms and Abbreviations

CFR	Code of Federal Regulations
DOT	U.S. Department of Transportation
IATA	International Air Transport Association
HASP	health and safety plan
PPE	personal protective equipment
SOP	standard operating procedure

### 3.2 Materials

- Suitable shipping container (e.g., plastic cooler or lab-supplied styrofoam-insulated cooler)
- Chain-of-custody forms
- Custody seals
- WSP mailing labels
- Tape (Strapping, clear packing, or duct tape)
- Heavy-duty zipper-style plastic bags
- Knife or scissors
- Permanent marker
- PPE
- Large plastic garbage bag
- Wet ice (as necessary)
- Bubble wrap or other packing material
- Universal sorbent materials
- Sample container custody seals (if required)
- Shipping form (with account number)

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### 3.3 Preconditions and Background

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This SOP is designed to provide the user with a general outline for shipping samples and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample collection and quality assurance procedures (SOP 4), and investigation derived waste management procedures (SOP 5), and has a current certificate for WSP's U.S. Department of Transportation (DOT) Hazardous Materials training.

**NOTE: WSP employees shipping samples regulated as hazardous materials or exempt hazardous materials by air must have International Air Transport Association (IATA) training. IATA training is a separate training required in addition to DOT hazardous materials training for such shipments. Most WSP employees do not have IATA training and therefore, anyone who needs to ship by air MUST consult with a WSP IATA-trained compliance professional. The remainder of Section 3.3 covers shipments regulated by DOT only.**

Environmental samples can meet the definition of DOT hazardous materials when shipped by air, ground, or rail from a project site to the laboratory. As such, field staff must work with their assigned WSP compliance professional to determine whether the sample shipment is subject to any specific requirements (e.g., packaging, marking, labeling, and documentation) under the DOT hazardous materials regulations.

Title 49 Code of Federal Regulations (CFR) Section 171.8 defines a "hazardous material" as a substance which has been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and which has been so designated. DOT hazardous materials are listed in the hazardous materials table at 49 CFR 172.101.

In most cases, WSP is collecting environmental samples in order to determine whether any hazardous chemicals are present in the sampled media. Therefore, we would not have the appropriate information to make a hazardous materials classification for the samples prior to shipment. 49 CFR 172.101(c)(11) allows the use of a tentative classification where the shipper is uncertain of the material's hazard class. Where WSP does not know the physical characteristics of the samples, a non-hazardous material classification may be made. Non-hazardous materials are not subject to the DOT hazardous materials regulations.

There are certain cases where the characteristics and hazard class of the samples are known (e.g., samples of free product, samples preserved with a hazardous material [TerraCore® samplers]). Contact your assigned WSP compliance professional or an internal DOT contact for guidance on shipment of these materials.

### 3.4 Sample Shipment Procedures

The two major concerns in shipping samples are incidental breakage during shipment and complying with applicable DOT and courier requirements for hazardous materials shipments.

**NOTE: Many couriers, including Federal Express and UPS, have requirements that WSP register with them before shipping hazard materials. In most cases, it is the sampling location, not the WSP office address, which needs to be registered. Therefore, each project will likely have unique requirements. Please contact your WSP compliance**

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**professional to determine whether or not you will be required to register for your shipment.**

Protecting the samples from incidental breakage can be achieved using "common sense." Pack all samples in a manner that will not allow them to freely move about in the cooler or shipping container. Do not allow glass surfaces to contact each other. When possible, repack the sample containers in the same materials that they were originally received in from the laboratory. Cushion each sample container with plastic bubble wrap, styrofoam, or other nonreactive cushioning material. A more detailed procedure for packing environmental samples is presented below.

### 3.4.1 Non-Hazardous Material Environmental Samples

The first step in preparing your samples for shipment is securing an appropriate shipping container. In most cases, the analytical laboratory will supply an insulated cooler for the bottle shipment, which can be used to return the samples once they have been collected. Be sure that the container is sufficiently large to contain both your samples, cushioning material, and enough wet ice to maintain the samples at the preservation temperature (usually 4° Celsius). Do not use lunch-box sized coolers or soft-sided coolers, which do not offer sufficient insulation or protection from damage.

Place universal sorbent materials (e.g., sorbent pads, Pig-brand absorbent blankets) in the bottom of the shipping container. The amount of sorbent material must be sufficient to absorb any condensation from the wet ice and a reasonable volume of water from melted wet ice (if a bag were to rupture) or a damaged (aqueous) sample container. If using a plastic cooler with a drain, securely tape the inside of the drain plug with duct tape or other material to ensure that no water leaks from the cooler during shipment.

The next step is to line the shipping container with a large, heavy-duty plastic garbage bag. Place 2 to 4 inches of bubble wrap or other appropriate packing material inside the heavy-duty plastic bag in the bottom of the shipping container to form a cushion for the sample containers. Place the samples on the packing materials with sufficient space to allow for the addition of more bubble wrap or other packing material between the sample containers. Place large or heavy sample containers on the bottom of the cooler with lighter samples placed on top to minimize the potential for breakage. Place all sample containers in the shipping container right-side up. Do not overfill the cooler with samples; leave sufficient room for the wet ice if the samples are to be preserved during transit.

Place wet ice to be used for sample preservation inside two sealed heavy-duty zipper-style plastic bags (1 gallon-sized, or less). Place the bags of ice on top of or between the samples. Place as much ice as possible into the cooler to ensure the samples arrive at the lab at the required preservation temperature, even if the shipment is delayed. Fill any remaining space with bubble wrap or other packing material to limit the airspace and minimize the in-transit melting. Securely close and seal, with tape, the top of the heavy-duty plastic bag. Place the original, white top copy chain-of-custody form into a heavy-duty zipper-style plastic bag, affix the bag to the shipping container's inside lid, and then close the shipping container. Sample shipment preparations are complete if using a laboratory courier.

If sending the sample shipment through a commercial shipping vendor, place two signed and dated chain-of-custody seals on alternate sides of the shipping container lid so that it cannot be opened without breaking the seals. Securely fasten the top of the shipping container shut with clear packing tape; carefully tape over the custody seals to prevent damage during shipping. Once the shipping container is sealed, shake test the shipping container to make sure that there are no loose sample containers. If loose sample containers are detected, open the shipping container, repack the sample containers, and reseal the shipping container.

Using clear tape, affix a mailing label with WSP's return address to the top of the shipping container. Ship environmental samples to the contracted analytical laboratory using an appropriate delivery schedule. If applicable, check the appropriate box on the airbill for Saturday delivery (you need to verify with the laboratory that someone will be at the lab on a Saturday to receive the sample shipment). Declare the value of samples on the shipping form for insurance purposes, if applicable, and be sure to include the project billable number on the shipping form's internal billing reference section. When shipping samples to a lab, identify a declared value equal to the carrier's

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default value (\$100); additional fees will be charged based on a higher value declared. Our preferred carrier, FedEx, will only reimburse for the actual value of the cooler and its contents if a sample shipment is lost; they will not reimburse for the cost of having to re-collect the samples. [Please note: if you are shipping something other than samples, such as field equipment, declare the replacement value of the contents.]

Record the tracking numbers from the shipping company forms (i.e., the airbill number) in the field book and on the chain-of-custody form and retain a copy of the shipping airbill. On the expected delivery date, confirm sample receipt by contacting the laboratory or tracking the package using the tracking number; provide this confirmation information to the WSP project manager.

### 3.4.2 Hazardous Materials Samples

WSP personnel rarely ship hazardous materials due to DOT shipping requirements. If you find that your samples could be considered a DOT hazardous material, first coordinate with the assigned WSP compliance professional and project manager to make a hazardous material classification and, if necessary, establish the necessary protocols and to receive the appropriate training/certification. **Do not ship hazardous materials samples without first consulting a WSP compliance professional.**

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# FIELD STANDARD OPERATING PROCEDURE #6

## Decontamination

The decontamination procedures outlined in this standard operating procedure (SOP) are designed to ensure that all equipment that contacts a sample during sample collection is free from the analytes that could potentially interfere with the sample results. The user is advised to read the entire SOP and review the site health and safety plan (HASP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

### 6.1 Acronyms and Abbreviations

DI	deionized water
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
HASP	health and safety plan
IDW	investigation derived waste
PPE	personal protective equipment
SOP	standard operating procedure

### 6.2 Materials

- Polyethylene sheeting and/or garbage bags
- Non-phosphate detergent (e.g., Luminox®, Liquinox®, or Alconox®)
- Cleaning reagents, as needed (e.g., isopropyl alcohol, methanol, hexane, etc.)
- Tap water
- Deionized (DI) water
- Containers (e.g., garbage cans, buckets, plastic tubs)
- Nylon brushes
- Aluminum foil
- Spray bottles
- Paper towels
- Duct tape
- Pressurized steam cleaner (e.g., steam jenny), as needed
- Portable wet/dry vacuum
- Shovel, funnel, and/or squeegee

### 6.3 Preconditions and Background

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in

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this document is mandatory for all field personnel and will ensure that the tasks are performed in safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This SOP is designed to provide the user with a general outline for decontamination and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), and IDW management procedures (SOP 5).

The cleaning and decontamination procedures described below are designed to ensure that the equipment used for sample collection is free of analytes that could potentially alter the analytical results. These procedures are primarily targeted at reducing the incidence of cross-contamination (i.e., compounds of interest being transferred on the sampling equipment from one sample location or depth to another) and, when properly implemented, provide a methodology for obtaining high quality, representative results. As with all analytical sampling, the effectiveness of the cleaning procedures must be supported with the collection of equipment blanks. The sampling procedures and equipment blank collection frequency are discussed in SOP 4.

It is important for WSP personnel to evaluate the expected types of contamination prior to mobilization to a site. Some state programs (or the U.S. Environmental Protection Agency [EPA], depending on the site) may require more stringent decontamination procedures than those listed here or specify the types and grades of various cleaning detergents and reagents (e.g., acids and solvents). Many of these compounds, such as nitric acid or pesticide grade hexane, are available from a limited number of suppliers and can be difficult to obtain in short order (i.e., most solvents and acids must be shipped using a ground service and are not available for overnight delivery). These compounds may also require specialized PPE (e.g., eye protection for concentrated acids) or have other special handling or disposal procedures that must be considered before arriving onsite.

## 6.4 Decontamination Procedures

The decontamination procedures are based on a nine-step process, which is tailored in the field depending on the samples to be collected. Decontaminate all non-dedicated equipment that contacts the sample directly, including spoons, trowels, pumps, etc., before and between each sample location or interval. Disposable, single-use items, such as bailers or tubing, do not require decontamination.

The process includes the following four basic steps<sup>1</sup>:

1. Physical removal of debris
2. Bucket wash with non-phosphate soap such as Alconox®, or equivalent and scrub brush
3. Tap water rinse
4. Deionized water rinse (distilled water can be used as a substitute)
5. 10-percent nitric acid rinse (for metals sampling only; see below)
6. DI water rinse
7. Pesticide-grade solvent rinse (e.g., hexane or isopropyl alcohol)
8. Air dry (solvent must evaporate)
9. DI water rinse

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<sup>1</sup> Steps 5-9 are for more critical sampling applications and are not typically performed.

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The first step is to remove as much soil or other debris from the sampling device as possible near the sampling area to limit the spread of potentially-contaminated materials into clean areas of the site. If gross contamination or an oily film or residue is observed on the equipment, use a brush to remove the particulate matter or surface film. Heavy oils or grease may be removed with paper towels soaked with isopropyl alcohol.

The physical removal is followed by a wash using non-phosphate soap (mixed to the appropriate dilution in tap water) followed by a tap water rinse. The most common set-up uses 5-gallon pails or buckets for the wash and rinse, although garbage pails or plastic tubs can also be used. Place buckets on polyethylene sheeting to limit spillage of the cleaning fluids.

Be sure to scrub the equipment thoroughly and allow enough time for the non-phosphate soap to be effective and clean the surfaces (a simple dunk of the equipment in the soapy water is insufficient). If decontaminating submersible pumps, pump both the non-phosphate soap wash fluid and the tap water rinse through the pump body itself (usually done in the bucket) to ensure that the internal impeller and other components are thoroughly cleaned. Replace the soap solution and rinse water when it becomes oily or silty.

Place the DI water for the rinse in a small squirt bottle or poured over the equipment or device after the tap water rinse. **In some cases, such as decontaminating a split-spoon between sample recoveries or when working with submersible pumps, this level of decontamination (i.e., steps 1 through 4) may be sufficient.**

Steps 5 through 9 are for more critical sampling applications and are typically performed on non-motorized equipment. Isopropyl alcohol is the recommended solvent for organic contaminants because it is readily available (at most drug and department stores) and is not a U.S. Department of Transportation (DOT) hazardous material. However, other solvents (e.g., hexane and methanol) may be more effective in removing certain contaminants, such as oils or polychlorinated biphenyls, but any waste generated using these solvents must be managed accordingly.

Handle the solvents and acid with care and store them in their original, labeled, protective containers when not in use. It is a good idea to transfer small quantities of each solution into labeled, laboratory-grade squirt bottles, which offer a convenient and controllable way to rinse the equipment. The equipment can then be rinsed over a 5-gallon bucket or other suitable container placed on plastic sheeting as with the first part of the cleaning process. Steps 5 and 6 are for metals sampling only and must be used only for non-carbon steel sampling devices (do not spray acid into pumps) and can be skipped for projects where inorganics are not included in the sampling scheme.

## 6.5 Handling Decontaminated Equipment

After decontamination, handle equipment using clean gloves to prevent re-contamination. In addition, move the equipment away (preferably upwind) from the decontamination area to prevent re-contamination. As soon as the equipment is air-dried, protect decontaminated field equipment from environmental contamination by securely wrapping and sealing with aluminum foil (shiny side out) or clean, untreated, disposable plastic bags. Plastic bags may be wrapped directly around wet or dry equipment except when the expected contaminants include volatile and extractable organics; under those circumstances, allow the equipment to completely dry or wrap it in aluminum foil.

On completion of site work, decontaminate all equipment prior to departure, then label each piece of equipment with the date of decontamination, the initials of decontamination personnel, and the type of decontamination solution(s) used. Containerize all solvent rinsate, detergent wastes, and other decontamination materials for offsite or regulated disposal (see SOP 5). Dispose of all wastes in conformance with applicable regulations.



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# FIELD STANDARD OPERATING PROCEDURE #9

## Soil Sampling Procedure

The soil sampling procedures outlined in this standard operating procedure (SOP) are designed to ensure that collected soil samples are representative of current site conditions. Soil samples can be collected for onsite screening or for offsite laboratory analysis. The user is advised to read the entire SOP and review the site health and safety plan (HASP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

### 9.1 Acronyms and Abbreviations

bgs	below ground surface
F	Fahrenheit
HASP	Health and Safety Plan
IDW	investigation derived waste
PID	photoionization detector
PPE	personal protective equipment
QAPP	Quality Assurance Project Plan
QA/QC	quality assurance/quality control
SOP	standard operating procedure
VOC	volatile organic compound

### 9.2 Materials

- Field book
- PPE
- Air quality monitoring equipment
- Utility knife
- Mixing tray or bowl
- Heavy-duty zipper-style plastic bags (quart or snack size)
- Plastic sheeting
- Expanding ruler or tape measure
- Munsell color chart
- Sampling containers and labelling/shipping supplies
- Field test kits, as needed
- Soil sampling method specific materials:
  - Stainless steel trowels, shovels, or spoons
  - Bucket augers, auger extension rods, auger handle, pipe wrenches



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- Split-spoon samplers, pipe wrenches
  - Direct push acetate liners
  - Shelby tube samplers
  - Decontamination supplies

### 9.3 Preconditions and Background

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This SOP is designed to provide the user with a general outline for conducting soil sampling and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), utility location (SOP 2), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), investigation derived waste (IDW) management procedures (SOP 5), equipment decontamination (SOP 6), and use and calibration of all sampling and monitoring equipment (SOPs 7 and 8). This SOP does not cover investigation planning, nor does it cover the analysis of the analytical results. These topics are more appropriately addressed in a project-specific work plan. Before soil sampling, be sure to review the project-specific work plan or Quality Assurance Project Plan (QAPP) and any applicable state and federal guidelines or sampling procedures. All sampling and monitoring references must be available for consultation in the field, including:

- WSP's SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan and HASP
- QAPP

### 9.4 General Procedures

Soil samples are collected using a variety of techniques and equipment, depending on the type (e.g., surface, subsurface) and purpose (e.g., lithological logging, headspace evaluation, laboratory analysis) of the sampling, and most sampling events employ more than one equipment type or methodology. Subsurface soil sampling, for example, often includes sample collection from split-spoon, macro-core, or other dedicated sampling devices advanced into the subsurface by a drill rig. Recovered cores are often logged (using a Munsell color chart and other logging aids), screened for volatile organic compounds (VOCs) using a photoionization detector (PID), and sampled for laboratory analysis using disposable stainless steel spoons or other discrete sampling devices.

All types of soil sampling, however, regardless of the equipment used, share common handling and management procedures that are designed to ensure the integrity of the samples collected. These procedures include:

- The use of new, disposable or decontaminated sampling equipment
- The use and rotation of the appropriate PPE

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- Selection of a suitable sampling location and staging area

Collect all samples using either new, disposable equipment, such as polyethylene liners or single-use stainless steel spoons; or properly decontaminated sampling equipment, such as hand augers, split-spoons cutting shoes, or trowels. Select the types of equipment and decontamination procedures based on the types of sampling to be performed and decontamination may require multiple steps or differing cleaning methods, depending on the sampling goals (see SOP 6 for decontamination procedures). In no case should disposable, single use materials (e.g., macro-core liners, soil baskets, etc.) be used to collect more than one sample.

Wear a clean pair of new, disposable gloves each time a different sample is collected and don the gloves immediately prior to collection. This limits the possibility of cross-contamination from accidental contact with gloves soiled during collection of the previous sample. The gloves must not come in contact with the medium being sampled and must be changed any time during sample collection when their cleanliness is compromised. In no case should gloved hands be used as a soil sampling device: always use the appropriate spoon, trowel, or sampler to move the soil from the sampling device to the laboratory-supplied containers.

Finding a suitable sampling location involves selecting an area that is away from any sources of cross-contamination that could compromise the integrity of the samples. This includes positioning the sample collection area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample. This is particularly important when screening samples in the field for VOCs with a PID, but should not be limited to the active sample collection. Store samples already collected from the field for laboratory analysis in clean containers and securely stage, if possible, in uncontaminated portions of the site.

## 9.5 Soil Collection

Soils can be collected from surface or subsurface depths, depending on the project requirements. Surface soils are generally those within 0.5 to 1 foot of the ground surface and can be collected using trowels, soil probes, or hand augers. Be aware that some states have specific definitions of what constitutes a surface soil sample. Subsurface soils are generally deeper and require specialized equipment to recover the samples. In most cases, subsurface soils will be collected using a drill rig or excavator.

Push or drive the method-specific sampling equipment (e.g., trowel, hand auger, hollow corers, split-spoon, direct push sampler, rotasonic core barrel sampler, excavator bucket) into the soil to the desired sampling depth using cleaned equipment. Record in the field book the depth interval through which the sampler was advanced and, if appropriate, the number of blows needed to drive the sampling device (i.e., when using a cathead-equipped drill rig; record the blows for every 6 inches the split-spoon sampler is advanced). If additional soil is needed to provide sufficient sample volume, repeat this step taking care to ensure that the same depth interval is collected during the resample. Use core catchers on the leading end of the sampler (if available) for soils that lack cohesiveness and are subject to crumbling and falling out of the sampler.

Withdraw the sampling equipment from the borehole or excavation. Do not physically enter excavations to collect a sample; soil samples can be collected from a backhoe bucket. If the soil sample will be analyzed for geotechnical parameters (i.e., using a Shelby tube), the undisturbed sampler is typically capped, maintaining the sample in its relatively undisturbed state, and shipped to the appropriate geotechnical laboratory. Follow sample preparation and shipping procedures in SOPs 3 and 4. If the soil is to be logged in the field, place soil samplers/soils on plastic sheeting noting the orientation of the sample (i.e., which end is “up”) and the depth interval. Measure the length of the material recovered relative to the interval the sampler was advanced (in percent), and record this information in the field book.

If field screening for organic vapors is required, break or cut the soil core every 3 to 4 inches and quickly scan the breaks in the core material with the appropriate air quality monitoring equipment (e.g., PID). Record the readings in the field book.

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### 9.5.1 Volatile Organic Compound Sampling

If part of the sampling plan, immediately collect samples for VOC analysis after screening the soils with the PID to avoid loss of constituents to the atmosphere. Transfer the soil from the portion of the soil core to be sampled (usually the area where the highest PID readings were observed) directly into the sample containers; do not composite or mix soils for VOC analysis. Place the soil in the sampling container such that no headspace is present above the soil when the cover is placed on the jar. If sampling by US Environmental Protection Agency Method 5035 is required, follow manufacturer's specifications to use a closed-system sampler (e.g., Encore samplers). Collect quality assurance/quality control (QA/QC) samples in accordance with SOP 4, the project-specific work plan, and the QAPP.

### 9.5.2 Soil Headspace Analysis

If required as part of the project-specific work plan, collect samples for field-based headspace analysis after obtaining the sample for VOC analysis. First, examine the contents of the sample and remove coarse gravel, organic material (e.g., roots, grass, and woody material) and any other debris. Collect the sample using decontaminated spoons or trowels and place in a heavy-duty zipper-style plastic bag and seal the bag. Label the sample indicating the sampling location, depth, and date. Shake the sample vigorously for approximately 15 seconds to disaggregate the sample and expose as much surface area of the soil as possible (to release the VOCs to the atmosphere within the bag). If necessary, warm the sample to room temperature (70° Fahrenheit, F) by placing the bag in a heated room or vehicle. This step is very important when the ambient temperature is below 32°F.

After waiting approximately 15 minutes, carefully open the bag slightly and place the tip of the PID into the opening. Do not insert the tip of the probe into the soil and avoid the uptake of water droplets. Record the highest meter response, which typically occurs within the first 2 to 5 seconds. Erratic PID response may result from high organic vapor concentrations or elevated headspace moisture. If these conditions exist, qualify the headspace data in the field book. It is also important to record the ambient temperature, humidity, and whether moisture was present in plastic bag. Duplicate 10% of the headspace samples by collecting two samples from the same location. Generally, duplicate sample values should be consistent to plus or minus 20%. Samples collected for headspace screening cannot be retained for laboratory analysis.

### 9.5.3 Semi- and Non-Volatile Analytical Sample Collection

Collect remaining organic samples then inorganic samples in the following order of volatilization sensitivity:

- Extractable organics, petroleum hydrocarbons, aggregate organics, and oil and grease
- Total metals
- Dissolved metals (see filtering procedures below)
- Inorganic non-metallic and physical and aggregate properties
- Microbiological samples
- Radionuclides

Collect soil samples for semi- and non-volatile parameters by separating clumps of soil material and mixing the soils (using stainless steel bowls and spoons, or other appropriate equipment) to a homogeneous particle size and texture. Transfer the contents to the sample container using a stainless steel spoon. Collect QA/QC samples in accordance with SOP 4, the project-specific work plan, and the QAPP.

If approved by the appropriate regulatory agency and specified in the project-specific work plan, composite soil samples can be collected to minimize the total number of analytical samples. Composite samples consist of equal aliquots (same sample size) of soil from each location being sampled (e.g., from each borehole or from multiple areas of a soil pile), by mixing the waste to a homogeneous particle size and texture using new or decontaminated

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stainless steel bowls and a stainless steel spoon or trowel. Transfer the contents to the appropriate laboratory-supplied sample container using a stainless steel spoon. Collect QA/QC samples in accordance with SOP 4 and the project-specific work plan or QAPP, if required.

If necessary, conduct field tests or screening on soils in accordance with the project-specific work plan and manufacturer's specifications for field testing equipment.

#### 9.5.4 Sample Labeling and Preparation for Shipment

Once collected, prepare the soil samples for offsite laboratory analysis:

- Cleaning the outside of the sample container
- Affixing a sample tag or label to each sample container and complete all required information (sample number, date, time, sampler's initials, analysis, preservatives, place of collection)
- Placing clear tape over the tag or label (if non-waterproof labels are used)
- Preserving samples immediately after collection by placing them into an insulated cooler filled with bagged wet ice to maintain a temperature of approximately 4°Celsius
- Recording the sample designation, date, time, and the sampler's initials in the field book and on a sample tracking form, if appropriate
- Completing the chain-of-custody forms with appropriate sampling information
- Securing the sample packing and shipping in accordance with proper procedures

**Do not ship hazardous waste samples without first consulting a WSP compliance professional.**

#### 9.5.5 Soil Classification

Soil classification should be performed whenever soil samples are being collected to provide context for the analysis. WSP prefers following the Unified Soil Classification System (USCS) logging procedures as described in ATSM D2488<sup>1</sup>. The emphasis of soil classification in the field must be on describing the soils using ALL of the required descriptors; categorization of the USCS group name or symbol alone may not provide details about the soils that could later prove useful. Avoid geologic interpretation or the use of local formation names, which are often difficult to determine in the field without the regional framework. Record ALL of the following information for each soil type:

- Depth interval
- USCS group name
- USCS group symbol
- Color, using Munsell chart (in moist condition)
- Percent of cobbles or boulders, or both (approximate; by volume)
- Percent of gravel, sand, or fines, or all three (approximate; by dry weight)
- Particle-size range:
  - Gravel—fine, medium, coarse
  - Sand—fine, medium, coarse

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<sup>1</sup> Note that certain states/regulatory programs may require soil classification under a secondary system (e.g., US Department of Agriculture) or the use of hydrochloric acid to test the reaction with soil (none, weak, strong).

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- Particle angularity: angular, subangular, subrounded, rounded
  - Particle shape: (if appropriate) flat, elongated, flat and elongated
  - Maximum particle size or dimension
  - Hardness of coarse sand and larger particles
  - Plasticity of fines: non-plastic, low, medium, high
  - Dry strength: none, low, medium, high, very high
  - Dilatancy: none, slow, rapid
  - Toughness: low, medium, high
  - Odor (mention only if organic or unusual)
  - Moisture: dry, moist, wet

For intact samples also include:

- Consistency (fine-grained [clay] soils only): very soft, soft, firm, hard, very hard
- Structure: stratified, laminated, fissured, slickensided, lensed, homogeneous
- Cementation: weak, moderate, strong
- Additional comments: presence of roots or root holes, presence of mica, gypsum, etc., surface coatings on coarse-grained particles, caving or sloughing of auger hole or trench sides, difficulty in augering or excavating, etc.

Use the following standard descriptors for the textural percentages:

- Trace: 0 to 10%<sup>2</sup>
- Little: 11 to 20%
- Some: 21 to 35%
- And: 36 to 50%

Example descriptions, using the information listed above, would read as follows:

8-10' – 5YR2/6 fine- to medium-grained sand, trace medium sub-angular rounded gravel (up to 0.5" in diameter); medium dense to dense; wet with slow dilatancy; moderate solvent-like odor between 9' and 10'.

10-12' – 5YR2/6 low plasticity clay with some fine to coarse grained angular to subangular gravels (up to 0.25" in diameter) and trace fine to medium grained rounded sands, very stiff, moist with no dilatancy, no odors.

## 9.6 Closing Notes

Once sampling is completed, secure the boreholes/locations in accordance with the project-specific project work plan. Decontaminate all equipment prior to departure and properly manage all PPE and IDW in conformance with applicable regulations.

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<sup>2</sup> The use of "Trace" for describing the fraction of clay soils is inappropriate for field-based logs as clay contents of less than 20-percent in fine-grained soils cannot be reliably determined in the field.

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# FIELD STANDARD OPERATING PROCEDURE #11

## Groundwater Sampling Procedure

Groundwater sampling procedures outlined in this Standard Operating Procedure (SOP) are designed to ensure that collected groundwater samples are representative of the water-bearing zone from which they were collected and that they have not been altered or contaminated by the sampling and handling methods. These procedures can be applied to permanently or temporarily-installed monitoring wells, direct-push sample points, water supply wells with installed plumbing, extraction wells for remedial groundwater treatment systems, and excavations where groundwater is present. The user is advised to read the entire SOP and review the site health and safety plan (HASP) before beginning any onsite activities. In accordance with the HASP, proper personal protective equipment (PPE) must be selected and used appropriately.

### 11.1 Acronyms and Abbreviations

CID	casing inside diameter
DI	deionized
DNAPL	dense non-aqueous phase liquid
DO	dissolved oxygen
DTW	depth to water
HASP	health and safety plan
L/min	liters per minute
LNAPL	light non-aqueous phase liquid
mg/l	milligrams per liter
mV	millivolts
NAPL	non-aqueous phase liquid
NTU	nephelometric turbidity unit
ORP	oxygen reduction potential
PID	photoionization detector
PPE	personal protective equipment
QAPP	quality assurance project plan
SOP	standard operating procedure
SU	standard units
TD	total depth
TOC	top of casing
VOCs	volatile organic compounds

### 11.2 Materials

- Field book

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- PPE
  - Groundwater monitoring data log forms
  - Well key(s), as needed
  - Adjustable wrench or manhole wrench
  - Plastic sheeting
  - Air quality monitoring equipment (e.g., photoionization detector [PID]), as needed
  - Flashlight or mirror
  - Electronic water level indicator or interface probe
  - Pump or bailers, tubing, and associated lanyard materials
  - Water quality meter(s) with calibration reagents and standards
  - Field test kits, as needed
  - Pocket knife or scissors
  - Distilled (DI) water
  - Power supply, as needed
  - Buckets or drum(s) for water storage
  - Sample bottles, labels, indelible markers, and clear tape

### 11.3 Preconditions and Background

This SOP has been prepared as part of the WSP USA Corp. Environmental Quality Management Plan and is designed to provide detailed procedures for common field practices. Compliance with the methods presented in this document is mandatory for all field personnel and will ensure that the tasks are performed in a safe and consistent manner, are in accordance with federal and state guidance, and are technically defensible.

This SOP is written for the sole use of WSP employees and will be revised periodically to reflect updates to WSP policies, work practices, and the applicable state and/or federal guidance. WSP employees must verify that this document is the most recent version of the WSP SOPs. WSP employees are also strongly advised to review relevant state and/or federal guidance, which may stipulate program-specific procedures, in advance of task implementation.

This SOP is designed to provide the user with a general outline for conducting groundwater sampling and assumes the user is familiar with basic field procedures, such as recording field notes (SOP 1), utility location (SOP 2), sample shipment procedures (SOP 3), sample collection and quality assurance procedures (SOP 4), investigation derived waste (IDW) management procedures (SOP 5), equipment decontamination (SOP 6), and use and calibration of all sampling and monitoring equipment (SOPs 7 and 8). This SOP does not cover investigation planning, nor does it cover the analysis of the analytical results. These topics are more appropriately addressed in a project-specific work plan. Before groundwater sampling, be sure to review the project-specific work plan or Quality Assurance Project Plan (QAPP) and any applicable state and federal guidelines or sampling procedures. All sampling and monitoring references must be available for consultation in the field, including:

- WSP's SOPs
- Applicable state and federal guidelines or sampling procedures
- Manufacturer's manuals
- Project-specific work plan and HASP



- QAPP

## 11.4 General Procedures

Although the techniques used to sample groundwater are varied, most sampling events can be broken down into a three-step sequence:

- Gauging: provides an indication of the height of the water column within the well under ambient (pre-sampling) conditions; these data are used to calculate the purge volume using traditional sampling techniques
- Purging: removal of stagnant water from the well bore to ensure that samples collected are representative of groundwater conditions in the water-bearing zone surrounding the well
- Sample Collection: collection of aliquots of groundwater that are representative of the conditions in the water-bearing zone surrounding the well

The procedures and equipment that are used to accomplish these steps are project-specific and should be discussed by the project team before arriving onsite. All types of groundwater sampling, however, regardless of the equipment used, share common handling and management procedures that are designed to ensure the integrity of the samples collected. These procedures include:

- The use of new, disposable, decontaminated, or dedicated sampling equipment
- The use, changing, and disposal of the appropriate PPE
- Selection of a suitable sampling location and staging area

Collect all samples using either new, disposable equipment, or properly decontaminated sampling equipment. Groundwater purging and sampling equipment should be selected based on the analytical requirements of the project and the project specific conditions (e.g., well diameter, depth to water, dissolved constituents, etc.) likely to be encountered. The equipment should be constructed of non-reactive, non-leachable materials (e.g., stainless steel, Teflon®, Teflon®-coated steel, polyethylene, polypropylene, etc.) which are compatible with the chemical constituents at the site. When choosing groundwater purging and sampling equipment, give consideration to:

- the depth of the well
- the depth to groundwater
- the volume of water to be withdrawn
- the sampling and purging technique and equipment
- the analytes of interest

Select the decontamination procedures based on the types of sampling to be performed and decontamination may require multiple steps or differing cleaning methods, depending on the sampling goals (see SOP 6 for decontamination procedures). In no case should disposable, single use materials be used to collect more than one sample.

Wear a clean pair of new, disposable gloves each time a different sample is collected and don the gloves immediately prior to collection. This limits the possibility of cross-contamination from accidental contact. The gloves must not come in contact with the medium being sampled and must be changed any time during sample collection when their cleanliness is compromised.

As possible, find a suitable purging and sampling location by selecting an area that is away from any sources of cross-contamination that could compromise the integrity of the samples. This includes positioning the sample collection area away from fuel-powered equipment, such as drill rigs or excavators, and upwind of other site activities (e.g., purging, sampling, decontamination) that could influence the sample. This is particularly important when screening for volatile organic compounds (VOCs) with a PID, but should not be limited to the active sample



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collection. Store samples already collected from the field for laboratory analysis in clean containers and securely stage, if possible, in uncontaminated portions of the site.

## 11.5 Gauging Procedures

Once you have arrived onsite and are prepared to conduct the groundwater sampling, note the following observations and measurements in the field book (and on the project-specific groundwater monitoring log, if appropriate):

- Perform a quick reconnaissance of the site to identify sampling locations
- Record the approximate ambient air temperature, precipitation, wind (direction and speed), tidal, and other field conditions that could potentially alter the groundwater samples or water level measurements in the field book
- Inspect existing wells for soundness of protective casing and surface ground seal
- Remove the well covers and all standing water around the top of the well casing, as necessary, before opening the well cap
- Place new plastic sheeting (e.g., contractor grade 55-gallon plastic trash bags) on the ground surface around existing well locations to prevent contamination (via contact with the ground surface) of the pumps, hoses, lanyards, and other equipment; keep the plastic as clean as possible and replace as necessary
- Unlock and carefully remove well cap; allow the groundwater level to equilibrate with the atmospheric pressure a minimum of 15 minutes before conducting any downhole testing or measurements

If required by the HASP, survey the open well casing and the breathing zone around the wellhead with a PID to ensure that the level of PPE is appropriate.

### 11.5.1 Groundwater Level and Total Depth Measurement Procedures

Depth to water (DTW) and total depth (TD) measurements are typically collected prior to sampling and are used to determine the volume water to be purged from the well (if using techniques other than low flow sampling). The depth to groundwater measurements are also used after the sampling event is completed to establish the groundwater elevation, flow direction, and gradient.

Water level measurements must be collected within the shortest interval possible from all selected existing wells to be gauged during the event before beginning any purge and sampling procedures at the site. This will ensure a nearly instantaneous snapshot of the water levels before the formations are disturbed by pumping or acted upon by other outside influences, such as tides, precipitation, barometric pressure, river stage, or intermittent pumping of production, irrigation, or supply wells.

If possible, do not measure TD until after completing the sampling to avoid disturbing the bottom of the well and suspending sediment or colloidal material in the water column (i.e., increasing the turbidity and potentially biasing the water quality samples). The TD of existing wells recorded in the field book from an earlier event can be used to calculate the purge volume for the well. In instances where the TD is required to calculate the standing water height and purge volume, take care to limit the amount of bottom disturbance by the probe. TD measurement is not required for low flow applications and should not be measured before sampling the well.

Record the following observations and measurements in the field book:

- Measure the casing inside diameter (CID) and record in inches
- Measure the DTW with an electronic water level indicator (or an interface meter, if non-aqueous phase liquid [NAPL] is potentially present – see procedures below) from the top of the casing (TOC) at the surveyor's mark, if present and record the depth (to the nearest 0.01 foot) in feet below TOC

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- If no mark is present, measure from the north side of the casing and mark the measuring point with a knife, metal file (if the inner casing is metal) or indelible marker for future reference
  - Measure the TD from TOC at the surveyor's mark or north side of the casing, as appropriate.

Because of tape buoyancy and weight effects encountered in deep wells with long water columns, it may be difficult to determine the TD of the well with an electronic water level indicator; sediment in the bottom of the well can also make it difficult to determine total depth. Care must be taken and proper equipment selection must be used in these situations to ensure accurate measurements.

### 11.5.2 Gauging Wells with Non-Aqueous Phase Liquid

If NAPL is potentially present at the site, the depth to water and NAPL thickness measurements are collected using an interface meter capable of distinguishing between the NAPL and the groundwater, or a weighted tape coated with the appropriate reactive indicator paste for the suspected NAPL. Measuring the thicknesses of NAPL can be difficult and must be done with care to avoid agitating the liquids and generating an emulsion. This is particularly the case for light non-aqueous phase liquids (LNAPL; those having a density less than water), which are typically viscous oils that cling to the probe. Oil coating the probe can result in thickness measurements that are biased high (i.e., overestimate the thickness of the NAPL).

Conduct the following procedures to ensure an accurate measurement of the NAPL thickness:

- For LNAPL, slowly lower the electronic interface probe in the well casing until the electronic tone indicates the probe is at the top of the LNAPL layer; measure the depth below the TOC to the nearest 0.01 foot.
- To gauge the thickness of the LNAPL, advance the probe slowly through the layer until the electronic tone indicates you are in the water below the layer and then slowly bring the probe back up to the bottom of the LNAPL. Repeat this process several times to ensure an accurate measurement of the bottom of the LNAPL layer (which can include bubbles and an emulsion layer).
- For dense non-aqueous phase liquid (DNAPL), advance the probe through the water column until the tone indicates the top of the DNAPL layer; record the depth below TOC.
- To gauge the thickness of the DNAPL, advance the probe through the layer to the bottom of the well.
- Decontaminate all non-disposable equipment in accordance with SOP 6.

## 11.6 Groundwater Purging Procedures

Purging is a process whereby potentially stagnant water is removed allowing the collection of samples that are representative of groundwater conditions in the water-bearing zone. The water in a well bore that has not been purged may be different than the surrounding formation due to a number of factors, such as exposure to ambient air. There are a number of purging methods (and several no-purge methods) that may be used, depending on specific conditions encountered (e.g., depth to water, hydraulic conductivity of the formation, etc.) and the sampling requirements. Several purge/no purge options are described below.

- **Multiple Volume Purge:** traditional well purging technique that relies on the withdrawal of the volume of the well bore and the surrounding filter pack (if present); typically three to five well volumes are removed using pumps or bailers. This methodology uses equipment that is easy to obtain and use and is generally accepted in most states as an appropriate purging method.
- **Temporary Well Purge:** a variation of the multiple volume purge technique that typically uses inertia lift pumps, peristaltic pumps, or bailers to remove water from a temporary well casing or from drilling rods that are being used to screen water quality. This is a less stringent technique that is typically done to minimize the turbidity of the samples, which can be high due to the lack of a well filter pack.

- **Private Water Well or In-Place Plumbing Purge:** another variation on the multiple volume purge technique whereby a tap or faucet is opened on a fixed water supply pipe and is allowed to remain open until the potentially stagnant water within the well casing and other components of the system (e.g., fixed piping, pressure tanks, etc.) has been removed and groundwater representative of the water-bearing zone is being discharged at the tap.
- **Low-Flow (Minimal Drawdown/Low Stress) Purge (and Sampling):** a modified purging technique that establishes an isolated, discrete, horizontal flow zone directly adjacent to the pump intake; this method requires the pump to be placed within a screened-interval or open borehole. Pumping rates are typically 0.1 to 0.5 liters per minute (L/min) or less to minimize the stress on the surrounding formation and reduce the geochemical alteration of the groundwater caused by pumping.
- **No-Purge/Passive Sampling Techniques:** These techniques use specialized equipment, such as permeable diffusion bags or trap samplers, to sample the undisturbed water column within a screened interval or open borehole. This methodology assumes that the water in the well is representative of the surrounding formation. The approach is well suited for some VOCs and, depending on the sample device used, metals and hydrophobic compounds.

As appropriate, install the pump, tubing, or passive sampler to the depth prescribed in the project-specific work plan or QAPP. Contain and/or manage purge water in accordance with the project-specific work plan.

### 11.6.1 Calculating One Purge Volume

For multiple volume purging techniques, a minimum of three well volumes of water must be removed before sample collection. The actual amount of water removed may be greater than the three volumes, depending on geochemical parameter stabilization (the field measurement of these parameters is discussed below).

Calculate the volume of water in a well or boring using the following equation:

$$\text{Volume (gallons)} = (\text{TD} - \text{DTW}) * \text{CID}^2 * 0.041$$

Alternately, the volume of water in a well or boring may also be calculated by multiplying the water column height by the gallons per foot of water for the appropriate well or boring diameter:

CID	Gallons per foot of water	Gallons per foot; three water columns
1-inch	0.04	0.12
2-inch	0.16	0.48
3-inch	0.37	1.11
4-inch	0.65	1.98

Calculate the total volume of the pump, associated tubing and container for *in situ* measurements (flow-through cell), using the following equation:

$$\text{Volume (in gallons)} = P + ((0.0041) * D^2 * L) + fc$$

where:

P = volume of pump (gallons)

D = tubing diameter (inches)

L = length of tubing (feet)

fc = volume of flow-through cell (gallons)

### 11.6.2 Multiple Volume Purge Procedures

Begin purging at a rate that will not cause excessive turbulence and drawdown in the well; commonly less than 1 gallon per minute for a typical 2-inch diameter monitoring well. The objective is to remove the stagnant water in the casing and surrounding filter pack or open borehole allowing water from the surrounding water-bearing zone to enter the well for sampling with as little disturbance as possible. Excessive pump rates or well dewatering can result in higher turbidity, potential volatilization, and/or geochemical alteration of dissolved parameters. If drawdown is observed on initiation of pumping, reduce the pump speed and attempt to match the drawdown of the well. Once drawdown is stabilized, measure the flow rate with a calibrated container and stopwatch.

Collect stabilization parameters at a minimum of every half well volume during the purge process. Record the stabilization measurements in the field book along with any other pertinent details, such as the visual quality of the water (e.g., color, odor, and presence of suspended particulates) and the measured withdrawal rate, as possible. After the minimum purge volume has been removed, review the geochemical measurements to ensure that readings have stabilized. Stabilization occurs when at least three consecutive measurements are within the following tolerances:

Traditional Purge Stabilization Parameters	
pH	± 0.1 standard units (SU)
Specific Conductance	± 3%
Temperature	± 3%
Dissolved Oxygen (DO)	± 0.2 milligrams per liter (mg/l) or 10% (flow-through cell only)
Turbidity	± 10% for values greater than 10 nephelometric turbidity unit (NTU)
Oxygen Reduction Potential (ORP)	± 10 millivolts (mV; flow-through cell only)

If the parameters have not stabilized within five well volumes, the project team must decide whether or not to collect a sample or to continue purging.

For wells with extremely slow recharge, purging may ultimately dewater the well before the minimum purge can be completed. If the well or borehole is purged dry before removing three well volumes, allow well or boring to recharge to a level of approximately 90% of the static pre-purge water elevation and proceed immediately to sample collection. If recovery exceeds 2 hours, sample as soon as sufficient sample volume is available.

### 11.6.3 Temporary Well Purge Procedures

Procedures used to purge temporary groundwater monitoring wells differ from permanent wells because temporary wells are installed for immediate sample acquisition. Wells of this type may include open bedrock boreholes, standard polyvinyl chloride well screen and riser placed in boreholes created by rotary or direct-push drilling methods, or drilling rod-based sampling devices, such as Wellpoint®, Geoprobe® Screen Point 15/16, or Hydropunch® samplers. Purging temporary wells of this type may not be necessary because stagnant water is typically not present.

Purging can minimize the turbidity in the sample, which can be significant due to the disturbance caused by the sampler installation. The exception is for groundwater profiling applications (e.g., using a Waterloo Profiler) where a

more rigorous purge is used (using the multiple volume purge techniques described above) to limit the potential for cross contamination between sample intervals.

#### 11.6.4 Private Water Well or In-Place Plumbing Purge Procedures

Access the sampling point for wells with fixed piping as close to the well as possible and before the water passes through any treatment systems, heating unit, or storage system (e.g., holding or pressure tanks). If purging from a tap or faucet, try to remove any aerators, filters, or other devices from the tap before purging. In the field book, document where the sample was collected and any steps that were taken to minimize the potential alteration of the water sample.

Start to purge the system by running water from the tap or spigot. Observe and record the purge rate for the system. The minimum volume removed must be more than the volume of the pump, holding tanks, conveyance piping, etc., and the flow through cell (if used). After the minimum purge volume has been removed, review the geochemical measurements to ensure that readings have stabilized using the same procedures as those used for the multiple volume purge detailed above. If the minimum volume is unknown, purge the system for a minimum of 15 minutes or until the parameter readings have stabilized.

#### 11.6.5 Low-Flow Purge Procedures

Low flow purging and sampling is used to obtain representative groundwater samples without removing all of the water within the well casing or the surrounding filter pack. The protocol uses low pumping rates (i.e., less than 1 L/min) to establish an isolated zone around the inlet of the pump where flow is horizontal (i.e., from the water-bearing zone) rather than from the stagnant water in the well casing above and below the pump. Selection of an appropriate pump is critical to establishing the flow zone. A pump must be selected that is suited for low pumping rates and is appropriate for the analytical samples; bailers are not appropriate.

Position the pump so that the inlet is at the specified sampling depth. Wells with longer screens may require additional samples to be collected. Slowly lower the pump into the water column to avoid agitating the water column above the screen. Avoid contacting the bottom of the well by using pre-cut tubing at the appropriate length or by lowering the pump simultaneously with an electronic water level indicator. Once the pump has been inserted, allow the water levels to return to static conditions.

The discharge tubing must be fitted with an in-line flow-through cell equipped with water quality meters that provide continuous readout displays. The flow-through cell must be used to minimize the exposure of the groundwater to ambient air which has a substantial effect on dissolved oxygen and ORP measurements.

Start the pump and maintain a steady flow rate that results in a stabilized water level (less than 0.3 feet of drawdown). If needed, reduce the pumping rate to the minimum capabilities of the pump to ensure stabilization of the water level. Record each adjustment made to the pumping rate and the water level measured immediately after each adjustment. Purging should not exceed 0.1 to 0.5 L/min.

During purging, monitor and record geochemical parameters at 30 seconds to 5 minutes intervals (depending on the hydraulic conductivity of the aquifer, diameter of the well, and pumping rate). Stabilization occurs once the following criteria have been met over three successive measurements made at least three minutes apart:

Low-Flow Purge Stabilization Parameters	
Water Level Drawdown	<0.3 feet
pH	± 0.1 SU
Specific Conductance	± 3%
Temperature	± 3%

Low-Flow Purge Stabilization Parameters	
DO	± 0.2 mg/l or 10% (flow-through cell only)
Turbidity	± 10% for values greater than 10 NTU
ORP	± 10 mV (flow-through cell only)

### 11.6.6 No-Purge Passive Sampling Techniques

A number of alternate sampling devices are available, including equilibrated grab samplers, passive diffusion samplers, and other *in situ* sampling devices. These devices may be particularly useful for sampling low permeability geologic materials, assuming the device is made of materials compatible with the analytical parameters, meets data quality objectives, and has been properly evaluated.

No-flow grab or trap samplers are placed in the well before sampling and typically remain closed (i.e., no water is allowed into the sampler during insertion) until the sampler is activated. This allows the sampler device to equilibrate with the surrounding groundwater (to prevent adsorption to the sampler materials) and for the groundwater to recover and re-establish the natural flow after the disturbance caused by the sampler insertion into the well. Typical equilibration times are on the order of 24 to 48 hours, depending on the well recovery rates and the type of sampler used. Samples are either transferred to containers at the well head or the sampler itself is shipped to the laboratory for analysis. Examples of equilibrated grab samplers include Hydrosleeve®, Snap Sampler™, and Kemmerer Sampler.

Equilibration time for diffusion samplers are generally dictated by the diffusion rate through the permeable membrane and, thus, are less sensitive to changes induced within the well during deployment. Most diffusion bag samplers have a minimum equilibration time of 14 days prior to sample collection. The samplers may be deployed for an extended period (e.g., three months or longer), although the continuous exchange between the sampler and the well water means that the sampler will likely reflect only the conditions in the few days preceding the sample collection.

## 11.7 Groundwater Sample Collection Procedures

Collect groundwater samples as soon as possible after the geochemical parameters indicate representative groundwater is present. As practically possible, reduce the pump flow rate, but maintain a flow rate high enough to deliver a smooth stream of water without splashing or undue agitation. Collect samples directly from the tubing as it exits the well bore; **do not** sample on the downstream side of flow through cells or any other instrumentation. If using a bailer for sample collection, lower and raise the bailer slowly and smoothly to minimize the disturbance to the water within the well.

Collect groundwater samples in order of volatilization sensitivity with organic compounds sampled first followed by inorganic compounds:

- VOCs
- Extractable organics, petroleum hydrocarbons, aggregate organics, and oil and grease
- Total metals
- Dissolved metals (see filtering procedures below)
- Inorganic non-metallic and physical and aggregate properties
- Microbiological samples
- Radionuclides



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Collect quality assurance/quality control samples in accordance with SOP 4 and the project-specific work plan or QAPP.

As necessary, conduct field tests or screening in accordance with the project-specific work plan and manufacturer's specifications for field testing equipment. Field samples must be directly transferred from the sampling equipment to the container that has been specifically prepared for that given parameter; intermediate containers should be avoided.

### 11.7.1 Groundwater Filtration Procedures

Filtered groundwater samples are sometimes used for field kit analyses and should only be collected for laboratory analysis after approval from the appropriate regulatory agency and/or project manager. If groundwater sample filtration is necessary, the following procedures should be followed:

- Use a variable speed peristaltic, bladder, or submersible pump with the in-line filter fitted on the outlet end; pressurized bailers can also be used
- At the pump discharge end, attach a clean appropriate sized filter to the tubing
- Turn on the pump and reduce the flow rate, but maintain a flow rate high enough to deliver a smooth stream of water without splashing or undue agitation, hold the filter upright with the inlet and outlet in the vertical position and pump groundwater through the filter until all atmospheric oxygen has been removed and the minimum volume of water has been flushed through the filter, in accordance with the manufacturer's specifications
- Collect the filtered samples directly into the sample container from the pump-filter assembly
- If sediment is visible in the sample container after filtration, filter break-through has occurred and the sampling and filtering process should be repeated
- Disassemble the pump head and discard the tubing and filter appropriately

### 11.7.2 Non-Aqueous Phase Liquid Sampling Procedures

Non-aqueous phase liquid is typically sampled to identify the compound, usually through an analytical "fingerprint" analysis. The usefulness of this type of sampling is limited as many NAPLs weather in the subsurface making definitive identification problematic. If samples are to be collected, ensure that the NAPL is not considered to be a hazardous material for the purpose of shipping to the laboratory (SOP 3). Sampling options should be discussed with the assigned WSP compliance professional and project manager.

Samples for LNAPL are best collected using a bailer. Disposable plastic (acrylic, clear polyvinyl chloride) bailers are ideal for sampling as they provide a clear view as to what has been captured by the bailer. Disposable polyethylene and polypropylene bailers are also acceptable, but more difficult to use because of the translucent materials. Some bailer manufacturers offer a special sampling tip that can be fitted to the bailer to aid in the sample collection. Dense non-aqueous phase liquid is typically collected using a peristaltic pump, inertial pump, double check valve bailer, or polyethylene tubing equipped with a bottom check valve. Care should be used to avoid agitating the samples and creating an emulsion.

Samples of NAPL should be placed in the appropriate laboratory-supplied containers, packed on ice, and shipped to the analytical laboratory using procedures outlined in SOP 3.

### 11.7.3 Sample Labeling and Preparation for Shipment

Once collected, prepare the groundwater samples for offsite laboratory analysis:

- Cleaning the outside of the sample container

- 
- Affixing a sample tag or label to each sample container and complete all required information (sample number, date, time, sampler's initials, analysis, preservatives, place of collection)
  - Placing clear tape over the tag or label (if non-waterproof labels are used)
  - Preserving samples immediately after collection by placing them into an insulated cooler filled with bagged wet ice to maintain a temperature of approximately 4°Celsius
  - Recording the sample designation, date, time, and the sampler's initials in the field book and on a sample tracking form, if appropriate
  - Completing the chain-of-custody forms with appropriate sampling information
  - Securing the sample packing and shipping in accordance with proper procedures

**Do not ship hazardous waste samples without first consulting a WSP compliance professional.**

## 11.8 Closing Notes

Once sampling is completed, secure the boreholes/wells/locations in accordance with the project-specific project work plan. Decontaminate all equipment prior to departure and properly manage all PPE and IDW in conformance with applicable regulations.

## Appendix B – Soil Boring Logs

**Boring Log: DP-1**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 700.11

**Project No.:** 1402370

**Total Depth (feet):** 40

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 14, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
5		0		90		<p><b>Silt (ML)</b> Dark grayish brown silt becoming silt with clay at 5 feet; cohesive; non-plastic; very stiff; moist; organics present (Native material).</p> <p>Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-1(4-5)</p>
10		1		70		<p><b>Lean Clay (CL)</b> Dark grayish brown clay with silt; plastic becoming non-plastic at 10 feet; soft; moist (Native material).</p> <p>Very dark gray to black mottling from 5 - 10 feet.</p>
15		1		50		<p>Very soft, from 10 - 18.5 feet bgs.</p>
20		1		70		<p>Color transitions to gray at 15 feet bgs.</p>
25		1		70		

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
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**Boring Log: DP-1**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 700.11  
**Project No.:** 1402370 **Total Depth (feet):** 40  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 14, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
30		1		80		<p><b>Lean Clay (CL)</b></p> <p>Very soft from 28.5 to 29.5 feet bgs.</p>
35		1		80		<p>Wood log pieces at 30 feet, 35 feet, 37 feet and 39.5 - 40 feet bgs.                      Becoming wet at 35 feet bgs.                      Installed temporary well to 22 feet bgs (borehole swelled closed from 22 - 40 feet bgs), unable to retrieve groundwater for sample.</p>
40		1		80		<p>Bottom of boring at 40 feet below ground surface (bgs)</p>
45						
50						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

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**Boring Log: DP-2**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 700.49

**Project No.:** 1402370

**Total Depth (feet):** 20

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 14, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
5		1		80		<p><b>Silt (ML)</b> Dark brown silt; cohesive; non-plastic; stiff; moist becoming wet at 10 feet bgs (Native material).</p> <p>Organics present from 0 - 5 feet bgs.</p> <p>Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-2(4-5)</p>
10		2		90		<p>Reddish brown; soft from 5 - 19 feet bgs.</p> <p>Clay content increases with depth.</p> <p>Medium plastic, very soft from 10 - 14 feet bgs</p> <p>Extremely soft and wet at 15 - 18 feet bgs.</p>
15		1		80		<p>Sandy silt from 18.5 - 19 feet bgs.</p>
20		1		60		<p>Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-2</p>
20						<p><b>Silt (ML)</b> Dark gray silt, trace fine sand; cohesive; non-plastic; moist (Native material).</p> <p>Bottom of boring at 20 feet below ground surface (bgs)</p>
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

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**Boring Log: DP-3**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 706.65

**Project No.:** 1402370

**Total Depth (feet):** 25

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 11, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
5		0		80		<b>Poorly-Graded Sand with Clay (SP-SC)</b> Brown very fine to fine sand, little clay; medium dense; moist (Fill material).  Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-3(4-5)
		0		70		
10		0		50		<b>Clayey Sand (SC)</b> Dark gray clayey very fine to fine sand; medium dense; moist (Native material).
15		0		40		
20						<b>Silt (ML)</b> Gray silt with clay, trace sand; cohesive; non-plastic; stiff; moist (Native material).
25				0		
						No recovery from 20 - 25 feet bgs. Sampler is wet.  Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-3

Bottom of boring at 25 feet below ground surface (bgs)

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

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**Boring Log: DP-4**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 703.71

**Project No.:** 1402370

**Total Depth (feet):** 30

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 12, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
		0		80		<b>Silt (ML)</b> Dark gray silt, trace gravel and sand; cohesive; non-plastic; stiff; moist (Native material).
5		0		60		<b>Well-Graded Sand with Silt (SW-SM)</b> Yellowish brown very fine to very coarse sand, trace silt and gravel; dense; moist (Fill material).  Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-4(4-5)  Hit refusal at 5 feet bgs, bent sampling rods. Red rock chips in sampler. Pulled up and moved boring a few feet. Second boring contained well graded sand from 5 - 6 feet bgs.
10		0		50		<b>Boulder</b> Reddish rock chips in sampler; hard drilling from 6 - 7 feet bgs, rod slightly bent.
15						<b>Clayey Sand (SC)</b> Gray clayey fine to coarse sand, dense; moist (Native material).
		0		60		<b>Sandy Silt (ML)</b> Gray sandy silt, fine sand; cohesive; non-plastic; soft; moist (Native material).  Wood fibers present from 9 - 10 feet bgs.
20						<b>Silt (ML)</b> Gray silt, trace clay, trace organics; cohesive; non-plastic; soft; moist (Native material).  Dark gray banding, trace reddish brown mottling from 15 - 24 feet bgs.  Rootlets present from 20 - 25 feet bgs.  Color transitions to brownish gray and soft becoming stiff at 24 feet bgs.  White concretions present from 20-30 feet bgs.
25		1		60		

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

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**Boring Log: DP-4**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 703.71  
**Project No.:** 1402370 **Total Depth (feet):** 30  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 12, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
30		0		60		Stiff becoming very stiff at 25 feet bgs.  Saturated interval not encountered; no groundwater sample collected.
35						Bottom of boring at 30 feet below ground surface (bgs)
40						
45						
50						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

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**Boring Log: DP-5**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 703.07

**Project No.:** 1402370

**Total Depth (feet):** 35

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 13, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
		0		70	<b>Asphalt</b> Asphalt road cover (shoulder of exit/entrance ramp)	
						<b>Silt with Gravel (ML)</b> Brownish yellow silt with gravel; stiff; dry (Fill material).
5		0		60		<b>Well-Graded Sand with Silt (SW-SM)</b> Brown fine to coarse sand, few gravel, some fines; medium dense; moist (Fill material).  Clay content increases with depth.  Clay lenses present at 7 feet and 9 feet bgs.
10		0		60		Soil sample collected from 9 - 10 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-5(9-10)
15						Dark brown silt and clay lens from 13 - 14 feet bgs; medium plastic; cohesive; stiff; moist.
20		0		70		<b>Poorly-Graded Sand with Silt (SP-SM)</b> Reddish brown fine to medium sand, trace fine gravel, few fines; medium dense; moist (Fill material).  Clay lenses at 18 - 18.5 feet bgs and 19.8 - 20 feet bgs.
25		1		50		

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

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**Boring Log: DP-5**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 703.07

**Project No.:** 1402370

**Total Depth (feet):** 35

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 13, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
30		1		60		<p><b>Silt with Sand (ML)</b>                      Grayish brown silt with fine sand; cohesive; non-plastic; stiff and moist becoming soft and wet at 30 feet bgs (Native material).</p>
35		1		5		<p>Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals.                      ID: DP-5</p>
35						Bottom of boring at 35 feet below ground surface (bgs)
40						
45						
50						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-6**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 714.02

**Project No.:** 1402370

**Total Depth (feet):** 30

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 13, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Asphalt</b> Asphalt road cover (shoulder of SB I-35W)
5		1		70		<b>Silt with Gravel (ML)</b> Brownish yellow silt with gravel, few sand; dense/stiff; moist (Fill material).
						<b>Poorly-Graded Sand with Silt (SP-SM)</b> Brown fine sand, little silt; medium dense; moist (Fill material).
10		1		60		<b>Silt with Gravel (ML)</b> Light brownish gray silt with fine gravel; non-cohesive; non-plastic; stiff; moist (Fill material).  Gravel pieces are light gray and highly vesicular, possibly slag from coal burning operations.
						Soil sample collected from 6 - 8 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-6(6-8)
15		1		20		<b>Silt with Sand (ML)</b> Dark brown silt with fine sand; cohesive; non-plastic; stiff; moist (Native material).
						<b>Sandy Silt (ML)</b> Brown sandy silt, sand is mostly fine, some coarse, few fine gravel; cohesive; non-plastic; stiff and moist becoming loose and wet at 20 feet bgs (Native material). ▼
20		0		60		
25		0		40		Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-6

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510



**Boring Log: DP-6**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 714.02

**Project No.:** 1402370

**Total Depth (feet):** 30

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 13, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
30		1		5		Bottom of boring at 30 feet below ground surface (bgs)
35						
40						
45						
50						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-7**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 730.32  
**Project No.:** 1402370 **Total Depth (feet):** 20  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 13, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Asphalt</b> Asphalt road cover (shoulder of SB I-35W)
		1		40		<b>Silt with Gravel (ML)</b> Brownish yellow silt with gravel, few sand; dense/stiff; dry (Fill material).
5						<b>Well-Graded Sand with Silt (SW-SM)</b> Dark brown very fine to coarse sand with silt; medium dense; moist (Fill material).
		1		90		Soil sample collected from 8 - 10 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-7(8-10)
10						<b>Sandy Silt (ML)</b> Dark grayish brown sandy silt, trace gravel; very stiff; dry (Fill material).
		1		60		<b>Well-Graded Sand with Silt (SW-SM)</b> Grayish brown fine to coarse sand, some fines, few gravel; dense; moist (Fill material).
15						<b>Sandy Silt (ML)</b> Dark brown silt, some sand; cohesive; non-plastic; stiff; moist (Fill material).
		1		60		<b>Well-Graded Sand with Clay and Gravel (SW-SC)</b> Brown fine to coarse sand, some gravel and fines; wet (Fill material). Becoming clayey sand at 18 feet bgs.
20						Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-7 <b>Lean Clay (CL)</b> Dark gray clay; medium plastic; stiff; moist (Native material).
25						Bottom of boring at 20 feet below ground surface (bgs)

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-8**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 721.97  
**Project No.:** 1402370 **Total Depth (feet):** 10  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 14, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
5		1		40		<p><b>Silt (ML)</b>                      Dark brown silt, few sand, few clay; non-cohesive; non-plastic; soft becoming stiff at 5 feet bgs; moist (Native material).</p> <p>Soil sample collected from 5 - 6 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals.                      ID: DP-8(5-6)</p>
		1		70		<p><b>Organic Soil (OL/OH)</b>                      Very dark brown organic silt, some clay; non-cohesive; non-plastic; soft; moist (Native material).</p>
10						<p><b>Bedrock</b>                      Yellowish gray very weak limestone-type rock (Native material).</p> <p>Groundwater not encountered, no groundwater sample collected.</p> <p>Bottom of boring at 10 feet below ground surface (bgs)                      Boring terminated at refusal.</p>
15						
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-9**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 714.88

**Project No.:** 1402370

**Total Depth (feet):** 9.8

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 14, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
5		1		70		<p><b>Well-Graded Sand with Silt (SW-SM)</b>                      Reddish brown fine to coarse sand, few silt, few gravel; medium dense; dry becoming moist at 5 feet bgs (Native material).</p> <p>Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals.                      ID: DP-9(4-5)</p>
10		1		65		<p><b>Weathered Bedrock</b>                      Highly decomposed grayish yellow rock, clayey towards top, sandy towards bottom (Native material).</p>
15						<p>Groundwater not encountered; no groundwater sample collected.</p> <p>Bottom of boring at 9.8 feet below ground surface (bgs)                      Boring terminated at refusal.</p>
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-10**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 717.00

**Project No.:** 1402370

**Total Depth (feet):** 11

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 14, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
		1		70	<b>Asphalt</b> Asphalt road base	
5		1		40	<b>Well-Graded Sand with Silt (SW-SM)</b> Reddish brown fine to coarse sand, few silt and clay, few gravel; medium dense; moist (Fill material).  Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-10(4-5)	
10		2		100	<b>Peat (PT)</b> Very dark brown peat; soft; moist (Native material).	
					<b>Bedrock</b> Gray, very weak rock; dry (Native material).  Groundwater not encountered; no groundwater sample collected.	
15						Bottom of boring at 11 feet below ground surface (bgs) Boring terminated at refusal.
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-11**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 705.25  
**Project No.:** 1402370 **Total Depth (feet):** 21  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 12, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Topsoil</b> Dark brown topsoil.
		0		70		<b>Well-Graded Sand with Silt and Gravel (SW-SM)</b> Reddish brown fine to very coarse sand, some gravel, little silt and clay; medium dense; moist (Fill material).  Very coarse sandy lens from 18.5 to 19 feet bgs; wet.
5						Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-11(4-5)
		1		70		
10						
		1		50		
15						Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-11
		1		50		
20						<b>Organic Soil (OL/OH)</b> Very dark brown organic clay; non-plastic; soft; moist (Native material).
		NM		50		<b>Well-Graded Sand with Silt (SW-SM)</b> Dark gray fine to coarse sand, little silt and clay; medium dense; moist (Native material).
						<b>Weathered Bedrock</b> Highly decomposed yellowish brown limestone (Native material).
25						Bottom of boring at 21 feet below ground surface (bgs)

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510



**Boring Log: DP-12**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 708.92

**Project No.:** 1402370

**Total Depth (feet):** 12.7

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 13, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Topsoil</b>
		1		60		<b>Well-Graded Sand with Silt (SW-SM)</b> Reddish brown fine to coarse sand, little fines, few gravel; medium dense; moist (Fill material).  Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-12(4-5)
5						
		1		40		
10						
		1		80		
15						<b>Weathered Bedrock</b> Highly decomposed grayish yellow limestone-type rock (Native material).  Groundwater not encountered; no groundwater sample collected.
						Bottom of boring at 12.7 feet below ground surface (bgs) Boring terminated at refusal.
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-13**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 711.79  
**Project No.:** 1402370 **Total Depth (feet):** 10.5  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 12, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
		1		70	<b>Silt (ML)</b> Dark brown silt, trace sand and gravel; very stiff; dry (Fill material).	
					<b>Well-Graded Sand with Silt (SW-SM)</b> Reddish brown fine to coarse sand, trace fine gravel, few fines; dense; moist (Fill material).	
5		0		60	<b>Silt with Sand (ML)</b> Dark brown silt with coarse sand and fine gravel; non-cohesive; non-plastic; stiff; moist (Fill material).	
					Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-13(4-5)	
10		0		100	<b>Lean Clay (CL)</b> Bluish gray clay with black banding; medium plastic; stiff; moist (Native material).	
					<b>Bedrock</b> Very weak gray to pale yellow limestone-type rock with reddish brown banding; dry (Native material).	
					Groundwater not encountered; no groundwater sample collected.	
15					Bottom of boring at 10.5 feet below ground surface (bgs) Boring terminated at refusal.	
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-14**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 706.04

**Project No.:** 1402370

**Total Depth (feet):** 11

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 11, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Asphalt</b> Asphalt road cover.
		0		70		<b>Sandy Silt (ML)</b> Brown sandy silt, trace gravel; non-plastic; moist (Fill material).  Becoming dark brown with few fine gravel at 1.5 feet bgs.
5						Soil sample collected from 3 - 4 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-14(3-4)
		0		40		<b>Silt (ML)</b> Brownish gray silt, little clay; cohesive; non-plastic; stiff and moist becoming soft and wet at 4.5 feet bgs (Native material).
10						<b>Organic Soil (OL/OH)</b> Very dark brown organic clay; medium plastic; soft; moist (Native material).
		0		100		<b>Weathered Bedrock</b> Pale yellowish brown, highly decomposed rock; silty with rock chips (Native material).
15						Installed temporary well, but no groundwater was present for sampling.
						Bottom of boring at 11 feet below ground surface (bgs) Boring terminated at refusal.
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-15**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 710.42

**Project No.:** 1402370

**Total Depth (feet):** 9

**Location:** Burnsville, MN

**Borehole Diameter (inches):** 2

**Completion Date:** November 11, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
		0		60	<b>Asphalt</b> Asphalt road cover.	
5		0		100	<b>Silty Sand (SM)</b> Brown silty fine to coarse sand, trace gravel; medium dense; moist (Fill material).  <b>Silt (ML)</b> Brownish gray silt, some clay; cohesive; non-plastic; stiff and moist becoming soft and wet at 4 feet bgs (Native material).	
10					Soil sample collected from 2 - 3 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-15(2-3)	
					<b>Organic Soil (OL/OH)</b> Very dark brown organic rich clay; medium plastic; soft; moist (Native material).  <b>Weathered Bedrock</b> Yellowish brown highly decomposed limestone-type bedrock (Native material).	
15					Installed temporary well, but no groundwater was present for sampling.	
					Bottom of boring at 9 feet below ground surface (bgs) Boring terminated at refusal.	
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-16**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 724.17  
**Project No.:** 1402370 **Total Depth (feet):** 7.75  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 11, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Asphalt</b> Asphalt road cover
		0		50		<b>Sandy Silt (ML)</b> Yellowish brown silt, little clay, coarse sand; fine gravel; stiff; non-plastic; non-cohesive; moist (Fill material).
5						<b>Lean Clay (CL)</b> Very dark brown organic rich clay; soft; non-plastic; moist (Native material).
		0		85		Soil sample collected from 4 - 5 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-16(4-5)
10						<b>Limestone</b> Pale yellowish brown to pale brown highly decomposed limestone, becoming more competent with depth; dry (Native material).
						No groundwater encountered; no groundwater sample collected.
						Bottom of boring at 7.75 feet below ground surface (bgs) Boring terminated at refusal.
15						
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510

**Boring Log: DP-17**

**Project:** MnDOT I35W Minnesota River **Surface Elevation (feet AMSL\*):** 716.00  
**Project No.:** 1402370 **Total Depth (feet):** 15  
**Location:** Burnsville, MN **Borehole Diameter (inches):** 2  
**Completion Date:** November 11, 2014



\*AMSL = Above mean sea level

Sample Data					Subsurface Profile	
Depth	Sample/Interval	PID/OVM (ppm)	Blow Count	% Recovery	Lithology	Description
						Ground Surface
						<b>Asphalt</b> Asphalt road cover.
		0		80		<b>Well-Graded Sand (SW)</b> Light brown fine sand, trace gravel (Fill material).
5						<b>Lean Clay (CL)</b> Bluish gray clay with dark gray to black mottling, trace sand and coarse gravel; medium plastic; stiff becoming soft at 5 feet bgs; moist (Native material).  Organics present from 4.5 - 9.8 feet bgs.
10		0		50		Soil sample collected from 6 - 7 feet bgs for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-17(6-7)
						<b>Well-Graded Sand with Clay (SW-SC)</b> Gray fine to coarse sand, some clay, trace gravel; medium dense; moist (Native material).
		0		60		<b>Lean Clay (CL)</b> Bluish gray clay with dark gray banding, little silt; medium plastic; wet (Native material).
15						<b>Organic Soil (OL/OH)</b> Dark gray organic rich clay, medium plastic; soft; wet (Native material).  Temporary well installed. Water sample collected for analysis of VOCs, SVOCs, GRO, DRO, and RCRA metals. ID: DP-17
						Bottom of boring at 15 feet below ground surface (bgs)
20						
25						

**Geologist(s):** Judy L. Andrews  
**Subcontractor:** Matrix Environmental, LLC  
**Driller/Operator:** Bob Giddings  
**Method:** Direct Push

**WSP USA Corp.**  
 123 N 3rd Street, Suite 507  
 Minneapolis, MN 55401  
 (612) 343-0510



WELL OR BORING LOCATION

County Name Dakota

MINNESOTA DEPARTMENT OF HEALTH  
WELL AND BORING SEALING RECORD  
Minnesota Statutes, Chapter 1031

Minnesota Well and Boring Sealing No.  
Minnesota Unique Well No. or W-series No.  
(Leave blank if not known)

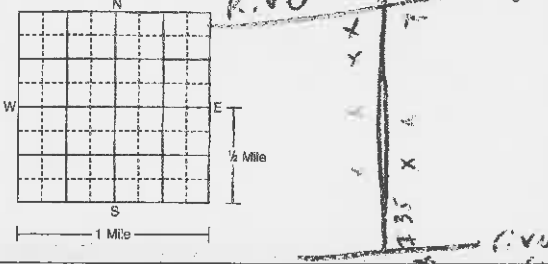
H 320947

Township Name \_\_\_\_\_ Township No. 27N Range No. 24W Section No. 34 Fraction (sm. → lg.) NW1/4NW1/4 Date Sealed 11/11-14/14 Date Well or Boring Constructed 11/11-14/14

GPS LOCATION - decimal degrees (to four decimal places)  
Latitude \_\_\_\_\_ Longitude \_\_\_\_\_  
Depth Before Sealing 20-40 ft. Original Depth 20-40 ft.

Numerical Street Address for Fire Number and City of Well or Boring Location  
11937 Highway 35 S, Burnsville

Show exact location of well or boring in section grid with "X."  
Sketch map of well or boring location, showing property lines, roads and buildings.  
R.V.U



WELL/BORING  
 Water-Supply Well  Monit. Well  Env. Bore Hole  Other \_\_\_\_\_  
STATIC WATER LEVEL  
 Measured  Estimated Date Measured 11/11-14/14  
15.70 ft.  below  above land surface

CASING TYPE(S)  
 Steel  Plastic  Tile  Other \_\_\_\_\_

WELLHEAD COMPLETION  
Outside:  Well House  At Grade  Pitless Adapter/Unit  Well Pit  Other \_\_\_\_\_  
Inside:  Basement Offset  Well Pit  Buried  Other \_\_\_\_\_  
NA

PROPERTY OWNER'S NAME/COMPANY NAME  
MAJESTIC S/O WSP Group

Property owner's mailing address if different than well location address indicated above  
123 N 30th St, # 808  
Minneapolis, MN 55401

CASING(S)  
Diameter \_\_\_\_\_ Depth \_\_\_\_\_ ft. Set in 'oversize hole?'  Yes  No Annular space initially grouted?  Yes  No  Unknown  
NA

WELL OWNER'S NAME/COMPANY NAME  
SAT

Well owner's mailing address if different than property owner's address indicated above  
SAT

SCREEN/OPEN HOLE  
Screen from \_\_\_\_\_ to \_\_\_\_\_ ft. Open Hole from \_\_\_\_\_ to \_\_\_\_\_ ft.

OBSTRUCTIONS  
 Rods/Drop Pipe  Check Valve(s)  Debris  Foli  No Obstruction  
Type of Obstructions (Describe) \_\_\_\_\_

Obstructions removed?  Yes  No Describe \_\_\_\_\_

PUMP  
Type \_\_\_\_\_  
 Removed  Not Present  Other \_\_\_\_\_

METHOD USED TO SEAL ANNULAR SPACE BETWEEN 2 CASINGS, OR CASING AND BORE HOLE:  
 No Annular Space Exists  Annular Space Grouted with Tremie Pipe  Casing Perforation/Removal  
\_\_\_\_\_ in. from \_\_\_\_\_ to \_\_\_\_\_ ft.  Perforated  Removed  
\_\_\_\_\_ in. from \_\_\_\_\_ to \_\_\_\_\_ ft.  Perforated  Removed  
Type of Perforator: \_\_\_\_\_

VARIANCE  
Was a variance granted from the MDH for this well?  Yes  No TN# \_\_\_\_\_

GROUTING MATERIAL(S) (One bag of cement = 94 lbs., one bag of bentonite = 50 lbs.)  
Grouting Material Bentonic Grout from 0 to 20-40 ft. \_\_\_\_\_ yards \_\_\_\_\_ bags  
\_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags  
\_\_\_\_\_ from \_\_\_\_\_ to \_\_\_\_\_ ft. \_\_\_\_\_ yards \_\_\_\_\_ bags

OTHER WELLS AND BORINGS  
Other unsealed and unused well or boring on property?  Yes  No How many? \_\_\_\_\_

LICENSED OR REGISTERED CONTRACTOR CERTIFICATION  
This well or boring was sealed in accordance with Minnesota Rules, Chapter 4725. The information contained in this report is true to the best of my knowledge.

Miller Environmental, LLC  
Licensee Business Name License or Registration No. 1916

[Signature]  
Certified Representative Signature Certified Rep. No. 1062 Date 11/20/14

[Signature]  
Name of Person Sealing Well or Boring

IMPORTANT-FILE WITH PROPERTY PAPERS-WELL OWNER COPY

H 320947

## Appendix C – Laboratory Analytical Reports

December 01, 2014

Ms. Paula Berger  
WSP Environment and Energy  
123 North Third Street  
Suite 808  
Minneapolis, MN 55401

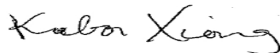
RE: Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288430

Dear Ms. Berger:

Enclosed are the analytical results for sample(s) received by the laboratory between November 11, 2014 and November 12, 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,



Kabor Xiong  
kabor.xiong@pacelabs.com  
Project Manager

Enclosures

cc: Ms. Judy Andrews, WSP Environment and Energy



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

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### Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN\_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

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

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10288430001	DP-17 (6-7)	Solid	11/11/14 11:00	11/11/14 17:40
10288430002	DP-17	Water	11/11/14 11:35	11/12/14 07:48
10288430003	DP-16 (4-5)	Solid	11/11/14 12:30	11/11/14 17:40
10288430004	DP-15 (2-3)	Solid	11/11/14 13:07	11/11/14 17:40
10288430005	DP-14 (3-4)	Solid	11/11/14 13:45	11/11/14 17:40
10288430006	DP-3 (4-5)	Solid	11/11/14 15:17	11/11/14 17:40
10288430007	DP-3	Water	11/11/14 16:05	11/12/14 07:48
10288430008	TB	Water	11/11/14 00:00	11/12/14 07:48

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10288430001	DP-17 (6-7)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288430002	DP-17	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	BD1	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	AJC	70	PASI-M
10288430003	DP-16 (4-5)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288430004	DP-15 (2-3)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	AAN1	70	PASI-M
10288430005	DP-14 (3-4)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288430006	DP-3 (4-5)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M

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### SAMPLE ANALYTE COUNT

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10288430007	DP-3	EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
		WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	BD1	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	SH2	70	PASI-M
10288430008	TB	WI MOD GRO	MS2	2	PASI-M
		EPA 8260	SH2	70	PASI-M

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17 (6-7)**      **Lab ID: 10288430001**      Collected: 11/11/14 11:00      Received: 11/11/14 17:40      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>18.0</b>	mg/kg	11.1	1.7	1	11/13/14 00:00	11/15/14 17:26		T6
<b>Surrogates</b>									
n-Triacontane (S)	73	%	50-150		1	11/13/14 00:00	11/15/14 17:26	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>6.1J</b>	mg/kg	28.2	5.6	1	11/19/14 08:16	11/22/14 01:18		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	100	%	80-125		1	11/19/14 08:16	11/22/14 01:18	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>1.9</b>	mg/kg	0.99	0.29	1	11/13/14 08:21	11/14/14 19:58	7440-38-2	
Barium	<b>106</b>	mg/kg	0.49	0.054	1	11/13/14 08:21	11/14/14 19:58	7440-39-3	
Cadmium	<b>0.21</b>	mg/kg	0.15	0.017	1	11/13/14 08:21	11/14/14 19:58	7440-43-9	
Chromium	<b>11.1</b>	mg/kg	0.49	0.064	1	11/13/14 08:21	11/14/14 19:58	7440-47-3	
Lead	<b>7.9</b>	mg/kg	0.99	0.073	1	11/13/14 08:21	11/14/14 19:58	7439-92-1	
Selenium	<b>0.90</b>	mg/kg	0.74	0.34	1	11/13/14 08:21	11/14/14 19:58	7782-49-2	
Silver	ND	mg/kg	0.49	0.049	1	11/13/14 08:21	11/14/14 19:58	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.012J</b>	mg/kg	0.022	0.0067	1	11/20/14 12:25	11/20/14 16:43	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>12.8</b>	%	0.10	0.10	1		11/24/14 10:54		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	83-32-9	
Acenaphthylene	ND	ug/kg	378	74.0	1	11/12/14 13:38	11/18/14 14:17	208-96-8	
Anthracene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	120-12-7	
Benzo(a)anthracene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	56-55-3	
Benzo(a)pyrene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	50-32-8	
Benzo(b)fluoranthene	<b>193J</b>	ug/kg	378	47.9	1	11/12/14 13:38	11/18/14 14:17	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	378	46.0	1	11/12/14 13:38	11/18/14 14:17	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	101-55-3	
Butylbenzylphthalate	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	85-68-7	
Carbazole	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	59-50-7	
4-Chloroaniline	ND	ug/kg	378	96.8	1	11/12/14 13:38	11/18/14 14:17	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	108-60-1	
2-Chloronaphthalene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	91-58-7	
2-Chlorophenol	ND	ug/kg	378	47.3	1	11/12/14 13:38	11/18/14 14:17	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	7005-72-3	
Chrysene	<b>152J</b>	ug/kg	378	50.8	1	11/12/14 13:38	11/18/14 14:17	218-01-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17 (6-7)**      **Lab ID: 10288430001**      Collected: 11/11/14 11:00      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	53-70-3	
Dibenzofuran	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	378	44.2	1	11/12/14 13:38	11/18/14 14:17	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	378	107	1	11/12/14 13:38	11/18/14 14:17	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	120-83-2	
Diethylphthalate	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	378	66.5	1	11/12/14 13:38	11/18/14 14:17	105-67-9	
Dimethylphthalate	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	131-11-3	
Di-n-butylphthalate	ND	ug/kg	378	52.5	1	11/12/14 13:38	11/18/14 14:17	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1950	974	1	11/12/14 13:38	11/18/14 14:17	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	378	73.1	1	11/12/14 13:38	11/18/14 14:17	606-20-2	
Di-n-octylphthalate	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	378	64.7	1	11/12/14 13:38	11/18/14 14:17	117-81-7	
Fluoranthene	<b>250J</b>	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	206-44-0	
Fluorene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	378	38.4	1	11/12/14 13:38	11/18/14 14:17	87-68-3	
Hexachlorobenzene	ND	ug/kg	378	49.7	1	11/12/14 13:38	11/18/14 14:17	118-74-1	
Hexachloroethane	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	193-39-5	
Isophorone	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	78-59-1	
1-Methylnaphthalene	ND	ug/kg	378	44.4	1	11/12/14 13:38	11/18/14 14:17	90-12-0	
2-Methylnaphthalene	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	95-48-7	
3&4-Methylphenol	ND	ug/kg	757	189	1	11/12/14 13:38	11/18/14 14:17		
Naphthalene	ND	ug/kg	378	27.0	1	11/12/14 13:38	11/18/14 14:17	91-20-3	
2-Nitroaniline	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	88-74-4	
3-Nitroaniline	ND	ug/kg	378	84.0	1	11/12/14 13:38	11/18/14 14:17	99-09-2	
4-Nitroaniline	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	100-01-6	
Nitrobenzene	ND	ug/kg	378	42.6	1	11/12/14 13:38	11/18/14 14:17	98-95-3	
2-Nitrophenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	88-75-5	
4-Nitrophenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	86-30-6	
Pentachlorophenol	ND	ug/kg	768	189	1	11/12/14 13:38	11/18/14 14:17	87-86-5	
Phenanthrene	<b>119J</b>	ug/kg	378	54.1	1	11/12/14 13:38	11/18/14 14:17	85-01-8	
Phenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	108-95-2	
Pyrene	<b>210J</b>	ug/kg	378	47.7	1	11/12/14 13:38	11/18/14 14:17	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	378	41.3	1	11/12/14 13:38	11/18/14 14:17	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	378	41.9	1	11/12/14 13:38	11/18/14 14:17	95-95-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17 (6-7)**      **Lab ID: 10288430001**      Collected: 11/11/14 11:00      Received: 11/11/14 17:40      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	378	189	1	11/12/14 13:38	11/18/14 14:17	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	72 %		30-125		1	11/12/14 13:38	11/18/14 14:17	4165-60-0	
2-Fluorobiphenyl (S)	78 %		46-125		1	11/12/14 13:38	11/18/14 14:17	321-60-8	
Terphenyl-d14 (S)	88 %		64-125		1	11/12/14 13:38	11/18/14 14:17	1718-51-0	
Phenol-d6 (S)	80 %		38-125		1	11/12/14 13:38	11/18/14 14:17	13127-88-3	
2-Fluorophenol (S)	69 %		31-125		1	11/12/14 13:38	11/18/14 14:17	367-12-4	
2,4,6-Tribromophenol (S)	81 %		41-125		1	11/12/14 13:38	11/18/14 14:17	118-79-6	
<b>8260 MSV 5030 Med Level</b>									
Analytical Method: EPA 8260    Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1190	596	1	11/14/14 14:19	11/14/14 18:41	67-64-1	L2
Allyl chloride	ND	ug/kg	238	7.8	1	11/14/14 14:19	11/14/14 18:41	107-05-1	
Benzene	ND	ug/kg	23.8	11.9	1	11/14/14 14:19	11/14/14 18:41	71-43-2	
Bromobenzene	ND	ug/kg	59.6	10.3	1	11/14/14 14:19	11/14/14 18:41	108-86-1	
Bromochloromethane	ND	ug/kg	59.6	8.1	1	11/14/14 14:19	11/14/14 18:41	74-97-5	
Bromodichloromethane	ND	ug/kg	59.6	10.6	1	11/14/14 14:19	11/14/14 18:41	75-27-4	
Bromoform	ND	ug/kg	238	119	1	11/14/14 14:19	11/14/14 18:41	75-25-2	M1
Bromomethane	ND	ug/kg	596	298	1	11/14/14 14:19	11/14/14 18:41	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	298	149	1	11/14/14 14:19	11/14/14 18:41	78-93-3	
n-Butylbenzene	<b>10.9J</b>	ug/kg	59.6	7.2	1	11/14/14 14:19	11/14/14 18:41	104-51-8	B
sec-Butylbenzene	<b>7.0J</b>	ug/kg	59.6	7.0	1	11/14/14 14:19	11/14/14 18:41	135-98-8	B
tert-Butylbenzene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	98-06-6	
Carbon tetrachloride	ND	ug/kg	59.6	9.6	1	11/14/14 14:19	11/14/14 18:41	56-23-5	
Chlorobenzene	ND	ug/kg	59.6	9.2	1	11/14/14 14:19	11/14/14 18:41	108-90-7	
Chloroethane	ND	ug/kg	596	15.0	1	11/14/14 14:19	11/14/14 18:41	75-00-3	CL
Chloroform	ND	ug/kg	59.6	9.1	1	11/14/14 14:19	11/14/14 18:41	67-66-3	
Chloromethane	ND	ug/kg	238	10.9	1	11/14/14 14:19	11/14/14 18:41	74-87-3	
2-Chlorotoluene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	95-49-8	
4-Chlorotoluene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	596	31.6	1	11/14/14 14:19	11/14/14 18:41	96-12-8	
Dibromochloromethane	ND	ug/kg	59.6	12.9	1	11/14/14 14:19	11/14/14 18:41	124-48-1	M1
1,2-Dibromoethane (EDB)	ND	ug/kg	59.6	7.3	1	11/14/14 14:19	11/14/14 18:41	106-93-4	
Dibromomethane	ND	ug/kg	59.6	16.7	1	11/14/14 14:19	11/14/14 18:41	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	238	27.5	1	11/14/14 14:19	11/14/14 18:41	75-71-8	
1,1-Dichloroethane	ND	ug/kg	59.6	8.3	1	11/14/14 14:19	11/14/14 18:41	75-34-3	
1,2-Dichloroethane	ND	ug/kg	59.6	14.1	1	11/14/14 14:19	11/14/14 18:41	107-06-2	
1,1-Dichloroethene	ND	ug/kg	59.6	11.9	1	11/14/14 14:19	11/14/14 18:41	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	59.6	12.2	1	11/14/14 14:19	11/14/14 18:41	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	59.6	11.8	1	11/14/14 14:19	11/14/14 18:41	156-60-5	
Dichlorofluoromethane	ND	ug/kg	596	298	1	11/14/14 14:19	11/14/14 18:41	75-43-4	
1,2-Dichloropropane	ND	ug/kg	59.6	9.6	1	11/14/14 14:19	11/14/14 18:41	78-87-5	
1,3-Dichloropropane	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	142-28-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17 (6-7)**      **Lab ID: 10288430001**      Collected: 11/11/14 11:00      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	238	8.0	1	11/14/14 14:19	11/14/14 18:41	594-20-7	
1,1-Dichloropropene	ND	ug/kg	59.6	9.7	1	11/14/14 14:19	11/14/14 18:41	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	59.6	7.5	1	11/14/14 14:19	11/14/14 18:41	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	59.6	8.4	1	11/14/14 14:19	11/14/14 18:41	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	238	12.6	1	11/14/14 14:19	11/14/14 18:41	60-29-7	L3
Ethylbenzene	<b>8.1J</b>	ug/kg	59.6	7.5	1	11/14/14 14:19	11/14/14 18:41	100-41-4	B
Hexachloro-1,3-butadiene	ND	ug/kg	298	149	1	11/14/14 14:19	11/14/14 18:41	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	98-82-8	
p-Isopropyltoluene	ND	ug/kg	59.6	8.6	1	11/14/14 14:19	11/14/14 18:41	99-87-6	
Methylene Chloride	ND	ug/kg	238	119	1	11/14/14 14:19	11/14/14 18:41	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	298	149	1	11/14/14 14:19	11/14/14 18:41	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	1634-04-4	
Naphthalene	ND	ug/kg	238	119	1	11/14/14 14:19	11/14/14 18:41	91-20-3	
n-Propylbenzene	ND	ug/kg	59.6	7.2	1	11/14/14 14:19	11/14/14 18:41	103-65-1	
Styrene	ND	ug/kg	59.6	8.9	1	11/14/14 14:19	11/14/14 18:41	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	630-20-6	M1
1,1,2,2-Tetrachloroethane	ND	ug/kg	59.6	8.2	1	11/14/14 14:19	11/14/14 18:41	79-34-5	
Tetrachloroethene	ND	ug/kg	59.6	21.5	1	11/14/14 14:19	11/14/14 18:41	127-18-4	
Tetrahydrofuran	ND	ug/kg	2380	76.2	1	11/14/14 14:19	11/14/14 18:41	109-99-9	L2
Toluene	ND	ug/kg	59.6	8.1	1	11/14/14 14:19	11/14/14 18:41	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	59.6	14.2	1	11/14/14 14:19	11/14/14 18:41	87-61-6	
1,2,4-Trichlorobenzene	<b>17.2J</b>	ug/kg	59.6	10.8	1	11/14/14 14:19	11/14/14 18:41	120-82-1	B
1,1,1-Trichloroethane	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	59.6	10.1	1	11/14/14 14:19	11/14/14 18:41	79-00-5	
Trichloroethene	ND	ug/kg	59.6	7.4	1	11/14/14 14:19	11/14/14 18:41	79-01-6	
Trichlorofluoromethane	ND	ug/kg	238	10.6	1	11/14/14 14:19	11/14/14 18:41	75-69-4	CL,L3, M0
1,2,3-Trichloropropane	ND	ug/kg	238	7.9	1	11/14/14 14:19	11/14/14 18:41	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	238	24.9	1	11/14/14 14:19	11/14/14 18:41	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	59.6	29.8	1	11/14/14 14:19	11/14/14 18:41	108-67-8	
Vinyl chloride	ND	ug/kg	23.8	8.8	1	11/14/14 14:19	11/14/14 18:41	75-01-4	
Xylene (Total)	ND	ug/kg	179	23.4	1	11/14/14 14:19	11/14/14 18:41	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	84 %		74-125		1	11/14/14 14:19	11/14/14 18:41	17060-07-0	
Toluene-d8 (S)	97 %		75-125		1	11/14/14 14:19	11/14/14 18:41	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125		1	11/14/14 14:19	11/14/14 18:41	460-00-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Sample: DP-17									
Lab ID: 10288430002									
Collected: 11/11/14 11:35									
Received: 11/12/14 07:48									
Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b>									
Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO									
Diesel Range Organics	0.037J	mg/L	0.10	0.022	1	11/12/14 11:02	11/14/14 10:06		
<b>Surrogates</b>									
n-Triacontane (S)	84	%	50-150		1	11/12/14 11:02	11/14/14 10:06	638-68-6	
<b>WIGRO GCV</b>									
Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	100	50.0	1		11/26/14 01:35		H1
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	91	%	80-125		1		11/26/14 01:35	98-08-8	
<b>6010C MET ICP</b>									
Analytical Method: EPA 6010C Preparation Method: EPA 3010									
Arsenic	10.7J	ug/L	20.0	3.2	1	11/13/14 17:50	11/14/14 11:57	7440-38-2	
Barium	614	ug/L	10.0	5.0	1	11/13/14 17:50	11/14/14 11:57	7440-39-3	
Cadmium	0.25J	ug/L	3.0	0.25	1	11/13/14 17:50	11/14/14 11:57	7440-43-9	
Chromium	13.9	ug/L	10.0	5.0	1	11/13/14 17:50	11/14/14 11:57	7440-47-3	
Lead	13.7	ug/L	10.0	2.0	1	11/13/14 17:50	11/14/14 11:57	7439-92-1	
Selenium	ND	ug/L	20.0	6.6	1	11/13/14 17:50	11/14/14 11:57	7782-49-2	
Silver	ND	ug/L	10.0	0.63	1	11/13/14 17:50	11/14/14 11:57	7440-22-4	
<b>7470A Mercury</b>									
Analytical Method: EPA 7470A Preparation Method: EPA 7470A									
Mercury	ND	ug/L	0.20	0.026	1	11/18/14 20:40	11/19/14 16:09	7439-97-6	
<b>8270 MSSV</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3520									
Phenol	ND	ug/L	10.3	2.1	1	11/12/14 09:11	11/15/14 14:32	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	10.3	1.9	1	11/12/14 09:11	11/15/14 14:32	111-44-4	
2-Chlorophenol	ND	ug/L	10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	108-60-1	
3&4-Methylphenol	ND	ug/L	20.5	1.8	1	11/12/14 09:11	11/15/14 14:32		
N-Nitroso-di-n-propylamine	ND	ug/L	10.3	1.9	1	11/12/14 09:11	11/15/14 14:32	621-64-7	
Hexachloroethane	ND	ug/L	10.3	2.1	1	11/12/14 09:11	11/15/14 14:32	67-72-1	
Nitrobenzene	ND	ug/L	10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	98-95-3	
Isophorone	ND	ug/L	10.3	1.6	1	11/12/14 09:11	11/15/14 14:32	78-59-1	
2-Nitrophenol	ND	ug/L	10.3	1.9	1	11/12/14 09:11	11/15/14 14:32	88-75-5	
2,4-Dimethylphenol	ND	ug/L	51.3	7.5	1	11/12/14 09:11	11/15/14 14:32	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	10.3	1.6	1	11/12/14 09:11	11/15/14 14:32	111-91-1	
2,4-Dichlorophenol	ND	ug/L	10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	10.3	2.1	1	11/12/14 09:11	11/15/14 14:32	120-82-1	
Naphthalene	ND	ug/L	10.3	1.6	1	11/12/14 09:11	11/15/14 14:32	91-20-3	
4-Chloroaniline	ND	ug/L	51.3	13.4	1	11/12/14 09:11	11/15/14 14:32	106-47-8	
Hexachloro-1,3-butadiene	ND	ug/L	10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	10.3	1.6	1	11/12/14 09:11	11/15/14 14:32	59-50-7	
2-Methylnaphthalene	ND	ug/L	10.3	1.5	1	11/12/14 09:11	11/15/14 14:32	91-57-6	
2,4,6-Trichlorophenol	ND	ug/L	10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	88-06-2	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17**      **Lab ID: 10288430002**      Collected: 11/11/14 11:35      Received: 11/12/14 07:48      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
2,4,5-Trichlorophenol	ND ug/L		10.3	3.0	1	11/12/14 09:11	11/15/14 14:32	95-95-4	
2-Chloronaphthalene	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	91-58-7	
2-Nitroaniline	ND ug/L		10.3	2.8	1	11/12/14 09:11	11/15/14 14:32	88-74-4	
Dimethylphthalate	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	131-11-3	
Acenaphthylene	ND ug/L		10.3	1.3	1	11/12/14 09:11	11/15/14 14:32	208-96-8	
2,6-Dinitrotoluene	ND ug/L		10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	606-20-2	
3-Nitroaniline	ND ug/L		10.3	3.3	1	11/12/14 09:11	11/15/14 14:32	99-09-2	
Acenaphthene	ND ug/L		10.3	1.7	1	11/12/14 09:11	11/15/14 14:32	83-32-9	
2,4-Dinitrophenol	ND ug/L		10.3	2.8	1	11/12/14 09:11	11/15/14 14:32	51-28-5	
4-Nitrophenol	ND ug/L		10.3	4.7	1	11/12/14 09:11	11/15/14 14:32	100-02-7	
Dibenzofuran	ND ug/L		10.3	1.7	1	11/12/14 09:11	11/15/14 14:32	132-64-9	
2,4-Dinitrotoluene	ND ug/L		10.3	2.2	1	11/12/14 09:11	11/15/14 14:32	121-14-2	
Diethylphthalate	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		10.3	1.5	1	11/12/14 09:11	11/15/14 14:32	7005-72-3	
Fluorene	ND ug/L		10.3	1.4	1	11/12/14 09:11	11/15/14 14:32	86-73-7	
4-Nitroaniline	ND ug/L		10.3	2.8	1	11/12/14 09:11	11/15/14 14:32	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		10.3	3.6	1	11/12/14 09:11	11/15/14 14:32	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		10.3	2.1	1	11/12/14 09:11	11/15/14 14:32	101-55-3	
Hexachlorobenzene	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	118-74-1	
Pentachlorophenol	ND ug/L		20.5	2.3	1	11/12/14 09:11	11/15/14 14:32	87-86-5	
Phenanthrene	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	85-01-8	
Anthracene	ND ug/L		10.3	2.4	1	11/12/14 09:11	11/15/14 14:32	120-12-7	
Di-n-butylphthalate	ND ug/L		10.3	1.6	1	11/12/14 09:11	11/15/14 14:32	84-74-2	
Fluoranthene	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	206-44-0	
Pyrene	ND ug/L		10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	129-00-0	
Butylbenzylphthalate	ND ug/L		10.3	1.9	1	11/12/14 09:11	11/15/14 14:32	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		51.3	7.5	1	11/12/14 09:11	11/15/14 14:32	91-94-1	
Benzo(a)anthracene	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	56-55-3	
Chrysene	ND ug/L		10.3	2.2	1	11/12/14 09:11	11/15/14 14:32	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		10.3	3.8	1	11/12/14 09:11	11/15/14 14:32	117-81-7	
Di-n-octylphthalate	ND ug/L		10.3	1.7	1	11/12/14 09:11	11/15/14 14:32	117-84-0	
Benzo(b)fluoranthene	ND ug/L		10.3	2.0	1	11/12/14 09:11	11/15/14 14:32	205-99-2	
Benzo(k)fluoranthene	ND ug/L		10.3	2.2	1	11/12/14 09:11	11/15/14 14:32	207-08-9	
Benzo(a)pyrene	ND ug/L		10.3	5.1	1	11/12/14 09:11	11/15/14 14:32	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		10.3	1.8	1	11/12/14 09:11	11/15/14 14:32	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		10.3	1.7	1	11/12/14 09:11	11/15/14 14:32	191-24-2	
N-Nitrosodimethylamine	ND ug/L		10.3	3.2	1	11/12/14 09:11	11/15/14 14:32	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		10.3	1.7	1	11/12/14 09:11	11/15/14 14:32	122-66-7	
Carbazole	ND ug/L		10.3	2.1	1	11/12/14 09:11	11/15/14 14:32	86-74-8	
1-Methylnaphthalene	ND ug/L		10.3	1.7	1	11/12/14 09:11	11/15/14 14:32	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	74 %.		60-125		1	11/12/14 09:11	11/15/14 14:32	4165-60-0	
2-Fluorobiphenyl (S)	74 %.		55-125		1	11/12/14 09:11	11/15/14 14:32	321-60-8	
Terphenyl-d14 (S)	83 %.		67-125		1	11/12/14 09:11	11/15/14 14:32	1718-51-0	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17**      **Lab ID: 10288430002**      Collected: 11/11/14 11:35      Received: 11/12/14 07:48      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
<b>Surrogates</b>									
Phenol-d6 (S)	73 %.		59-125		1	11/12/14 09:11	11/15/14 14:32	13127-88-3	
2-Fluorophenol (S)	70 %.		53-125		1	11/12/14 09:11	11/15/14 14:32	367-12-4	
2,4,6-Tribromophenol (S)	96 %.		66-125		1	11/12/14 09:11	11/15/14 14:32	118-79-6	
<b>8260 VOC</b>			Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	10.0	1		11/21/14 13:57	67-64-1	
Allyl chloride	ND ug/L		4.0	0.45	1		11/21/14 13:57	107-05-1	
Benzene	ND ug/L		1.0	0.15	1		11/21/14 13:57	71-43-2	
Bromobenzene	ND ug/L		1.0	0.13	1		11/21/14 13:57	108-86-1	
Bromochloromethane	ND ug/L		1.0	0.12	1		11/21/14 13:57	74-97-5	
Bromodichloromethane	ND ug/L		1.0	0.20	1		11/21/14 13:57	75-27-4	
Bromoform	ND ug/L		4.0	2.0	1		11/21/14 13:57	75-25-2	
Bromomethane	ND ug/L		4.0	2.0	1		11/21/14 13:57	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	2.5	1		11/21/14 13:57	78-93-3	
n-Butylbenzene	ND ug/L		1.0	0.50	1		11/21/14 13:57	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	0.50	1		11/21/14 13:57	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	0.50	1		11/21/14 13:57	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	0.16	1		11/21/14 13:57	56-23-5	
Chlorobenzene	ND ug/L		1.0	0.066	1		11/21/14 13:57	108-90-7	
Chloroethane	ND ug/L		1.0	0.27	1		11/21/14 13:57	75-00-3	L3
Chloroform	ND ug/L		1.0	0.16	1		11/21/14 13:57	67-66-3	
Chloromethane	ND ug/L		4.0	0.34	1		11/21/14 13:57	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	0.14	1		11/21/14 13:57	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	0.083	1		11/21/14 13:57	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	2.0	1		11/21/14 13:57	96-12-8	
Dibromochloromethane	ND ug/L		1.0	0.50	1		11/21/14 13:57	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	0.15	1		11/21/14 13:57	106-93-4	
Dibromomethane	ND ug/L		4.0	0.18	1		11/21/14 13:57	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	0.16	1		11/21/14 13:57	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/21/14 13:57	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/21/14 13:57	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	0.50	1		11/21/14 13:57	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	0.16	1		11/21/14 13:57	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	0.13	1		11/21/14 13:57	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	0.20	1		11/21/14 13:57	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	0.13	1		11/21/14 13:57	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	0.23	1		11/21/14 13:57	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	0.20	1		11/21/14 13:57	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	0.14	1		11/21/14 13:57	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	0.50	1		11/21/14 13:57	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	0.17	1		11/21/14 13:57	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	0.50	1		11/21/14 13:57	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	0.13	1		11/21/14 13:57	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	0.18	1		11/21/14 13:57	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	0.14	1		11/21/14 13:57	60-29-7	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-17**      **Lab ID: 10288430002**      Collected: 11/11/14 11:35      Received: 11/12/14 07:48      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b> Analytical Method: EPA 8260									
Ethylbenzene	ND	ug/L	1.0	0.16	1		11/21/14 13:57	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.50	1		11/21/14 13:57	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.50	1		11/21/14 13:57	98-82-8	
p-Isopropyltoluene	<b>0.75J</b>	ug/L	1.0	0.50	1		11/21/14 13:57	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2.0	1		11/21/14 13:57	75-09-2	
4-Methyl-2-pentanone (MIBK)	<b>3.3J</b>	ug/L	5.0	2.5	1		11/21/14 13:57	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.17	1		11/21/14 13:57	1634-04-4	
Naphthalene	ND	ug/L	4.0	2.0	1		11/21/14 13:57	91-20-3	L2
n-Propylbenzene	ND	ug/L	1.0	0.50	1		11/21/14 13:57	103-65-1	
Styrene	ND	ug/L	1.0	0.069	1		11/21/14 13:57	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.50	1		11/21/14 13:57	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.50	1		11/21/14 13:57	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.16	1		11/21/14 13:57	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	2.0	1		11/21/14 13:57	109-99-9	
Toluene	ND	ug/L	1.0	0.11	1		11/21/14 13:57	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.50	1		11/21/14 13:57	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.50	1		11/21/14 13:57	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.26	1		11/21/14 13:57	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.14	1		11/21/14 13:57	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.091	1		11/21/14 13:57	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.22	1		11/21/14 13:57	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1.2	1		11/21/14 13:57	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.50	1		11/21/14 13:57	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	0.50	1		11/21/14 13:57	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	0.50	1		11/21/14 13:57	108-67-8	
Vinyl chloride	ND	ug/L	0.40	0.10	1		11/21/14 13:57	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.40	1		11/21/14 13:57	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	123 %		75-125		1		11/21/14 13:57	17060-07-0	
Toluene-d8 (S)	116 %		75-125		1		11/21/14 13:57	2037-26-5	
4-Bromofluorobenzene (S)	116 %		75-125		1		11/21/14 13:57	460-00-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-16 (4-5)**      **Lab ID: 10288430003**      Collected: 11/11/14 12:30      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>11.0J</b>	mg/kg	13.4	2.0	1	11/13/14 00:00	11/15/14 17:33		
<b>Surrogates</b>									
n-Triacontane (S)	74	%	50-150		1	11/13/14 00:00	11/15/14 17:33	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>12.7J</b>	mg/kg	54.6	10.9	1	11/19/14 08:16	11/22/14 01:57		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	101	%	80-125		1	11/19/14 08:16	11/22/14 01:57	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>2.6</b>	mg/kg	1.7	0.49	1	11/13/14 08:21	11/14/14 20:04	7440-38-2	
Barium	<b>207</b>	mg/kg	0.85	0.093	1	11/13/14 08:21	11/14/14 20:04	7440-39-3	
Cadmium	<b>0.39</b>	mg/kg	0.25	0.029	1	11/13/14 08:21	11/14/14 20:04	7440-43-9	
Chromium	<b>13.3</b>	mg/kg	0.85	0.11	1	11/13/14 08:21	11/14/14 20:04	7440-47-3	
Lead	<b>23.3</b>	mg/kg	1.7	0.13	1	11/13/14 08:21	11/14/14 20:04	7439-92-1	
Selenium	<b>2.4</b>	mg/kg	1.3	0.58	1	11/13/14 08:21	11/14/14 20:04	7782-49-2	
Silver	ND	mg/kg	0.85	0.085	1	11/13/14 08:21	11/14/14 20:04	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.044</b>	mg/kg	0.035	0.011	1	11/20/14 12:25	11/20/14 16:49	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>45.5</b>	%	0.10	0.10	1		11/24/14 10:55		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	83-32-9	
Acenaphthylene	ND	ug/kg	605	118	1	11/12/14 13:38	11/17/14 18:26	208-96-8	
Anthracene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	120-12-7	
Benzo(a)anthracene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	56-55-3	
Benzo(a)pyrene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	50-32-8	
Benzo(b)fluoranthene	<b>308J</b>	ug/kg	605	76.7	1	11/12/14 13:38	11/17/14 18:26	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	605	73.6	1	11/12/14 13:38	11/17/14 18:26	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	101-55-3	
Butylbenzylphthalate	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	85-68-7	
Carbazole	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	59-50-7	
4-Chloroaniline	ND	ug/kg	605	155	1	11/12/14 13:38	11/17/14 18:26	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	108-60-1	
2-Chloronaphthalene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	91-58-7	
2-Chlorophenol	ND	ug/kg	605	75.6	1	11/12/14 13:38	11/17/14 18:26	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	7005-72-3	
Chrysene	<b>209J</b>	ug/kg	605	81.3	1	11/12/14 13:38	11/17/14 18:26	218-01-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-16 (4-5)**      **Lab ID: 10288430003**      Collected: 11/11/14 12:30      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	53-70-3	
Dibenzofuran	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	605	70.7	1	11/12/14 13:38	11/17/14 18:26	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	605	171	1	11/12/14 13:38	11/17/14 18:26	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	120-83-2	
Diethylphthalate	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	605	106	1	11/12/14 13:38	11/17/14 18:26	105-67-9	
Dimethylphthalate	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	131-11-3	
Di-n-butylphthalate	ND	ug/kg	605	83.9	1	11/12/14 13:38	11/17/14 18:26	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	3120	1560	1	11/12/14 13:38	11/17/14 18:26	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	605	117	1	11/12/14 13:38	11/17/14 18:26	606-20-2	
Di-n-octylphthalate	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	605	103	1	11/12/14 13:38	11/17/14 18:26	117-81-7	
Fluoranthene	<b>332J</b>	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	206-44-0	
Fluorene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	605	61.3	1	11/12/14 13:38	11/17/14 18:26	87-68-3	
Hexachlorobenzene	ND	ug/kg	605	79.5	1	11/12/14 13:38	11/17/14 18:26	118-74-1	
Hexachloroethane	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	193-39-5	
Isophorone	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	78-59-1	
1-Methylnaphthalene	ND	ug/kg	605	71.1	1	11/12/14 13:38	11/17/14 18:26	90-12-0	
2-Methylnaphthalene	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	95-48-7	
3&4-Methylphenol	ND	ug/kg	1210	302	1	11/12/14 13:38	11/17/14 18:26		
Naphthalene	ND	ug/kg	605	43.2	1	11/12/14 13:38	11/17/14 18:26	91-20-3	
2-Nitroaniline	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	88-74-4	
3-Nitroaniline	ND	ug/kg	605	134	1	11/12/14 13:38	11/17/14 18:26	99-09-2	
4-Nitroaniline	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	100-01-6	
Nitrobenzene	ND	ug/kg	605	68.2	1	11/12/14 13:38	11/17/14 18:26	98-95-3	
2-Nitrophenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	88-75-5	
4-Nitrophenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	86-30-6	
Pentachlorophenol	ND	ug/kg	1230	302	1	11/12/14 13:38	11/17/14 18:26	87-86-5	
Phenanthrene	<b>114J</b>	ug/kg	605	86.5	1	11/12/14 13:38	11/17/14 18:26	85-01-8	
Phenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	108-95-2	
Pyrene	<b>292J</b>	ug/kg	605	76.3	1	11/12/14 13:38	11/17/14 18:26	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	605	66.1	1	11/12/14 13:38	11/17/14 18:26	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	605	67.1	1	11/12/14 13:38	11/17/14 18:26	95-95-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-16 (4-5)**      **Lab ID: 10288430003**      Collected: 11/11/14 12:30      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	605	302	1	11/12/14 13:38	11/17/14 18:26	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	64 %		30-125		1	11/12/14 13:38	11/17/14 18:26	4165-60-0	
2-Fluorobiphenyl (S)	67 %		46-125		1	11/12/14 13:38	11/17/14 18:26	321-60-8	
Terphenyl-d14 (S)	78 %		64-125		1	11/12/14 13:38	11/17/14 18:26	1718-51-0	
Phenol-d6 (S)	65 %		38-125		1	11/12/14 13:38	11/17/14 18:26	13127-88-3	
2-Fluorophenol (S)	61 %		31-125		1	11/12/14 13:38	11/17/14 18:26	367-12-4	
2,4,6-Tribromophenol (S)	75 %		41-125		1	11/12/14 13:38	11/17/14 18:26	118-79-6	
<b>8260 MSV 5030 Med Level</b>									
Analytical Method: EPA 8260    Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1850	924	1	11/14/14 14:19	11/14/14 18:59	67-64-1	L2
Allyl chloride	ND	ug/kg	370	12.1	1	11/14/14 14:19	11/14/14 18:59	107-05-1	
Benzene	ND	ug/kg	37.0	18.5	1	11/14/14 14:19	11/14/14 18:59	71-43-2	
Bromobenzene	ND	ug/kg	92.4	16.0	1	11/14/14 14:19	11/14/14 18:59	108-86-1	
Bromochloromethane	ND	ug/kg	92.4	12.6	1	11/14/14 14:19	11/14/14 18:59	74-97-5	
Bromodichloromethane	ND	ug/kg	92.4	16.4	1	11/14/14 14:19	11/14/14 18:59	75-27-4	
Bromoform	ND	ug/kg	370	185	1	11/14/14 14:19	11/14/14 18:59	75-25-2	
Bromomethane	ND	ug/kg	924	462	1	11/14/14 14:19	11/14/14 18:59	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	462	231	1	11/14/14 14:19	11/14/14 18:59	78-93-3	
n-Butylbenzene	<b>14.1J</b>	ug/kg	92.4	11.2	1	11/14/14 14:19	11/14/14 18:59	104-51-8	B
sec-Butylbenzene	ND	ug/kg	92.4	10.9	1	11/14/14 14:19	11/14/14 18:59	135-98-8	
tert-Butylbenzene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	98-06-6	
Carbon tetrachloride	ND	ug/kg	92.4	14.9	1	11/14/14 14:19	11/14/14 18:59	56-23-5	
Chlorobenzene	ND	ug/kg	92.4	14.2	1	11/14/14 14:19	11/14/14 18:59	108-90-7	
Chloroethane	ND	ug/kg	924	23.3	1	11/14/14 14:19	11/14/14 18:59	75-00-3	CL
Chloroform	ND	ug/kg	92.4	14.1	1	11/14/14 14:19	11/14/14 18:59	67-66-3	
Chloromethane	ND	ug/kg	370	16.9	1	11/14/14 14:19	11/14/14 18:59	74-87-3	
2-Chlorotoluene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	95-49-8	
4-Chlorotoluene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	924	49.0	1	11/14/14 14:19	11/14/14 18:59	96-12-8	
Dibromochloromethane	ND	ug/kg	92.4	20.0	1	11/14/14 14:19	11/14/14 18:59	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	92.4	11.4	1	11/14/14 14:19	11/14/14 18:59	106-93-4	
Dibromomethane	ND	ug/kg	92.4	25.9	1	11/14/14 14:19	11/14/14 18:59	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	370	42.7	1	11/14/14 14:19	11/14/14 18:59	75-71-8	
1,1-Dichloroethane	ND	ug/kg	92.4	12.9	1	11/14/14 14:19	11/14/14 18:59	75-34-3	
1,2-Dichloroethane	ND	ug/kg	92.4	21.8	1	11/14/14 14:19	11/14/14 18:59	107-06-2	
1,1-Dichloroethene	ND	ug/kg	92.4	18.5	1	11/14/14 14:19	11/14/14 18:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	92.4	18.9	1	11/14/14 14:19	11/14/14 18:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	92.4	18.3	1	11/14/14 14:19	11/14/14 18:59	156-60-5	
Dichlorofluoromethane	ND	ug/kg	924	462	1	11/14/14 14:19	11/14/14 18:59	75-43-4	
1,2-Dichloropropane	ND	ug/kg	92.4	14.8	1	11/14/14 14:19	11/14/14 18:59	78-87-5	
1,3-Dichloropropane	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-16 (4-5)**      **Lab ID: 10288430003**      Collected: 11/11/14 12:30      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	370	12.3	1	11/14/14 14:19	11/14/14 18:59	594-20-7	
1,1-Dichloropropene	ND	ug/kg	92.4	15.1	1	11/14/14 14:19	11/14/14 18:59	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	92.4	11.6	1	11/14/14 14:19	11/14/14 18:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	92.4	13.0	1	11/14/14 14:19	11/14/14 18:59	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	370	19.6	1	11/14/14 14:19	11/14/14 18:59	60-29-7	L3
Ethylbenzene	ND	ug/kg	92.4	11.6	1	11/14/14 14:19	11/14/14 18:59	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	462	231	1	11/14/14 14:19	11/14/14 18:59	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	98-82-8	
p-Isopropyltoluene	ND	ug/kg	92.4	13.4	1	11/14/14 14:19	11/14/14 18:59	99-87-6	
Methylene Chloride	ND	ug/kg	370	185	1	11/14/14 14:19	11/14/14 18:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	462	231	1	11/14/14 14:19	11/14/14 18:59	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	1634-04-4	
Naphthalene	ND	ug/kg	370	185	1	11/14/14 14:19	11/14/14 18:59	91-20-3	
n-Propylbenzene	ND	ug/kg	92.4	11.2	1	11/14/14 14:19	11/14/14 18:59	103-65-1	
Styrene	ND	ug/kg	92.4	13.8	1	11/14/14 14:19	11/14/14 18:59	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	92.4	12.7	1	11/14/14 14:19	11/14/14 18:59	79-34-5	
Tetrachloroethene	ND	ug/kg	92.4	33.4	1	11/14/14 14:19	11/14/14 18:59	127-18-4	
Tetrahydrofuran	ND	ug/kg	3700	118	1	11/14/14 14:19	11/14/14 18:59	109-99-9	L2
Toluene	ND	ug/kg	92.4	12.6	1	11/14/14 14:19	11/14/14 18:59	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	92.4	22.0	1	11/14/14 14:19	11/14/14 18:59	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	92.4	16.8	1	11/14/14 14:19	11/14/14 18:59	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	92.4	15.6	1	11/14/14 14:19	11/14/14 18:59	79-00-5	
Trichloroethene	ND	ug/kg	92.4	11.5	1	11/14/14 14:19	11/14/14 18:59	79-01-6	
Trichlorofluoromethane	ND	ug/kg	370	16.4	1	11/14/14 14:19	11/14/14 18:59	75-69-4	CL,L3
1,2,3-Trichloropropane	ND	ug/kg	370	12.3	1	11/14/14 14:19	11/14/14 18:59	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	370	38.6	1	11/14/14 14:19	11/14/14 18:59	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	92.4	46.2	1	11/14/14 14:19	11/14/14 18:59	108-67-8	
Vinyl chloride	ND	ug/kg	37.0	13.7	1	11/14/14 14:19	11/14/14 18:59	75-01-4	
Xylene (Total)	ND	ug/kg	277	36.3	1	11/14/14 14:19	11/14/14 18:59	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	84 %.		74-125		1	11/14/14 14:19	11/14/14 18:59	17060-07-0	
Toluene-d8 (S)	97 %.		75-125		1	11/14/14 14:19	11/14/14 18:59	2037-26-5	
4-Bromofluorobenzene (S)	95 %.		75-125		1	11/14/14 14:19	11/14/14 18:59	460-00-4	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-15 (2-3)**      **Lab ID: 10288430004**      Collected: 11/11/14 13:07      Received: 11/11/14 17:40      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>2.7J</b>	mg/kg	8.3	1.3	1	11/13/14 00:00	11/15/14 17:41		B
<b>Surrogates</b>									
n-Triacontane (S)	79	%	50-150		1	11/13/14 00:00	11/15/14 17:41	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>7.3J</b>	mg/kg	33.7	6.7	1	11/19/14 08:16	11/24/14 20:10		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	101	%	80-125		1	11/19/14 08:16	11/24/14 20:10	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>20.3</b>	mg/kg	1.2	0.35	1	11/13/14 08:21	11/14/14 20:09	7440-38-2	
Barium	<b>172</b>	mg/kg	0.60	0.066	1	11/13/14 08:21	11/14/14 20:09	7440-39-3	
Cadmium	<b>2.2</b>	mg/kg	0.18	0.020	1	11/13/14 08:21	11/14/14 20:09	7440-43-9	
Chromium	<b>48.5</b>	mg/kg	0.60	0.078	1	11/13/14 08:21	11/14/14 20:09	7440-47-3	
Lead	<b>27.4</b>	mg/kg	1.2	0.089	1	11/13/14 08:21	11/14/14 20:09	7439-92-1	
Selenium	<b>1.9</b>	mg/kg	0.90	0.41	1	11/13/14 08:21	11/14/14 20:09	7782-49-2	
Silver	ND	mg/kg	0.60	0.060	1	11/13/14 08:21	11/14/14 20:09	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.049</b>	mg/kg	0.026	0.0078	1	11/20/14 12:25	11/20/14 16:51	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>25.4</b>	%	0.10	0.10	1		11/24/14 10:55		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	83-32-9	
Acenaphthylene	ND	ug/kg	442	86.5	1	11/12/14 13:38	11/17/14 18:55	208-96-8	
Anthracene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	120-12-7	
Benzo(a)anthracene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	56-55-3	
Benzo(a)pyrene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	442	56.1	1	11/12/14 13:38	11/17/14 18:55	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	442	53.8	1	11/12/14 13:38	11/17/14 18:55	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	101-55-3	
Butylbenzylphthalate	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	85-68-7	
Carbazole	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	59-50-7	
4-Chloroaniline	ND	ug/kg	442	113	1	11/12/14 13:38	11/17/14 18:55	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	108-60-1	
2-Chloronaphthalene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	91-58-7	
2-Chlorophenol	ND	ug/kg	442	55.3	1	11/12/14 13:38	11/17/14 18:55	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	7005-72-3	
Chrysene	ND	ug/kg	442	59.4	1	11/12/14 13:38	11/17/14 18:55	218-01-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-15 (2-3)**      **Lab ID: 10288430004**      Collected: 11/11/14 13:07      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>			Analytical Method: EPA 8270 Preparation Method: EPA 3550						
Dibenz(a,h)anthracene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	53-70-3	
Dibenzofuran	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	442	51.7	1	11/12/14 13:38	11/17/14 18:55	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	442	125	1	11/12/14 13:38	11/17/14 18:55	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	120-83-2	
Diethylphthalate	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	442	77.8	1	11/12/14 13:38	11/17/14 18:55	105-67-9	
Dimethylphthalate	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	131-11-3	
Di-n-butylphthalate	ND	ug/kg	442	61.3	1	11/12/14 13:38	11/17/14 18:55	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2280	1140	1	11/12/14 13:38	11/17/14 18:55	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	442	85.5	1	11/12/14 13:38	11/17/14 18:55	606-20-2	
Di-n-octylphthalate	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	442	75.6	1	11/12/14 13:38	11/17/14 18:55	117-81-7	
Fluoranthene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	206-44-0	
Fluorene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	442	44.9	1	11/12/14 13:38	11/17/14 18:55	87-68-3	
Hexachlorobenzene	ND	ug/kg	442	58.1	1	11/12/14 13:38	11/17/14 18:55	118-74-1	
Hexachloroethane	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	193-39-5	
Isophorone	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	78-59-1	
1-Methylnaphthalene	ND	ug/kg	442	52.0	1	11/12/14 13:38	11/17/14 18:55	90-12-0	
2-Methylnaphthalene	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	95-48-7	
3&4-Methylphenol	ND	ug/kg	885	221	1	11/12/14 13:38	11/17/14 18:55		
Naphthalene	ND	ug/kg	442	31.6	1	11/12/14 13:38	11/17/14 18:55	91-20-3	
2-Nitroaniline	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	88-74-4	
3-Nitroaniline	ND	ug/kg	442	98.3	1	11/12/14 13:38	11/17/14 18:55	99-09-2	
4-Nitroaniline	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	100-01-6	
Nitrobenzene	ND	ug/kg	442	49.9	1	11/12/14 13:38	11/17/14 18:55	98-95-3	
2-Nitrophenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	88-75-5	
4-Nitrophenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	86-30-6	
Pentachlorophenol	ND	ug/kg	898	221	1	11/12/14 13:38	11/17/14 18:55	87-86-5	
Phenanthrene	ND	ug/kg	442	63.3	1	11/12/14 13:38	11/17/14 18:55	85-01-8	
Phenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	108-95-2	
Pyrene	ND	ug/kg	442	55.8	1	11/12/14 13:38	11/17/14 18:55	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	442	48.3	1	11/12/14 13:38	11/17/14 18:55	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	442	49.1	1	11/12/14 13:38	11/17/14 18:55	95-95-4	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-15 (2-3)**      **Lab ID: 10288430004**      Collected: 11/11/14 13:07      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	442	221	1	11/12/14 13:38	11/17/14 18:55	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	67 %		30-125		1	11/12/14 13:38	11/17/14 18:55	4165-60-0	
2-Fluorobiphenyl (S)	63 %		46-125		1	11/12/14 13:38	11/17/14 18:55	321-60-8	
Terphenyl-d14 (S)	79 %		64-125		1	11/12/14 13:38	11/17/14 18:55	1718-51-0	
Phenol-d6 (S)	65 %		38-125		1	11/12/14 13:38	11/17/14 18:55	13127-88-3	
2-Fluorophenol (S)	60 %		31-125		1	11/12/14 13:38	11/17/14 18:55	367-12-4	
2,4,6-Tribromophenol (S)	73 %		41-125		1	11/12/14 13:38	11/17/14 18:55	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1320	662	1	11/14/14 14:19	11/20/14 19:39	67-64-1	L2
Allyl chloride	ND	ug/kg	265	8.7	1	11/14/14 14:19	11/20/14 19:39	107-05-1	
Benzene	ND	ug/kg	26.5	13.2	1	11/14/14 14:19	11/20/14 19:39	71-43-2	
Bromobenzene	ND	ug/kg	66.2	11.5	1	11/14/14 14:19	11/20/14 19:39	108-86-1	
Bromochloromethane	ND	ug/kg	66.2	9.0	1	11/14/14 14:19	11/20/14 19:39	74-97-5	
Bromodichloromethane	ND	ug/kg	66.2	11.8	1	11/14/14 14:19	11/20/14 19:39	75-27-4	
Bromoform	ND	ug/kg	265	132	1	11/14/14 14:19	11/20/14 19:39	75-25-2	
Bromomethane	ND	ug/kg	662	331	1	11/14/14 14:19	11/20/14 19:39	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1320	166	1	11/14/14 14:19	11/20/14 19:39	78-93-3	
n-Butylbenzene	ND	ug/kg	66.2	8.0	1	11/14/14 14:19	11/20/14 19:39	104-51-8	
sec-Butylbenzene	ND	ug/kg	66.2	7.8	1	11/14/14 14:19	11/20/14 19:39	135-98-8	
tert-Butylbenzene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	98-06-6	
Carbon tetrachloride	ND	ug/kg	66.2	10.7	1	11/14/14 14:19	11/20/14 19:39	56-23-5	
Chlorobenzene	ND	ug/kg	66.2	10.2	1	11/14/14 14:19	11/20/14 19:39	108-90-7	
Chloroethane	ND	ug/kg	662	16.7	1	11/14/14 14:19	11/20/14 19:39	75-00-3	
Chloroform	ND	ug/kg	66.2	10.1	1	11/14/14 14:19	11/20/14 19:39	67-66-3	
Chloromethane	ND	ug/kg	265	12.1	1	11/14/14 14:19	11/20/14 19:39	74-87-3	
2-Chlorotoluene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	95-49-8	
4-Chlorotoluene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	662	35.1	1	11/14/14 14:19	11/20/14 19:39	96-12-8	
Dibromochloromethane	ND	ug/kg	66.2	14.3	1	11/14/14 14:19	11/20/14 19:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	66.2	8.2	1	11/14/14 14:19	11/20/14 19:39	106-93-4	
Dibromomethane	ND	ug/kg	66.2	18.6	1	11/14/14 14:19	11/20/14 19:39	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	265	30.6	1	11/14/14 14:19	11/20/14 19:39	75-71-8	
1,1-Dichloroethane	ND	ug/kg	66.2	9.3	1	11/14/14 14:19	11/20/14 19:39	75-34-3	
1,2-Dichloroethane	ND	ug/kg	66.2	15.6	1	11/14/14 14:19	11/20/14 19:39	107-06-2	
1,1-Dichloroethene	ND	ug/kg	66.2	13.2	1	11/14/14 14:19	11/20/14 19:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	66.2	13.5	1	11/14/14 14:19	11/20/14 19:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	66.2	13.1	1	11/14/14 14:19	11/20/14 19:39	156-60-5	
Dichlorofluoromethane	ND	ug/kg	662	331	1	11/14/14 14:19	11/20/14 19:39	75-43-4	
1,2-Dichloropropane	ND	ug/kg	66.2	10.6	1	11/14/14 14:19	11/20/14 19:39	78-87-5	
1,3-Dichloropropane	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-15 (2-3)**      **Lab ID: 10288430004**      Collected: 11/11/14 13:07      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	265	8.8	1	11/14/14 14:19	11/20/14 19:39	594-20-7	
1,1-Dichloropropene	ND	ug/kg	66.2	10.8	1	11/14/14 14:19	11/20/14 19:39	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	66.2	8.3	1	11/14/14 14:19	11/20/14 19:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	66.2	9.3	1	11/14/14 14:19	11/20/14 19:39	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	265	14.0	1	11/14/14 14:19	11/20/14 19:39	60-29-7	L3
Ethylbenzene	ND	ug/kg	66.2	8.3	1	11/14/14 14:19	11/20/14 19:39	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	331	166	1	11/14/14 14:19	11/20/14 19:39	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	98-82-8	
p-Isopropyltoluene	ND	ug/kg	66.2	9.6	1	11/14/14 14:19	11/20/14 19:39	99-87-6	
Methylene Chloride	ND	ug/kg	265	132	1	11/14/14 14:19	11/20/14 19:39	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	331	166	1	11/14/14 14:19	11/20/14 19:39	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	1634-04-4	
Naphthalene	ND	ug/kg	265	132	1	11/14/14 14:19	11/20/14 19:39	91-20-3	
n-Propylbenzene	ND	ug/kg	66.2	8.0	1	11/14/14 14:19	11/20/14 19:39	103-65-1	
Styrene	ND	ug/kg	66.2	9.9	1	11/14/14 14:19	11/20/14 19:39	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	66.2	9.1	1	11/14/14 14:19	11/20/14 19:39	79-34-5	
Tetrachloroethene	ND	ug/kg	66.2	23.9	1	11/14/14 14:19	11/20/14 19:39	127-18-4	
Tetrahydrofuran	ND	ug/kg	2650	84.7	1	11/14/14 14:19	11/20/14 19:39	109-99-9	L2
Toluene	ND	ug/kg	66.2	9.0	1	11/14/14 14:19	11/20/14 19:39	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	66.2	15.8	1	11/14/14 14:19	11/20/14 19:39	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	66.2	12.0	1	11/14/14 14:19	11/20/14 19:39	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	66.2	11.2	1	11/14/14 14:19	11/20/14 19:39	79-00-5	
Trichloroethene	ND	ug/kg	66.2	8.2	1	11/14/14 14:19	11/20/14 19:39	79-01-6	
Trichlorofluoromethane	ND	ug/kg	265	11.8	1	11/14/14 14:19	11/20/14 19:39	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	265	8.8	1	11/14/14 14:19	11/20/14 19:39	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	265	27.7	1	11/14/14 14:19	11/20/14 19:39	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	66.2	33.1	1	11/14/14 14:19	11/20/14 19:39	108-67-8	
Vinyl chloride	ND	ug/kg	26.5	9.8	1	11/14/14 14:19	11/20/14 19:39	75-01-4	
Xylene (Total)	ND	ug/kg	199	26.0	1	11/14/14 14:19	11/20/14 19:39	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	93 %		74-125		1	11/14/14 14:19	11/20/14 19:39	17060-07-0	
Toluene-d8 (S)	106 %		75-125		1	11/14/14 14:19	11/20/14 19:39	2037-26-5	
4-Bromofluorobenzene (S)	104 %		75-125		1	11/14/14 14:19	11/20/14 19:39	460-00-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-14 (3-4)**      **Lab ID: 10288430005**      Collected: 11/11/14 13:45      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>11.8</b>	mg/kg	7.8	1.2	1	11/13/14 00:00	11/15/14 17:10		T6
<b>Surrogates</b>									
n-Triacontane (S)	80	%	50-150		1	11/13/14 00:00	11/15/14 17:10	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>10.1J</b>	mg/kg	28.7	5.7	1	11/19/14 08:16	11/24/14 20:30		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	101	%	80-125		1	11/19/14 08:16	11/24/14 20:30	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>5.7</b>	mg/kg	0.96	0.28	1	11/13/14 08:21	11/14/14 20:14	7440-38-2	
Barium	<b>90.7</b>	mg/kg	0.48	0.053	1	11/13/14 08:21	11/14/14 20:14	7440-39-3	
Cadmium	<b>0.79</b>	mg/kg	0.14	0.016	1	11/13/14 08:21	11/14/14 20:14	7440-43-9	
Chromium	<b>23.9</b>	mg/kg	0.48	0.062	1	11/13/14 08:21	11/14/14 20:14	7440-47-3	
Lead	<b>49.4</b>	mg/kg	0.96	0.071	1	11/13/14 08:21	11/14/14 20:14	7439-92-1	
Selenium	<b>0.93</b>	mg/kg	0.72	0.33	1	11/13/14 08:21	11/14/14 20:14	7782-49-2	
Silver	ND	mg/kg	0.48	0.048	1	11/13/14 08:21	11/14/14 20:14	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.020J</b>	mg/kg	0.024	0.0071	1	11/20/14 12:25	11/20/14 16:53	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>15.8</b>	%	0.10	0.10	1		11/24/14 10:55		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	83-32-9	
Acenaphthylene	ND	ug/kg	392	76.7	1	11/12/14 13:38	11/18/14 14:46	208-96-8	
Anthracene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	120-12-7	
Benzo(a)anthracene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	56-55-3	
Benzo(a)pyrene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	50-32-8	
Benzo(b)fluoranthene	<b>120J</b>	ug/kg	392	49.7	1	11/12/14 13:38	11/18/14 14:46	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	392	47.7	1	11/12/14 13:38	11/18/14 14:46	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	101-55-3	
Butylbenzylphthalate	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	85-68-7	
Carbazole	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	59-50-7	
4-Chloroaniline	ND	ug/kg	392	100	1	11/12/14 13:38	11/18/14 14:46	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	108-60-1	
2-Chloronaphthalene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	91-58-7	
2-Chlorophenol	ND	ug/kg	392	49.0	1	11/12/14 13:38	11/18/14 14:46	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	7005-72-3	
Chrysene	<b>76.6J</b>	ug/kg	392	52.7	1	11/12/14 13:38	11/18/14 14:46	218-01-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-14 (3-4)**      **Lab ID: 10288430005**      Collected: 11/11/14 13:45      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	53-70-3	
Dibenzofuran	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	392	45.8	1	11/12/14 13:38	11/18/14 14:46	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	392	111	1	11/12/14 13:38	11/18/14 14:46	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	120-83-2	
Diethylphthalate	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	392	68.9	1	11/12/14 13:38	11/18/14 14:46	105-67-9	
Dimethylphthalate	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	131-11-3	
Di-n-butylphthalate	ND	ug/kg	392	54.4	1	11/12/14 13:38	11/18/14 14:46	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2020	1010	1	11/12/14 13:38	11/18/14 14:46	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	392	75.8	1	11/12/14 13:38	11/18/14 14:46	606-20-2	
Di-n-octylphthalate	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	392	67.0	1	11/12/14 13:38	11/18/14 14:46	117-81-7	
Fluoranthene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	206-44-0	
Fluorene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	392	39.8	1	11/12/14 13:38	11/18/14 14:46	87-68-3	
Hexachlorobenzene	ND	ug/kg	392	51.5	1	11/12/14 13:38	11/18/14 14:46	118-74-1	
Hexachloroethane	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	193-39-5	
Isophorone	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	78-59-1	
1-Methylnaphthalene	ND	ug/kg	392	46.1	1	11/12/14 13:38	11/18/14 14:46	90-12-0	
2-Methylnaphthalene	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	95-48-7	
3&4-Methylphenol	ND	ug/kg	784	196	1	11/12/14 13:38	11/18/14 14:46		
Naphthalene	ND	ug/kg	392	28.0	1	11/12/14 13:38	11/18/14 14:46	91-20-3	
2-Nitroaniline	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	88-74-4	
3-Nitroaniline	ND	ug/kg	392	87.1	1	11/12/14 13:38	11/18/14 14:46	99-09-2	
4-Nitroaniline	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	100-01-6	
Nitrobenzene	ND	ug/kg	392	44.2	1	11/12/14 13:38	11/18/14 14:46	98-95-3	
2-Nitrophenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	88-75-5	
4-Nitrophenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	86-30-6	
Pentachlorophenol	ND	ug/kg	796	196	1	11/12/14 13:38	11/18/14 14:46	87-86-5	
Phenanthrene	ND	ug/kg	392	56.1	1	11/12/14 13:38	11/18/14 14:46	85-01-8	
Phenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	108-95-2	
Pyrene	<b>110J</b>	ug/kg	392	49.5	1	11/12/14 13:38	11/18/14 14:46	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	392	42.8	1	11/12/14 13:38	11/18/14 14:46	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	392	43.5	1	11/12/14 13:38	11/18/14 14:46	95-95-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-14 (3-4)**      **Lab ID: 10288430005**      Collected: 11/11/14 13:45      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	392	196	1	11/12/14 13:38	11/18/14 14:46	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	71 %		30-125		1	11/12/14 13:38	11/18/14 14:46	4165-60-0	
2-Fluorobiphenyl (S)	74 %		46-125		1	11/12/14 13:38	11/18/14 14:46	321-60-8	
Terphenyl-d14 (S)	84 %		64-125		1	11/12/14 13:38	11/18/14 14:46	1718-51-0	
Phenol-d6 (S)	77 %		38-125		1	11/12/14 13:38	11/18/14 14:46	13127-88-3	
2-Fluorophenol (S)	66 %		31-125		1	11/12/14 13:38	11/18/14 14:46	367-12-4	
2,4,6-Tribromophenol (S)	74 %		41-125		1	11/12/14 13:38	11/18/14 14:46	118-79-6	
<b>8260 MSV 5030 Med Level</b>									
Analytical Method: EPA 8260    Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1230	615	1	11/14/14 14:19	11/14/14 21:54	67-64-1	L2
Allyl chloride	ND	ug/kg	246	8.1	1	11/14/14 14:19	11/14/14 21:54	107-05-1	
Benzene	ND	ug/kg	24.6	12.3	1	11/14/14 14:19	11/14/14 21:54	71-43-2	
Bromobenzene	ND	ug/kg	61.5	10.7	1	11/14/14 14:19	11/14/14 21:54	108-86-1	
Bromochloromethane	ND	ug/kg	61.5	8.4	1	11/14/14 14:19	11/14/14 21:54	74-97-5	
Bromodichloromethane	ND	ug/kg	61.5	10.9	1	11/14/14 14:19	11/14/14 21:54	75-27-4	
Bromoform	ND	ug/kg	246	123	1	11/14/14 14:19	11/14/14 21:54	75-25-2	
Bromomethane	ND	ug/kg	615	307	1	11/14/14 14:19	11/14/14 21:54	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	307	154	1	11/14/14 14:19	11/14/14 21:54	78-93-3	
n-Butylbenzene	ND	ug/kg	61.5	7.5	1	11/14/14 14:19	11/14/14 21:54	104-51-8	
sec-Butylbenzene	ND	ug/kg	61.5	7.2	1	11/14/14 14:19	11/14/14 21:54	135-98-8	
tert-Butylbenzene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	98-06-6	
Carbon tetrachloride	ND	ug/kg	61.5	9.9	1	11/14/14 14:19	11/14/14 21:54	56-23-5	
Chlorobenzene	ND	ug/kg	61.5	9.5	1	11/14/14 14:19	11/14/14 21:54	108-90-7	
Chloroethane	ND	ug/kg	615	15.5	1	11/14/14 14:19	11/14/14 21:54	75-00-3	CL
Chloroform	ND	ug/kg	61.5	9.4	1	11/14/14 14:19	11/14/14 21:54	67-66-3	
Chloromethane	ND	ug/kg	246	11.2	1	11/14/14 14:19	11/14/14 21:54	74-87-3	
2-Chlorotoluene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	95-49-8	
4-Chlorotoluene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	615	32.6	1	11/14/14 14:19	11/14/14 21:54	96-12-8	
Dibromochloromethane	ND	ug/kg	61.5	13.3	1	11/14/14 14:19	11/14/14 21:54	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	61.5	7.6	1	11/14/14 14:19	11/14/14 21:54	106-93-4	
Dibromomethane	ND	ug/kg	61.5	17.2	1	11/14/14 14:19	11/14/14 21:54	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	246	28.4	1	11/14/14 14:19	11/14/14 21:54	75-71-8	
1,1-Dichloroethane	ND	ug/kg	61.5	8.6	1	11/14/14 14:19	11/14/14 21:54	75-34-3	
1,2-Dichloroethane	ND	ug/kg	61.5	14.5	1	11/14/14 14:19	11/14/14 21:54	107-06-2	
1,1-Dichloroethene	ND	ug/kg	61.5	12.3	1	11/14/14 14:19	11/14/14 21:54	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	61.5	12.5	1	11/14/14 14:19	11/14/14 21:54	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	61.5	12.2	1	11/14/14 14:19	11/14/14 21:54	156-60-5	
Dichlorofluoromethane	ND	ug/kg	615	307	1	11/14/14 14:19	11/14/14 21:54	75-43-4	
1,2-Dichloropropane	ND	ug/kg	61.5	9.9	1	11/14/14 14:19	11/14/14 21:54	78-87-5	
1,3-Dichloropropane	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-14 (3-4)**      **Lab ID: 10288430005**      Collected: 11/11/14 13:45      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	246	8.2	1	11/14/14 14:19	11/14/14 21:54	594-20-7	
1,1-Dichloropropene	ND	ug/kg	61.5	10.0	1	11/14/14 14:19	11/14/14 21:54	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	61.5	7.7	1	11/14/14 14:19	11/14/14 21:54	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	61.5	8.7	1	11/14/14 14:19	11/14/14 21:54	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	246	13.0	1	11/14/14 14:19	11/14/14 21:54	60-29-7	L3
Ethylbenzene	ND	ug/kg	61.5	7.7	1	11/14/14 14:19	11/14/14 21:54	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	307	154	1	11/14/14 14:19	11/14/14 21:54	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	98-82-8	
p-Isopropyltoluene	ND	ug/kg	61.5	8.9	1	11/14/14 14:19	11/14/14 21:54	99-87-6	
Methylene Chloride	ND	ug/kg	246	123	1	11/14/14 14:19	11/14/14 21:54	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	307	154	1	11/14/14 14:19	11/14/14 21:54	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	1634-04-4	
Naphthalene	ND	ug/kg	246	123	1	11/14/14 14:19	11/14/14 21:54	91-20-3	
n-Propylbenzene	ND	ug/kg	61.5	7.4	1	11/14/14 14:19	11/14/14 21:54	103-65-1	
Styrene	ND	ug/kg	61.5	9.2	1	11/14/14 14:19	11/14/14 21:54	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	61.5	8.4	1	11/14/14 14:19	11/14/14 21:54	79-34-5	
Tetrachloroethene	ND	ug/kg	61.5	22.2	1	11/14/14 14:19	11/14/14 21:54	127-18-4	
Tetrahydrofuran	ND	ug/kg	2460	78.5	1	11/14/14 14:19	11/14/14 21:54	109-99-9	L2
Toluene	<b>12.3J</b>	ug/kg	61.5	8.4	1	11/14/14 14:19	11/14/14 21:54	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	61.5	14.6	1	11/14/14 14:19	11/14/14 21:54	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	61.5	11.2	1	11/14/14 14:19	11/14/14 21:54	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	61.5	10.4	1	11/14/14 14:19	11/14/14 21:54	79-00-5	
Trichloroethene	ND	ug/kg	61.5	7.6	1	11/14/14 14:19	11/14/14 21:54	79-01-6	
Trichlorofluoromethane	ND	ug/kg	246	10.9	1	11/14/14 14:19	11/14/14 21:54	75-69-4	CL,L3
1,2,3-Trichloropropane	ND	ug/kg	246	8.2	1	11/14/14 14:19	11/14/14 21:54	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	246	25.7	1	11/14/14 14:19	11/14/14 21:54	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	61.5	30.7	1	11/14/14 14:19	11/14/14 21:54	108-67-8	
Vinyl chloride	ND	ug/kg	24.6	9.1	1	11/14/14 14:19	11/14/14 21:54	75-01-4	
Xylene (Total)	ND	ug/kg	184	24.1	1	11/14/14 14:19	11/14/14 21:54	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	83 %		74-125		1	11/14/14 14:19	11/14/14 21:54	17060-07-0	
Toluene-d8 (S)	98 %		75-125		1	11/14/14 14:19	11/14/14 21:54	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125		1	11/14/14 14:19	11/14/14 21:54	460-00-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3 (4-5)**      **Lab ID: 10288430006**      Collected: 11/11/14 15:17      Received: 11/11/14 17:40      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>1.4J</b>	mg/kg	5.3	0.79	1	11/13/14 00:00	11/15/14 17:49		B
<b>Surrogates</b>									
n-Triacontane (S)	73 %		50-150		1	11/13/14 00:00	11/15/14 17:49	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	26.8	5.4	1	11/19/14 08:16	11/24/14 20:50		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	101 %		80-125		1	11/19/14 08:16	11/24/14 20:50	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>0.90J</b>	mg/kg	0.93	0.27	1	11/13/14 08:21	11/14/14 20:19	7440-38-2	
Barium	<b>39.2</b>	mg/kg	0.46	0.051	1	11/13/14 08:21	11/14/14 20:19	7440-39-3	
Cadmium	<b>0.13J</b>	mg/kg	0.14	0.016	1	11/13/14 08:21	11/14/14 20:19	7440-43-9	B
Chromium	<b>6.4</b>	mg/kg	0.46	0.060	1	11/13/14 08:21	11/14/14 20:19	7440-47-3	
Lead	<b>4.4</b>	mg/kg	0.93	0.069	1	11/13/14 08:21	11/14/14 20:19	7439-92-1	
Selenium	<b>0.33J</b>	mg/kg	0.70	0.32	1	11/13/14 08:21	11/14/14 20:19	7782-49-2	
Silver	ND	mg/kg	0.46	0.046	1	11/13/14 08:21	11/14/14 20:19	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	ND	mg/kg	0.022	0.0067	1	11/20/14 12:25	11/20/14 16:59	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>11.0</b>	%	0.10	0.10	1		11/24/14 10:56		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	83-32-9	
Acenaphthylene	ND	ug/kg	370	72.3	1	11/12/14 13:38	11/17/14 19:24	208-96-8	
Anthracene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	120-12-7	
Benzo(a)anthracene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	56-55-3	
Benzo(a)pyrene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	370	46.8	1	11/12/14 13:38	11/17/14 19:24	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	370	44.9	1	11/12/14 13:38	11/17/14 19:24	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	101-55-3	
Butylbenzylphthalate	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	85-68-7	
Carbazole	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	59-50-7	
4-Chloroaniline	ND	ug/kg	370	94.6	1	11/12/14 13:38	11/17/14 19:24	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	108-60-1	
2-Chloronaphthalene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	91-58-7	
2-Chlorophenol	ND	ug/kg	370	46.2	1	11/12/14 13:38	11/17/14 19:24	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	7005-72-3	
Chrysene	ND	ug/kg	370	49.7	1	11/12/14 13:38	11/17/14 19:24	218-01-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3 (4-5)**      **Lab ID: 10288430006**      Collected: 11/11/14 15:17      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	53-70-3	
Dibenzofuran	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	370	43.2	1	11/12/14 13:38	11/17/14 19:24	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	370	105	1	11/12/14 13:38	11/17/14 19:24	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	120-83-2	
Diethylphthalate	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	370	65.0	1	11/12/14 13:38	11/17/14 19:24	105-67-9	
Dimethylphthalate	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	131-11-3	
Di-n-butylphthalate	ND	ug/kg	370	51.2	1	11/12/14 13:38	11/17/14 19:24	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1900	952	1	11/12/14 13:38	11/17/14 19:24	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	370	71.5	1	11/12/14 13:38	11/17/14 19:24	606-20-2	
Di-n-octylphthalate	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	370	63.2	1	11/12/14 13:38	11/17/14 19:24	117-81-7	
Fluoranthene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	206-44-0	
Fluorene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	370	37.5	1	11/12/14 13:38	11/17/14 19:24	87-68-3	
Hexachlorobenzene	ND	ug/kg	370	48.6	1	11/12/14 13:38	11/17/14 19:24	118-74-1	
Hexachloroethane	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	193-39-5	
Isophorone	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	78-59-1	
1-Methylnaphthalene	ND	ug/kg	370	43.4	1	11/12/14 13:38	11/17/14 19:24	90-12-0	
2-Methylnaphthalene	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	95-48-7	
3&4-Methylphenol	ND	ug/kg	739	185	1	11/12/14 13:38	11/17/14 19:24		
Naphthalene	ND	ug/kg	370	26.4	1	11/12/14 13:38	11/17/14 19:24	91-20-3	
2-Nitroaniline	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	88-74-4	
3-Nitroaniline	ND	ug/kg	370	82.1	1	11/12/14 13:38	11/17/14 19:24	99-09-2	
4-Nitroaniline	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	100-01-6	
Nitrobenzene	ND	ug/kg	370	41.7	1	11/12/14 13:38	11/17/14 19:24	98-95-3	
2-Nitrophenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	88-75-5	
4-Nitrophenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	86-30-6	
Pentachlorophenol	ND	ug/kg	750	185	1	11/12/14 13:38	11/17/14 19:24	87-86-5	
Phenanthrene	ND	ug/kg	370	52.8	1	11/12/14 13:38	11/17/14 19:24	85-01-8	
Phenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	108-95-2	
Pyrene	ND	ug/kg	370	46.6	1	11/12/14 13:38	11/17/14 19:24	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	370	40.4	1	11/12/14 13:38	11/17/14 19:24	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	370	41.0	1	11/12/14 13:38	11/17/14 19:24	95-95-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3 (4-5)**      **Lab ID: 10288430006**      Collected: 11/11/14 15:17      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	370	185	1	11/12/14 13:38	11/17/14 19:24	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	66 %		30-125		1	11/12/14 13:38	11/17/14 19:24	4165-60-0	
2-Fluorobiphenyl (S)	67 %		46-125		1	11/12/14 13:38	11/17/14 19:24	321-60-8	
Terphenyl-d14 (S)	81 %		64-125		1	11/12/14 13:38	11/17/14 19:24	1718-51-0	
Phenol-d6 (S)	68 %		38-125		1	11/12/14 13:38	11/17/14 19:24	13127-88-3	
2-Fluorophenol (S)	64 %		31-125		1	11/12/14 13:38	11/17/14 19:24	367-12-4	
2,4,6-Tribromophenol (S)	74 %		41-125		1	11/12/14 13:38	11/17/14 19:24	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1100	551	1	11/14/14 14:19	11/14/14 22:12	67-64-1	L2
Allyl chloride	ND	ug/kg	221	7.2	1	11/14/14 14:19	11/14/14 22:12	107-05-1	
Benzene	ND	ug/kg	22.1	11.0	1	11/14/14 14:19	11/14/14 22:12	71-43-2	
Bromobenzene	ND	ug/kg	55.1	9.6	1	11/14/14 14:19	11/14/14 22:12	108-86-1	
Bromochloromethane	ND	ug/kg	55.1	7.5	1	11/14/14 14:19	11/14/14 22:12	74-97-5	
Bromodichloromethane	ND	ug/kg	55.1	9.8	1	11/14/14 14:19	11/14/14 22:12	75-27-4	
Bromoform	ND	ug/kg	221	110	1	11/14/14 14:19	11/14/14 22:12	75-25-2	
Bromomethane	ND	ug/kg	551	276	1	11/14/14 14:19	11/14/14 22:12	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	276	138	1	11/14/14 14:19	11/14/14 22:12	78-93-3	
n-Butylbenzene	ND	ug/kg	55.1	6.7	1	11/14/14 14:19	11/14/14 22:12	104-51-8	
sec-Butylbenzene	ND	ug/kg	55.1	6.5	1	11/14/14 14:19	11/14/14 22:12	135-98-8	
tert-Butylbenzene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	98-06-6	
Carbon tetrachloride	ND	ug/kg	55.1	8.9	1	11/14/14 14:19	11/14/14 22:12	56-23-5	
Chlorobenzene	ND	ug/kg	55.1	8.5	1	11/14/14 14:19	11/14/14 22:12	108-90-7	
Chloroethane	ND	ug/kg	551	13.9	1	11/14/14 14:19	11/14/14 22:12	75-00-3	CL
Chloroform	ND	ug/kg	55.1	8.4	1	11/14/14 14:19	11/14/14 22:12	67-66-3	
Chloromethane	ND	ug/kg	221	10.1	1	11/14/14 14:19	11/14/14 22:12	74-87-3	
2-Chlorotoluene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	95-49-8	
4-Chlorotoluene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	551	29.2	1	11/14/14 14:19	11/14/14 22:12	96-12-8	
Dibromochloromethane	ND	ug/kg	55.1	11.9	1	11/14/14 14:19	11/14/14 22:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	55.1	6.8	1	11/14/14 14:19	11/14/14 22:12	106-93-4	
Dibromomethane	ND	ug/kg	55.1	15.4	1	11/14/14 14:19	11/14/14 22:12	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	221	25.5	1	11/14/14 14:19	11/14/14 22:12	75-71-8	
1,1-Dichloroethane	ND	ug/kg	55.1	7.7	1	11/14/14 14:19	11/14/14 22:12	75-34-3	
1,2-Dichloroethane	ND	ug/kg	55.1	13.0	1	11/14/14 14:19	11/14/14 22:12	107-06-2	
1,1-Dichloroethene	ND	ug/kg	55.1	11.0	1	11/14/14 14:19	11/14/14 22:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	55.1	11.2	1	11/14/14 14:19	11/14/14 22:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	55.1	10.9	1	11/14/14 14:19	11/14/14 22:12	156-60-5	
Dichlorofluoromethane	ND	ug/kg	551	276	1	11/14/14 14:19	11/14/14 22:12	75-43-4	
1,2-Dichloropropane	ND	ug/kg	55.1	8.9	1	11/14/14 14:19	11/14/14 22:12	78-87-5	
1,3-Dichloropropane	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3 (4-5)**      **Lab ID: 10288430006**      Collected: 11/11/14 15:17      Received: 11/11/14 17:40      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	221	7.4	1	11/14/14 14:19	11/14/14 22:12	594-20-7	
1,1-Dichloropropene	ND	ug/kg	55.1	9.0	1	11/14/14 14:19	11/14/14 22:12	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	55.1	6.9	1	11/14/14 14:19	11/14/14 22:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	55.1	7.8	1	11/14/14 14:19	11/14/14 22:12	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	221	11.7	1	11/14/14 14:19	11/14/14 22:12	60-29-7	L3
Ethylbenzene	ND	ug/kg	55.1	6.9	1	11/14/14 14:19	11/14/14 22:12	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	276	138	1	11/14/14 14:19	11/14/14 22:12	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	98-82-8	
p-Isopropyltoluene	ND	ug/kg	55.1	8.0	1	11/14/14 14:19	11/14/14 22:12	99-87-6	
Methylene Chloride	ND	ug/kg	221	110	1	11/14/14 14:19	11/14/14 22:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	276	138	1	11/14/14 14:19	11/14/14 22:12	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	1634-04-4	
Naphthalene	ND	ug/kg	221	110	1	11/14/14 14:19	11/14/14 22:12	91-20-3	
n-Propylbenzene	ND	ug/kg	55.1	6.7	1	11/14/14 14:19	11/14/14 22:12	103-65-1	
Styrene	ND	ug/kg	55.1	8.2	1	11/14/14 14:19	11/14/14 22:12	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	55.1	7.6	1	11/14/14 14:19	11/14/14 22:12	79-34-5	
Tetrachloroethene	ND	ug/kg	55.1	19.9	1	11/14/14 14:19	11/14/14 22:12	127-18-4	
Tetrahydrofuran	ND	ug/kg	2210	70.5	1	11/14/14 14:19	11/14/14 22:12	109-99-9	L2
Toluene	<b>7.5J</b>	ug/kg	55.1	7.5	1	11/14/14 14:19	11/14/14 22:12	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	55.1	13.1	1	11/14/14 14:19	11/14/14 22:12	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	55.1	10.0	1	11/14/14 14:19	11/14/14 22:12	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	55.1	9.3	1	11/14/14 14:19	11/14/14 22:12	79-00-5	
Trichloroethene	ND	ug/kg	55.1	6.9	1	11/14/14 14:19	11/14/14 22:12	79-01-6	
Trichlorofluoromethane	ND	ug/kg	221	9.8	1	11/14/14 14:19	11/14/14 22:12	75-69-4	CL,L3
1,2,3-Trichloropropane	ND	ug/kg	221	7.3	1	11/14/14 14:19	11/14/14 22:12	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	221	23.0	1	11/14/14 14:19	11/14/14 22:12	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	55.1	27.6	1	11/14/14 14:19	11/14/14 22:12	108-67-8	
Vinyl chloride	ND	ug/kg	22.1	8.2	1	11/14/14 14:19	11/14/14 22:12	75-01-4	
Xylene (Total)	ND	ug/kg	165	21.7	1	11/14/14 14:19	11/14/14 22:12	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	84 %.		74-125		1	11/14/14 14:19	11/14/14 22:12	17060-07-0	
Toluene-d8 (S)	97 %.		75-125		1	11/14/14 14:19	11/14/14 22:12	2037-26-5	
4-Bromofluorobenzene (S)	94 %.		75-125		1	11/14/14 14:19	11/14/14 22:12	460-00-4	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Sample: DP-3      Lab ID: 10288430007      Collected: 11/11/14 16:05      Received: 11/12/14 07:48      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>0.055J</b>	mg/L	0.17	0.036	1	11/12/14 11:02	11/14/14 11:09		
<b>Surrogates</b>									
n-Triacontane (S)	83 %.		50-150		1	11/12/14 11:02	11/14/14 11:09	638-68-6	P4
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	500	250	5		11/25/14 23:21		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	99 %.		80-125		5		11/25/14 23:21	98-08-8	2M,HS, pH
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3010									
Arsenic	<b>26.6</b>	ug/L	20.0	3.2	1	11/13/14 17:50	11/14/14 12:00	7440-38-2	
Barium	<b>2410</b>	ug/L	10.0	5.0	1	11/13/14 17:50	11/14/14 12:00	7440-39-3	
Cadmium	<b>5.3</b>	ug/L	3.0	0.25	1	11/13/14 17:50	11/14/14 12:00	7440-43-9	
Chromium	<b>87.7</b>	ug/L	10.0	5.0	1	11/13/14 17:50	11/14/14 12:00	7440-47-3	
Lead	<b>33.9</b>	ug/L	10.0	2.0	1	11/13/14 17:50	11/14/14 12:00	7439-92-1	
Selenium	<b>30.1</b>	ug/L	20.0	6.6	1	11/13/14 17:50	11/14/14 12:00	7782-49-2	
Silver	ND	ug/L	10.0	0.63	1	11/13/14 17:50	11/14/14 12:00	7440-22-4	
<b>7470A Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	ND	ug/L	0.20	0.026	1	11/18/14 20:40	11/19/14 16:11	7439-97-6	
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
Phenol	ND	ug/L	17.2	3.5	1	11/12/14 09:11	11/15/14 15:01	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	17.2	3.2	1	11/12/14 09:11	11/15/14 15:01	111-44-4	
2-Chlorophenol	ND	ug/L	17.2	3.3	1	11/12/14 09:11	11/15/14 15:01	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	17.2	3.4	1	11/12/14 09:11	11/15/14 15:01	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	17.2	3.4	1	11/12/14 09:11	11/15/14 15:01	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	17.2	3.4	1	11/12/14 09:11	11/15/14 15:01	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	17.2	3.4	1	11/12/14 09:11	11/15/14 15:01	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	17.2	3.1	1	11/12/14 09:11	11/15/14 15:01	108-60-1	
3&4-Methylphenol	ND	ug/L	34.5	3.0	1	11/12/14 09:11	11/15/14 15:01		
N-Nitroso-di-n-propylamine	ND	ug/L	17.2	3.2	1	11/12/14 09:11	11/15/14 15:01	621-64-7	
Hexachloroethane	ND	ug/L	17.2	3.5	1	11/12/14 09:11	11/15/14 15:01	67-72-1	
Nitrobenzene	ND	ug/L	17.2	3.3	1	11/12/14 09:11	11/15/14 15:01	98-95-3	
Isophorone	ND	ug/L	17.2	2.7	1	11/12/14 09:11	11/15/14 15:01	78-59-1	
2-Nitrophenol	ND	ug/L	17.2	3.2	1	11/12/14 09:11	11/15/14 15:01	88-75-5	
2,4-Dimethylphenol	ND	ug/L	86.2	12.5	1	11/12/14 09:11	11/15/14 15:01	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	17.2	2.6	1	11/12/14 09:11	11/15/14 15:01	111-91-1	
2,4-Dichlorophenol	ND	ug/L	17.2	3.0	1	11/12/14 09:11	11/15/14 15:01	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	17.2	3.5	1	11/12/14 09:11	11/15/14 15:01	120-82-1	
Naphthalene	ND	ug/L	17.2	2.7	1	11/12/14 09:11	11/15/14 15:01	91-20-3	
4-Chloroaniline	ND	ug/L	86.2	22.5	1	11/12/14 09:11	11/15/14 15:01	106-47-8	
Hexachloro-1,3-butadiene	ND	ug/L	17.2	3.1	1	11/12/14 09:11	11/15/14 15:01	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	17.2	2.7	1	11/12/14 09:11	11/15/14 15:01	59-50-7	
2-Methylnaphthalene	ND	ug/L	17.2	2.5	1	11/12/14 09:11	11/15/14 15:01	91-57-6	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3**      **Lab ID: 10288430007**      Collected: 11/11/14 16:05      Received: 11/12/14 07:48      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
2,4,6-Trichlorophenol	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	88-06-2	
2,4,5-Trichlorophenol	ND ug/L		17.2	5.0	1	11/12/14 09:11	11/15/14 15:01	95-95-4	
2-Chloronaphthalene	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	91-58-7	
2-Nitroaniline	ND ug/L		17.2	4.6	1	11/12/14 09:11	11/15/14 15:01	88-74-4	
Dimethylphthalate	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	131-11-3	
Acenaphthylene	ND ug/L		17.2	2.2	1	11/12/14 09:11	11/15/14 15:01	208-96-8	
2,6-Dinitrotoluene	ND ug/L		17.2	3.4	1	11/12/14 09:11	11/15/14 15:01	606-20-2	
3-Nitroaniline	ND ug/L		17.2	5.5	1	11/12/14 09:11	11/15/14 15:01	99-09-2	
Acenaphthene	ND ug/L		17.2	2.8	1	11/12/14 09:11	11/15/14 15:01	83-32-9	
2,4-Dinitrophenol	ND ug/L		17.2	4.7	1	11/12/14 09:11	11/15/14 15:01	51-28-5	
4-Nitrophenol	ND ug/L		17.2	7.8	1	11/12/14 09:11	11/15/14 15:01	100-02-7	
Dibenzofuran	ND ug/L		17.2	2.8	1	11/12/14 09:11	11/15/14 15:01	132-64-9	
2,4-Dinitrotoluene	ND ug/L		17.2	3.6	1	11/12/14 09:11	11/15/14 15:01	121-14-2	
Diethylphthalate	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		17.2	2.4	1	11/12/14 09:11	11/15/14 15:01	7005-72-3	
Fluorene	ND ug/L		17.2	2.3	1	11/12/14 09:11	11/15/14 15:01	86-73-7	
4-Nitroaniline	ND ug/L		17.2	4.8	1	11/12/14 09:11	11/15/14 15:01	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		17.2	6.1	1	11/12/14 09:11	11/15/14 15:01	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		17.2	2.9	1	11/12/14 09:11	11/15/14 15:01	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		17.2	3.5	1	11/12/14 09:11	11/15/14 15:01	101-55-3	
Hexachlorobenzene	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	118-74-1	
Pentachlorophenol	ND ug/L		34.5	3.8	1	11/12/14 09:11	11/15/14 15:01	87-86-5	
Phenanthrene	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	85-01-8	
Anthracene	ND ug/L		17.2	4.0	1	11/12/14 09:11	11/15/14 15:01	120-12-7	
Di-n-butylphthalate	ND ug/L		17.2	2.8	1	11/12/14 09:11	11/15/14 15:01	84-74-2	
Fluoranthene	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	206-44-0	
Pyrene	ND ug/L		17.2	3.0	1	11/12/14 09:11	11/15/14 15:01	129-00-0	
Butylbenzylphthalate	ND ug/L		17.2	3.3	1	11/12/14 09:11	11/15/14 15:01	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		86.2	12.6	1	11/12/14 09:11	11/15/14 15:01	91-94-1	
Benzo(a)anthracene	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	56-55-3	
Chrysene	ND ug/L		17.2	3.6	1	11/12/14 09:11	11/15/14 15:01	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		17.2	6.3	1	11/12/14 09:11	11/15/14 15:01	117-81-7	
Di-n-octylphthalate	ND ug/L		17.2	2.9	1	11/12/14 09:11	11/15/14 15:01	117-84-0	
Benzo(b)fluoranthene	ND ug/L		17.2	3.4	1	11/12/14 09:11	11/15/14 15:01	205-99-2	
Benzo(k)fluoranthene	ND ug/L		17.2	3.6	1	11/12/14 09:11	11/15/14 15:01	207-08-9	
Benzo(a)pyrene	ND ug/L		17.2	8.6	1	11/12/14 09:11	11/15/14 15:01	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		17.2	3.1	1	11/12/14 09:11	11/15/14 15:01	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		17.2	3.1	1	11/12/14 09:11	11/15/14 15:01	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		17.2	2.9	1	11/12/14 09:11	11/15/14 15:01	191-24-2	
N-Nitrosodimethylamine	ND ug/L		17.2	5.3	1	11/12/14 09:11	11/15/14 15:01	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		17.2	2.9	1	11/12/14 09:11	11/15/14 15:01	122-66-7	
Carbazole	ND ug/L		17.2	3.6	1	11/12/14 09:11	11/15/14 15:01	86-74-8	
1-Methylnaphthalene	ND ug/L		17.2	2.8	1	11/12/14 09:11	11/15/14 15:01	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	76 %.		60-125		1	11/12/14 09:11	11/15/14 15:01	4165-60-0	
2-Fluorobiphenyl (S)	76 %.		55-125		1	11/12/14 09:11	11/15/14 15:01	321-60-8	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3**      **Lab ID: 10288430007**      Collected: 11/11/14 16:05      Received: 11/12/14 07:48      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
<b>Surrogates</b>									
Terphenyl-d14 (S)	86 %.		67-125		1	11/12/14 09:11	11/15/14 15:01	1718-51-0	
Phenol-d6 (S)	72 %.		59-125		1	11/12/14 09:11	11/15/14 15:01	13127-88-3	
2-Fluorophenol (S)	69 %.		53-125		1	11/12/14 09:11	11/15/14 15:01	367-12-4	
2,4,6-Tribromophenol (S)	101 %.		66-125		1	11/12/14 09:11	11/15/14 15:01	118-79-6	
<b>8260 VOC</b>			Analytical Method: EPA 8260						
Acetone	ND ug/L		100	50.0	5		11/20/14 19:56	67-64-1	
Allyl chloride	ND ug/L		20.0	2.2	5		11/20/14 19:56	107-05-1	
Benzene	ND ug/L		5.0	0.75	5		11/20/14 19:56	71-43-2	
Bromobenzene	ND ug/L		5.0	0.66	5		11/20/14 19:56	108-86-1	
Bromochloromethane	ND ug/L		5.0	0.58	5		11/20/14 19:56	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1.0	5		11/20/14 19:56	75-27-4	
Bromoform	ND ug/L		20.0	10.0	5		11/20/14 19:56	75-25-2	
Bromomethane	ND ug/L		20.0	10.0	5		11/20/14 19:56	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	12.5	5		11/20/14 19:56	78-93-3	
n-Butylbenzene	ND ug/L		5.0	2.5	5		11/20/14 19:56	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	2.5	5		11/20/14 19:56	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	2.5	5		11/20/14 19:56	98-06-6	
Carbon tetrachloride	ND ug/L		5.0	0.80	5		11/20/14 19:56	56-23-5	
Chlorobenzene	ND ug/L		5.0	0.33	5		11/20/14 19:56	108-90-7	
Chloroethane	ND ug/L		20.0	1.2	5		11/20/14 19:56	75-00-3	
Chloroform	ND ug/L		5.0	0.80	5		11/20/14 19:56	67-66-3	
Chloromethane	ND ug/L		20.0	1.7	5		11/20/14 19:56	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	0.69	5		11/20/14 19:56	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	0.42	5		11/20/14 19:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		20.0	10.0	5		11/20/14 19:56	96-12-8	
Dibromochloromethane	ND ug/L		5.0	2.5	5		11/20/14 19:56	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	0.74	5		11/20/14 19:56	106-93-4	
Dibromomethane	ND ug/L		20.0	0.92	5		11/20/14 19:56	74-95-3	
1,2-Dichlorobenzene	ND ug/L		5.0	0.80	5		11/20/14 19:56	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	2.5	5		11/20/14 19:56	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	2.5	5		11/20/14 19:56	106-46-7	
Dichlorodifluoromethane	ND ug/L		5.0	2.5	5		11/20/14 19:56	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	0.80	5		11/20/14 19:56	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	0.66	5		11/20/14 19:56	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1.0	5		11/20/14 19:56	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	0.66	5		11/20/14 19:56	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1.2	5		11/20/14 19:56	156-60-5	
Dichlorofluoromethane	ND ug/L		20.0	1.0	5		11/20/14 19:56	75-43-4	
1,2-Dichloropropane	ND ug/L		20.0	0.71	5		11/20/14 19:56	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	2.5	5		11/20/14 19:56	142-28-9	
2,2-Dichloropropane	ND ug/L		20.0	0.87	5		11/20/14 19:56	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	2.5	5		11/20/14 19:56	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		20.0	0.64	5		11/20/14 19:56	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		20.0	0.92	5		11/20/14 19:56	10061-02-6	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

**Sample: DP-3**      **Lab ID: 10288430007**      Collected: 11/11/14 16:05      Received: 11/12/14 07:48      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b> Analytical Method: EPA 8260									
Diethyl ether (Ethyl ether)	ND	ug/L	20.0	0.70	5		11/20/14 19:56	60-29-7	
Ethylbenzene	ND	ug/L	5.0	0.82	5		11/20/14 19:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	5.0	2.5	5		11/20/14 19:56	98-82-8	
p-Isopropyltoluene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	99-87-6	
Methylene Chloride	ND	ug/L	20.0	10.0	5		11/20/14 19:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	25.0	12.5	5		11/20/14 19:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	5.0	0.84	5		11/20/14 19:56	1634-04-4	
Naphthalene	ND	ug/L	20.0	10.0	5		11/20/14 19:56	91-20-3	
n-Propylbenzene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	103-65-1	
Styrene	ND	ug/L	5.0	0.32	5		11/20/14 19:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	5.0	2.5	5		11/20/14 19:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	5.0	2.5	5		11/20/14 19:56	79-34-5	
Tetrachloroethene	ND	ug/L	5.0	0.78	5		11/20/14 19:56	127-18-4	
Tetrahydrofuran	ND	ug/L	50.0	10	5		11/20/14 19:56	109-99-9	
Toluene	ND	ug/L	5.0	0.55	5		11/20/14 19:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	5.0	1.3	5		11/20/14 19:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	5.0	0.64	5		11/20/14 19:56	79-00-5	
Trichloroethene	ND	ug/L	2.0	0.46	5		11/20/14 19:56	79-01-6	
Trichlorofluoromethane	ND	ug/L	20.0	1.1	5		11/20/14 19:56	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	20.0	6.1	5		11/20/14 19:56	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	5.0	2.5	5		11/20/14 19:56	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	5.0	2.5	5		11/20/14 19:56	108-67-8	
Vinyl chloride	ND	ug/L	2.0	0.98	5		11/20/14 19:56	75-01-4	
Xylene (Total)	ND	ug/L	15.0	2.0	5		11/20/14 19:56	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	100 %		75-125		5		11/20/14 19:56	17060-07-0	2M, HS, pH
Toluene-d8 (S)	102 %		75-125		5		11/20/14 19:56	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125		5		11/20/14 19:56	460-00-4	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Sample: TB		Lab ID: 10288430008	Collected: 11/11/14 00:00	Received: 11/12/14 07:48	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIGRO GCV</b>		Analytical Method: WI MOD GRO							
Gasoline Range Organics	ND ug/L		100	50.0	1		11/22/14 06:29		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	97 %.		80-125		1		11/22/14 06:29	98-08-8	
<b>8260 VOC</b>		Analytical Method: EPA 8260							
Acetone	ND ug/L		20.0	10.0	1		11/21/14 03:32	67-64-1	
Allyl chloride	ND ug/L		4.0	0.45	1		11/21/14 03:32	107-05-1	
Benzene	ND ug/L		1.0	0.15	1		11/21/14 03:32	71-43-2	
Bromobenzene	ND ug/L		1.0	0.13	1		11/21/14 03:32	108-86-1	
Bromochloromethane	ND ug/L		1.0	0.12	1		11/21/14 03:32	74-97-5	
Bromodichloromethane	ND ug/L		1.0	0.20	1		11/21/14 03:32	75-27-4	
Bromoform	ND ug/L		4.0	2.0	1		11/21/14 03:32	75-25-2	
Bromomethane	ND ug/L		4.0	2.0	1		11/21/14 03:32	74-83-9	CL
2-Butanone (MEK)	ND ug/L		5.0	2.5	1		11/21/14 03:32	78-93-3	
n-Butylbenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	0.16	1		11/21/14 03:32	56-23-5	
Chlorobenzene	ND ug/L		1.0	0.066	1		11/21/14 03:32	108-90-7	
Chloroethane	ND ug/L		1.0	0.27	1		11/21/14 03:32	75-00-3	
Chloroform	ND ug/L		1.0	0.16	1		11/21/14 03:32	67-66-3	
Chloromethane	ND ug/L		4.0	0.34	1		11/21/14 03:32	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	0.14	1		11/21/14 03:32	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	0.083	1		11/21/14 03:32	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	2.0	1		11/21/14 03:32	96-12-8	
Dibromochloromethane	ND ug/L		1.0	0.50	1		11/21/14 03:32	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	0.15	1		11/21/14 03:32	106-93-4	
Dibromomethane	ND ug/L		4.0	0.18	1		11/21/14 03:32	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	0.16	1		11/21/14 03:32	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	0.50	1		11/21/14 03:32	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	0.16	1		11/21/14 03:32	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	0.13	1		11/21/14 03:32	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	0.20	1		11/21/14 03:32	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	0.13	1		11/21/14 03:32	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	0.23	1		11/21/14 03:32	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	0.20	1		11/21/14 03:32	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	0.14	1		11/21/14 03:32	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	0.50	1		11/21/14 03:32	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	0.17	1		11/21/14 03:32	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	0.50	1		11/21/14 03:32	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	0.13	1		11/21/14 03:32	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	0.18	1		11/21/14 03:32	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	0.14	1		11/21/14 03:32	60-29-7	
Ethylbenzene	ND ug/L		1.0	0.16	1		11/21/14 03:32	100-41-4	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Sample: TB		Lab ID: 10288430008	Collected: 11/11/14 00:00	Received: 11/12/14 07:48	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 VOC</b>									
Analytical Method: EPA 8260									
Hexachloro-1,3-butadiene	ND ug/L		1.0	0.50	1		11/21/14 03:32	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	0.50	1		11/21/14 03:32	98-82-8	
p-Isopropyltoluene	ND ug/L		1.0	0.50	1		11/21/14 03:32	99-87-6	
Methylene Chloride	ND ug/L		4.0	2.0	1		11/21/14 03:32	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	2.5	1		11/21/14 03:32	108-10-1	
Methyl-tert-butyl ether	ND ug/L		1.0	0.17	1		11/21/14 03:32	1634-04-4	
Naphthalene	ND ug/L		4.0	2.0	1		11/21/14 03:32	91-20-3	
n-Propylbenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	103-65-1	
Styrene	ND ug/L		1.0	0.069	1		11/21/14 03:32	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	0.50	1		11/21/14 03:32	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	0.50	1		11/21/14 03:32	79-34-5	
Tetrachloroethene	ND ug/L		1.0	0.16	1		11/21/14 03:32	127-18-4	
Tetrahydrofuran	ND ug/L		10.0	2.0	1		11/21/14 03:32	109-99-9	
Toluene	ND ug/L		1.0	0.11	1		11/21/14 03:32	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	120-82-1	
1,1,1-Trichloroethane	ND ug/L		1.0	0.26	1		11/21/14 03:32	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	0.14	1		11/21/14 03:32	79-00-5	
Trichloroethene	ND ug/L		0.40	0.091	1		11/21/14 03:32	79-01-6	
Trichlorofluoromethane	ND ug/L		1.0	0.22	1		11/21/14 03:32	75-69-4	
1,2,3-Trichloropropane	ND ug/L		4.0	1.2	1		11/21/14 03:32	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		1.0	0.50	1		11/21/14 03:32	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		1.0	0.50	1		11/21/14 03:32	108-67-8	
Vinyl chloride	ND ug/L		0.40	0.10	1		11/21/14 03:32	75-01-4	
Xylene (Total)	ND ug/L		3.0	0.40	1		11/21/14 03:32	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	117 %.		75-125		1		11/21/14 03:32	17060-07-0	
Toluene-d8 (S)	118 %.		75-125		1		11/21/14 03:32	2037-26-5	
4-Bromofluorobenzene (S)	120 %.		75-125		1		11/21/14 03:32	460-00-4	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: GCV/12949 Analysis Method: WI MOD GRO  
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV  
Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

METHOD BLANK: 1847388 Matrix: Solid  
Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	25.0	11/22/14 00:58	
a,a,a-Trifluorotoluene (S)	%.	99	80-125	11/22/14 00:58	

LABORATORY CONTROL SAMPLE & LCSD: 1847389

Parameter	Units	1847390		LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
		Spike Conc.	LCS Result						
Gasoline Range Organics	mg/kg	50	47.1	94	117	80-120	22	20	R1
a,a,a-Trifluorotoluene (S)	%.			97	101	80-125			

MATRIX SPIKE SAMPLE: 1847392

Parameter	Units	10288430001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg		6.1J	58.1	64.1	100	80-120
a,a,a-Trifluorotoluene (S)	%.				99	80-125	

SAMPLE DUPLICATE: 1847393

Parameter	Units	10288430003 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	12.7J	ND		20	
a,a,a-Trifluorotoluene (S)	%.	101	99	24		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch:	GCV/12967	Analysis Method:	WI MOD GRO
QC Batch Method:	WI MOD GRO	Analysis Description:	WIGRO GCV Water
Associated Lab Samples:	10288430008		

METHOD BLANK: 1850056 Matrix: Water  
Associated Lab Samples: 10288430008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	11/22/14 00:54	
a,a,a-Trifluorotoluene (S)	%.	98	80-125	11/22/14 00:54	

LABORATORY CONTROL SAMPLE & LCSD: 1850057

Parameter	Units	1850058								
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	1090	1140	109	114	80-120	5	20	
a,a,a-Trifluorotoluene (S)	%.				99	100	80-125			

MATRIX SPIKE SAMPLE: 1851683

Parameter	Units	10288440003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	ND	1000	1960	196	80-120	M1
a,a,a-Trifluorotoluene (S)	%.				99	80-125	

SAMPLE DUPLICATE: 1851684

Parameter	Units	10288440008 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%.	98	98	0		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: GCV/12968 Analysis Method: WI MOD GRO  
 QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water  
 Associated Lab Samples: 10288430002, 10288430007

METHOD BLANK: 1850059 Matrix: Water

Associated Lab Samples: 10288430002, 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	11/25/14 18:09	
a,a,a-Trifluorotoluene (S)	%.	98	80-125	11/25/14 18:09	

LABORATORY CONTROL SAMPLE & LCSD: 1850060 1850061

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	1010	969	101	97	80-120	5	20	
a,a,a-Trifluorotoluene (S)	%.				101	94	80-125			

MATRIX SPIKE SAMPLE: 1853531

Parameter	Units	10288550003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	ND	1000	1350	133	80-120	M1
a,a,a-Trifluorotoluene (S)	%.				101	80-125	

SAMPLE DUPLICATE: 1853532

Parameter	Units	10288550004 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%.	98	96	2		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: MERP/12149      Analysis Method: EPA 7470A  
 QC Batch Method: EPA 7470A      Analysis Description: 7470A Mercury Water  
 Associated Lab Samples: 10288430002, 10288430007

METHOD BLANK: 1843915      Matrix: Water

Associated Lab Samples: 10288430002, 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	11/19/14 15:51	

LABORATORY CONTROL SAMPLE: 1843916

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843917      1843918

Parameter	Units	10288440003		1843917		1843918		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.	MS Result	MSD Spike Conc.				
Mercury	ug/L	ND	5	5	5.0	5.0	100	100	75-125	1	20

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: MERP/12157      Analysis Method: EPA 7471B  
 QC Batch Method: EPA 7471B      Analysis Description: 7471B Mercury Solids  
 Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

METHOD BLANK: 1845176      Matrix: Solid  
 Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.020	11/20/14 16:39	

LABORATORY CONTROL SAMPLE: 1845177

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.47	0.46	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1845178      1845179

Parameter	Units	10288430001		1845178		1845179		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Mercury	mg/kg	0.012J	.52	.55	0.53	0.54	100	96	75-125	2	20

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: MPRP/50575 Analysis Method: EPA 6010C  
 QC Batch Method: EPA 3050 Analysis Description: 6010C Solids  
 Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

METHOD BLANK: 1842687 Matrix: Solid  
 Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	0.98	11/14/14 18:02	
Barium	mg/kg	ND	0.49	11/14/14 18:02	
Cadmium	mg/kg	ND	0.15	11/14/14 18:02	
Chromium	mg/kg	ND	0.49	11/14/14 18:02	
Lead	mg/kg	ND	0.98	11/14/14 18:02	
Selenium	mg/kg	ND	0.74	11/14/14 18:02	
Silver	mg/kg	ND	0.49	11/14/14 18:02	

LABORATORY CONTROL SAMPLE: 1842688

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	48.5	43.5	90	80-120	
Barium	mg/kg	48.5	44.4	91	80-120	
Cadmium	mg/kg	48.5	42.4	87	80-120	
Chromium	mg/kg	48.5	44.0	91	80-120	
Lead	mg/kg	48.5	44.4	91	80-120	
Selenium	mg/kg	48.5	41.2	85	80-120	
Silver	mg/kg	24.3	20.9	86	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1842689 1842690

Parameter	Units	10288006001		1842689		1842690		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	mg/kg	1.4	49.7	49.7	51.6	46.4	50.3	91	95	75-125	8	20	
Barium	mg/kg	55.4	49.7	49.7	51.6	84.4	86.6	58	60	75-125	3	20	M1
Cadmium	mg/kg	ND	49.7	49.7	51.6	47.4	48.2	95	93	75-125	2	20	
Chromium	mg/kg	8.8	49.7	49.7	51.6	57.1	58.3	97	96	75-125	2	20	
Lead	mg/kg	5.3	49.7	49.7	51.6	52.0	52.2	94	91	75-125	0	20	
Selenium	mg/kg	ND	49.7	49.7	51.6	44.2	46.1	89	89	75-125	4	20	
Silver	mg/kg	ND	24.8	24.8	25.8	22.8	23.4	92	91	75-125	2	20	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288430

QC Batch: MPRP/50606 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3010 Analysis Description: 6010C Water  
Associated Lab Samples: 10288430002, 10288430007

METHOD BLANK: 1843321 Matrix: Water  
Associated Lab Samples: 10288430002, 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	20.0	11/14/14 11:34	
Barium	ug/L	ND	10.0	11/14/14 11:34	
Cadmium	ug/L	ND	3.0	11/14/14 11:34	
Chromium	ug/L	ND	10.0	11/14/14 11:34	
Lead	ug/L	ND	10.0	11/14/14 11:34	
Selenium	ug/L	ND	20.0	11/14/14 11:34	
Silver	ug/L	ND	10.0	11/14/14 11:34	

LABORATORY CONTROL SAMPLE: 1843322

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	984	98	80-120	
Barium	ug/L	1000	1060	106	80-120	
Cadmium	ug/L	1000	984	98	80-120	
Chromium	ug/L	1000	980	98	80-120	
Lead	ug/L	1000	990	99	80-120	
Selenium	ug/L	1000	986	99	80-120	
Silver	ug/L	500	460	92	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843323 1843324

Parameter	Units	10288197001		1843323		1843324		% Rec	% Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	ug/L	ND	1000	1000	1120	1100	111	109	75-125	1	20		
Barium	ug/L	32.6	1000	1000	1020	1010	99	98	75-125	1	20		
Cadmium	ug/L	ND	1000	1000	1050	1040	105	104	75-125	1	20		
Chromium	ug/L	ND	1000	1000	995	985	99	98	75-125	1	20		
Lead	ug/L	ND	1000	1000	973	961	97	96	75-125	1	20		
Selenium	ug/L	ND	1000	1000	1070	1030	106	103	75-125	3	20		
Silver	ug/L	ND	500	500	491	485	98	97	75-125	1	20		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: MPRP/50831

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

SAMPLE DUPLICATE: 1851594

Parameter	Units	60181686034 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	20.7	21.9	5	30	

SAMPLE DUPLICATE: 1851595

Parameter	Units	10288497009 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	24.7	24.6	1	30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288430

QC Batch: MSV/29370 Analysis Method: EPA 8260  
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5030 Med Level  
Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

METHOD BLANK: 1843722 Matrix: Solid  
Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	50.0	11/14/14 17:49	
1,1,1-Trichloroethane	ug/kg	ND	50.0	11/14/14 17:49	
1,1,2,2-Tetrachloroethane	ug/kg	ND	50.0	11/14/14 17:49	
1,1,2-Trichloroethane	ug/kg	ND	50.0	11/14/14 17:49	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	200	11/14/14 17:49	
1,1-Dichloroethane	ug/kg	ND	50.0	11/14/14 17:49	
1,1-Dichloroethene	ug/kg	ND	50.0	11/14/14 17:49	
1,1-Dichloropropene	ug/kg	ND	50.0	11/14/14 17:49	
1,2,3-Trichlorobenzene	ug/kg	ND	50.0	11/14/14 17:49	
1,2,3-Trichloropropane	ug/kg	ND	200	11/14/14 17:49	
1,2,4-Trichlorobenzene	ug/kg	35.4J	50.0	11/14/14 17:49	
1,2,4-Trimethylbenzene	ug/kg	ND	50.0	11/14/14 17:49	
1,2-Dibromo-3-chloropropane	ug/kg	ND	500	11/14/14 17:49	
1,2-Dibromoethane (EDB)	ug/kg	ND	50.0	11/14/14 17:49	
1,2-Dichlorobenzene	ug/kg	ND	50.0	11/14/14 17:49	
1,2-Dichloroethane	ug/kg	ND	50.0	11/14/14 17:49	
1,2-Dichloropropane	ug/kg	ND	50.0	11/14/14 17:49	
1,3,5-Trimethylbenzene	ug/kg	ND	50.0	11/14/14 17:49	
1,3-Dichlorobenzene	ug/kg	ND	50.0	11/14/14 17:49	
1,3-Dichloropropane	ug/kg	ND	50.0	11/14/14 17:49	
1,4-Dichlorobenzene	ug/kg	ND	50.0	11/14/14 17:49	
2,2-Dichloropropane	ug/kg	ND	200	11/14/14 17:49	
2-Butanone (MEK)	ug/kg	ND	250	11/14/14 17:49	
2-Chlorotoluene	ug/kg	ND	50.0	11/14/14 17:49	
4-Chlorotoluene	ug/kg	ND	50.0	11/14/14 17:49	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	250	11/14/14 17:49	
Acetone	ug/kg	ND	1000	11/14/14 17:49	
Allyl chloride	ug/kg	ND	200	11/14/14 17:49	
Benzene	ug/kg	ND	20.0	11/14/14 17:49	
Bromobenzene	ug/kg	ND	50.0	11/14/14 17:49	
Bromochloromethane	ug/kg	ND	50.0	11/14/14 17:49	
Bromodichloromethane	ug/kg	ND	50.0	11/14/14 17:49	
Bromoform	ug/kg	ND	200	11/14/14 17:49	
Bromomethane	ug/kg	ND	500	11/14/14 17:49	
Carbon tetrachloride	ug/kg	ND	50.0	11/14/14 17:49	
Chlorobenzene	ug/kg	ND	50.0	11/14/14 17:49	
Chloroethane	ug/kg	ND	500	11/14/14 17:49	CL
Chloroform	ug/kg	ND	50.0	11/14/14 17:49	
Chloromethane	ug/kg	ND	200	11/14/14 17:49	
cis-1,2-Dichloroethene	ug/kg	ND	50.0	11/14/14 17:49	
cis-1,3-Dichloropropene	ug/kg	ND	50.0	11/14/14 17:49	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

METHOD BLANK: 1843722

Matrix: Solid

Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/kg	ND	50.0	11/14/14 17:49	
Dibromomethane	ug/kg	ND	50.0	11/14/14 17:49	
Dichlorodifluoromethane	ug/kg	ND	200	11/14/14 17:49	
Dichlorofluoromethane	ug/kg	ND	500	11/14/14 17:49	
Diethyl ether (Ethyl ether)	ug/kg	ND	200	11/14/14 17:49	
Ethylbenzene	ug/kg	7.3J	50.0	11/14/14 17:49	
Hexachloro-1,3-butadiene	ug/kg	ND	250	11/14/14 17:49	
Isopropylbenzene (Cumene)	ug/kg	ND	50.0	11/14/14 17:49	
Methyl-tert-butyl ether	ug/kg	ND	50.0	11/14/14 17:49	
Methylene Chloride	ug/kg	ND	200	11/14/14 17:49	
n-Butylbenzene	ug/kg	21.5J	50.0	11/14/14 17:49	
n-Propylbenzene	ug/kg	ND	50.0	11/14/14 17:49	
Naphthalene	ug/kg	ND	200	11/14/14 17:49	
p-Isopropyltoluene	ug/kg	16.6J	50.0	11/14/14 17:49	
sec-Butylbenzene	ug/kg	17.8J	50.0	11/14/14 17:49	
Styrene	ug/kg	ND	50.0	11/14/14 17:49	
tert-Butylbenzene	ug/kg	ND	50.0	11/14/14 17:49	
Tetrachloroethane	ug/kg	ND	50.0	11/14/14 17:49	
Tetrahydrofuran	ug/kg	ND	2000	11/14/14 17:49	
Toluene	ug/kg	ND	50.0	11/14/14 17:49	
trans-1,2-Dichloroethane	ug/kg	ND	50.0	11/14/14 17:49	
trans-1,3-Dichloropropene	ug/kg	ND	50.0	11/14/14 17:49	
Trichloroethene	ug/kg	ND	50.0	11/14/14 17:49	
Trichlorofluoromethane	ug/kg	ND	200	11/14/14 17:49	CL
Vinyl chloride	ug/kg	ND	20.0	11/14/14 17:49	
Xylene (Total)	ug/kg	ND	150	11/14/14 17:49	
1,2-Dichloroethane-d4 (S)	%	82	74-125	11/14/14 17:49	
4-Bromofluorobenzene (S)	%	93	75-125	11/14/14 17:49	
Toluene-d8 (S)	%	97	75-125	11/14/14 17:49	

LABORATORY CONTROL SAMPLE: 1843723

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1000	994	99	68-125	
1,1,1-Trichloroethane	ug/kg	1000	918	92	62-125	
1,1,2,2-Tetrachloroethane	ug/kg	1000	1010	101	61-127	
1,1,2-Trichloroethane	ug/kg	1000	998	100	70-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	1000	828	83	56-149	
1,1-Dichloroethane	ug/kg	1000	1040	104	60-127	
1,1-Dichloroethene	ug/kg	1000	767	77	63-125	
1,1-Dichloropropene	ug/kg	1000	941	94	67-125	
1,2,3-Trichlorobenzene	ug/kg	1000	870	87	63-132	
1,2,3-Trichloropropane	ug/kg	1000	861	86	67-125	
1,2,4-Trichlorobenzene	ug/kg	1000	1020	102	64-132	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1843723

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	878	88	64-125	
1,2-Dibromo-3-chloropropane	ug/kg	2500	2310	93	56-132	
1,2-Dibromoethane (EDB)	ug/kg	1000	950	95	72-125	
1,2-Dichlorobenzene	ug/kg	1000	947	95	68-125	
1,2-Dichloroethane	ug/kg	1000	1000	100	69-125	
1,2-Dichloropropane	ug/kg	1000	957	96	73-125	
1,3,5-Trimethylbenzene	ug/kg	1000	895	89	64-125	
1,3-Dichlorobenzene	ug/kg	1000	896	90	67-125	
1,3-Dichloropropane	ug/kg	1000	988	99	71-125	
1,4-Dichlorobenzene	ug/kg	1000	915	91	69-125	
2,2-Dichloropropane	ug/kg	1000	1020	102	53-131	
2-Butanone (MEK)	ug/kg	5000	3530	71	52-131	
2-Chlorotoluene	ug/kg	1000	912	91	66-125	
4-Chlorotoluene	ug/kg	1000	848	85	52-131	
4-Methyl-2-pentanone (MIBK)	ug/kg	5000	4390	88	64-125	
Acetone	ug/kg	5000	1730	35	42-150	L0
Allyl chloride	ug/kg	1000	812	81	58-128	
Benzene	ug/kg	1000	974	97	71-125	
Bromobenzene	ug/kg	1000	913	91	69-125	
Bromochloromethane	ug/kg	1000	804	80	75-125	
Bromodichloromethane	ug/kg	1000	941	94	69-125	
Bromoform	ug/kg	1000	903	90	62-125	
Bromomethane	ug/kg	1000	1440	144	62-125	L0
Carbon tetrachloride	ug/kg	1000	897	90	66-125	
Chlorobenzene	ug/kg	1000	935	94	75-125	
Chloroethane	ug/kg	1000	793	79	61-125	
Chloroform	ug/kg	1000	930	93	72-125	
Chloromethane	ug/kg	1000	851	85	59-125	
cis-1,2-Dichloroethene	ug/kg	1000	910	91	74-125	
cis-1,3-Dichloropropene	ug/kg	1000	957	96	68-125	
Dibromochloromethane	ug/kg	1000	970	97	65-125	
Dibromomethane	ug/kg	1000	949	95	72-125	
Dichlorodifluoromethane	ug/kg	1000	1190	119	39-125	
Dichlorofluoromethane	ug/kg	1000	1010	101	64-127	CH
Diethyl ether (Ethyl ether)	ug/kg	1000	1390	139	66-125	L0
Ethylbenzene	ug/kg	1000	890	89	69-125	
Hexachloro-1,3-butadiene	ug/kg	1000	933	93	53-150	
Isopropylbenzene (Cumene)	ug/kg	1000	860	86	70-125	
Methyl-tert-butyl ether	ug/kg	1000	1000	100	69-125	
Methylene Chloride	ug/kg	1000	904	90	71-125	
n-Butylbenzene	ug/kg	1000	789	79	59-133	
n-Propylbenzene	ug/kg	1000	924	92	64-125	
Naphthalene	ug/kg	1000	994	99	61-131	
p-Isopropyltoluene	ug/kg	1000	881	88	63-127	
sec-Butylbenzene	ug/kg	1000	928	93	64-125	
Styrene	ug/kg	1000	985	99	74-125	
tert-Butylbenzene	ug/kg	1000	912	91	66-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1843723

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	1000	844	84	68-125	
Tetrahydrofuran	ug/kg	10000	4640	46	68-125	L0
Toluene	ug/kg	1000	979	98	70-125	
trans-1,2-Dichloroethene	ug/kg	1000	842	84	68-125	
trans-1,3-Dichloropropene	ug/kg	1000	898	90	70-125	
Trichloroethene	ug/kg	1000	893	89	71-125	
Trichlorofluoromethane	ug/kg	1000	1750	175	62-132	L0
Vinyl chloride	ug/kg	1000	914	91	55-125	
Xylene (Total)	ug/kg	3000	2650	88	74-125	
1,2-Dichloroethane-d4 (S)	%			94	74-125	
4-Bromofluorobenzene (S)	%			94	75-125	
Toluene-d8 (S)	%			102	75-125	

MATRIX SPIKE SAMPLE: 1843724

Parameter	Units	10288430001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	1100	1730	157	63-140	M1
1,1,1-Trichloroethane	ug/kg	ND	1100	1150	104	54-149	
1,1,2,2-Tetrachloroethane	ug/kg	ND	1100	1280	116	46-150	
1,1,2-Trichloroethane	ug/kg	ND	1100	1380	125	62-141	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	1100	1050	95	65-150	
1,1-Dichloroethane	ug/kg	ND	1100	1030	94	57-145	
1,1-Dichloroethene	ug/kg	ND	1100	970	88	58-137	
1,1-Dichloropropene	ug/kg	ND	1100	1030	94	61-141	
1,2,3-Trichlorobenzene	ug/kg	ND	1100	1520	138	62-147	
1,2,3-Trichloropropane	ug/kg	ND	1100	1410	128	65-141	
1,2,4-Trichlorobenzene	ug/kg	17.2J	1100	1210	108	64-147	
1,2,4-Trimethylbenzene	ug/kg	ND	1100	1310	119	59-144	
1,2-Dibromo-3-chloropropane	ug/kg	ND	2750	3440	125	56-147	
1,2-Dibromoethane (EDB)	ug/kg	ND	1100	1420	129	66-135	
1,2-Dichlorobenzene	ug/kg	ND	1100	1490	135	63-143	
1,2-Dichloroethane	ug/kg	ND	1100	1040	95	57-145	
1,2-Dichloropropane	ug/kg	ND	1100	1160	105	62-139	
1,3,5-Trimethylbenzene	ug/kg	ND	1100	1320	119	60-144	
1,3-Dichlorobenzene	ug/kg	ND	1100	1460	133	61-146	
1,3-Dichloropropane	ug/kg	ND	1100	1330	120	63-138	
1,4-Dichlorobenzene	ug/kg	ND	1100	1370	124	60-145	
2,2-Dichloropropane	ug/kg	ND	1100	1150	105	54-143	
2-Butanone (MEK)	ug/kg	ND	5510	5460	99	45-150	
2-Chlorotoluene	ug/kg	ND	1100	1300	118	62-140	
4-Chlorotoluene	ug/kg	ND	1100	1320	120	60-143	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	5510	6790	123	58-146	
Acetone	ug/kg	ND	5510	5940	108	30-150	
Allyl chloride	ug/kg	ND	1100	954	87	55-142	
Benzene	ug/kg	ND	1100	1090	99	61-134	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

MATRIX SPIKE SAMPLE:	1843724	10288430001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromobenzene	ug/kg	ND	1100	1410	128	64-143	
Bromochloromethane	ug/kg	ND	1100	1110	101	62-141	
Bromodichloromethane	ug/kg	ND	1100	1340	122	57-146	
Bromoform	ug/kg	ND	1100	1930	175	60-136	CH,M1
Bromomethane	ug/kg	ND	1100	1200	87	54-141	
Carbon tetrachloride	ug/kg	ND	1100	1360	124	50-150	
Chlorobenzene	ug/kg	ND	1100	1340	122	67-135	
Chloroethane	ug/kg	ND	1100	663	60	46-150	CL
Chloroform	ug/kg	ND	1100	1070	97	60-141	
Chloromethane	ug/kg	ND	1100	1040	94	46-133	
cis-1,2-Dichloroethene	ug/kg	ND	1100	1120	102	64-138	
cis-1,3-Dichloropropene	ug/kg	ND	1100	1280	116	64-138	
Dibromochloromethane	ug/kg	ND	1100	1650	150	56-145	M1
Dibromomethane	ug/kg	ND	1100	1500	136	62-138	
Dichlorodifluoromethane	ug/kg	ND	1100	942	85	30-136	
Dichlorofluoromethane	ug/kg	ND	1100	930	84	47-150	
Diethyl ether (Ethyl ether)	ug/kg	ND	1100	944	86	59-137	
Ethylbenzene	ug/kg	8.1J	1100	1270	114	63-135	
Hexachloro-1,3-butadiene	ug/kg	ND	1100	1190	105	65-150	
Isopropylbenzene (Cumene)	ug/kg	ND	1100	1400	127	65-137	
Methyl-tert-butyl ether	ug/kg	ND	1100	1120	101	56-143	
Methylene Chloride	ug/kg	ND	1100	1040	94	62-133	
n-Butylbenzene	ug/kg	10.9J	1100	1300	117	58-148	
n-Propylbenzene	ug/kg	ND	1100	1300	118	60-142	
Naphthalene	ug/kg	ND	1100	1240	112	61-146	
p-Isopropyltoluene	ug/kg	ND	1100	1390	126	61-145	
sec-Butylbenzene	ug/kg	7.0J	1100	1320	119	57-147	
Styrene	ug/kg	ND	1100	1340	121	67-137	
tert-Butylbenzene	ug/kg	ND	1100	1380	125	57-149	
Tetrachloroethene	ug/kg	ND	1100	1370	125	66-138	
Tetrahydrofuran	ug/kg	ND	11000	12800	116	53-145	
Toluene	ug/kg	ND	1100	1250	113	67-132	
trans-1,2-Dichloroethene	ug/kg	ND	1100	1050	95	61-136	
trans-1,3-Dichloropropene	ug/kg	ND	1100	1290	117	60-140	
Trichloroethene	ug/kg	ND	1100	1280	116	58-150	
Trichlorofluoromethane	ug/kg	ND	1100	551	50	53-150	CL,M0
Vinyl chloride	ug/kg	ND	1100	1140	104	45-139	
Xylene (Total)	ug/kg	ND	3300	3890	118	66-136	
1,2-Dichloroethane-d4 (S)	%				80	74-125	
4-Bromofluorobenzene (S)	%				95	75-125	
Toluene-d8 (S)	%				96	75-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

SAMPLE DUPLICATE: 1843725

Parameter	Units	10288430003 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	20.9J		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	ND		30	
Allyl chloride	ug/kg	ND	ND		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	CL
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Dichlorofluoromethane	ug/kg	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

SAMPLE DUPLICATE: 1843725

Parameter	Units	10288430003 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	14.1J	11.6J		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Tetrahydrofuran	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	CL
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	84	85	0		
4-Bromofluorobenzene (S)	%.	95	95	1		
Toluene-d8 (S)	%.	97	98	0		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: MSV/29449

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 465 W

Associated Lab Samples: 10288430008

METHOD BLANK: 1849138

Matrix: Water

Associated Lab Samples: 10288430008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/21/14 03:17	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/21/14 03:17	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/21/14 03:17	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/21/14 03:17	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/21/14 03:17	
1,1-Dichloroethane	ug/L	ND	1.0	11/21/14 03:17	
1,1-Dichloroethene	ug/L	ND	1.0	11/21/14 03:17	
1,1-Dichloropropene	ug/L	ND	1.0	11/21/14 03:17	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/21/14 03:17	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/21/14 03:17	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/21/14 03:17	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/21/14 03:17	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/21/14 03:17	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/21/14 03:17	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/21/14 03:17	
1,2-Dichloroethane	ug/L	ND	1.0	11/21/14 03:17	
1,2-Dichloropropane	ug/L	ND	4.0	11/21/14 03:17	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/21/14 03:17	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/21/14 03:17	
1,3-Dichloropropane	ug/L	ND	1.0	11/21/14 03:17	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/21/14 03:17	
2,2-Dichloropropane	ug/L	ND	4.0	11/21/14 03:17	
2-Butanone (MEK)	ug/L	ND	5.0	11/21/14 03:17	
2-Chlorotoluene	ug/L	ND	1.0	11/21/14 03:17	
4-Chlorotoluene	ug/L	ND	1.0	11/21/14 03:17	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/21/14 03:17	
Acetone	ug/L	ND	20.0	11/21/14 03:17	
Allyl chloride	ug/L	ND	4.0	11/21/14 03:17	
Benzene	ug/L	ND	1.0	11/21/14 03:17	
Bromobenzene	ug/L	ND	1.0	11/21/14 03:17	
Bromochloromethane	ug/L	ND	1.0	11/21/14 03:17	
Bromodichloromethane	ug/L	ND	1.0	11/21/14 03:17	
Bromoform	ug/L	ND	4.0	11/21/14 03:17	
Bromomethane	ug/L	ND	4.0	11/21/14 03:17	CL
Carbon tetrachloride	ug/L	ND	1.0	11/21/14 03:17	
Chlorobenzene	ug/L	ND	1.0	11/21/14 03:17	
Chloroethane	ug/L	ND	1.0	11/21/14 03:17	
Chloroform	ug/L	ND	1.0	11/21/14 03:17	
Chloromethane	ug/L	ND	4.0	11/21/14 03:17	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/21/14 03:17	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/21/14 03:17	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

METHOD BLANK: 1849138

Matrix: Water

Associated Lab Samples: 10288430008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/21/14 03:17	
Dibromomethane	ug/L	ND	4.0	11/21/14 03:17	
Dichlorodifluoromethane	ug/L	ND	1.0	11/21/14 03:17	
Dichlorofluoromethane	ug/L	ND	1.0	11/21/14 03:17	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/21/14 03:17	
Ethylbenzene	ug/L	ND	1.0	11/21/14 03:17	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/21/14 03:17	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/21/14 03:17	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/21/14 03:17	
Methylene Chloride	ug/L	ND	4.0	11/21/14 03:17	
n-Butylbenzene	ug/L	ND	1.0	11/21/14 03:17	
n-Propylbenzene	ug/L	ND	1.0	11/21/14 03:17	
Naphthalene	ug/L	ND	4.0	11/21/14 03:17	
p-Isopropyltoluene	ug/L	ND	1.0	11/21/14 03:17	
sec-Butylbenzene	ug/L	ND	1.0	11/21/14 03:17	
Styrene	ug/L	ND	1.0	11/21/14 03:17	
tert-Butylbenzene	ug/L	ND	1.0	11/21/14 03:17	
Tetrachloroethene	ug/L	ND	1.0	11/21/14 03:17	
Tetrahydrofuran	ug/L	ND	10.0	11/21/14 03:17	
Toluene	ug/L	ND	1.0	11/21/14 03:17	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/21/14 03:17	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/21/14 03:17	
Trichloroethene	ug/L	ND	0.40	11/21/14 03:17	
Trichlorofluoromethane	ug/L	ND	1.0	11/21/14 03:17	
Vinyl chloride	ug/L	ND	0.40	11/21/14 03:17	
Xylene (Total)	ug/L	ND	3.0	11/21/14 03:17	
1,2-Dichloroethane-d4 (S)	%	119	75-125	11/21/14 03:17	
4-Bromofluorobenzene (S)	%	117	75-125	11/21/14 03:17	
Toluene-d8 (S)	%	116	75-125	11/21/14 03:17	

LABORATORY CONTROL SAMPLE: 1849139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	17.2	86	75-125	
1,1,1-Trichloroethane	ug/L	20	18.0	90	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	22.4	112	74-125	
1,1,2-Trichloroethane	ug/L	20	20.0	100	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	17.8	89	56-133	
1,1-Dichloroethane	ug/L	20	19.4	97	75-125	
1,1-Dichloroethene	ug/L	20	18.2	91	70-125	
1,1-Dichloropropene	ug/L	20	19.6	98	73-125	
1,2,3-Trichlorobenzene	ug/L	20	17.2	86	75-125	
1,2,3-Trichloropropane	ug/L	20	21.2	106	75-125	
1,2,4-Trichlorobenzene	ug/L	20	16.3	82	75-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1849139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	22.2	111	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	50.4	101	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	18.3	92	75-125	
1,2-Dichlorobenzene	ug/L	20	20.3	102	75-125	
1,2-Dichloroethane	ug/L	20	18.7	93	75-125	
1,2-Dichloropropane	ug/L	20	17.8	89	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.7	103	75-125	
1,3-Dichlorobenzene	ug/L	20	20.4	102	75-125	
1,3-Dichloropropane	ug/L	20	21.2	106	75-125	
1,4-Dichlorobenzene	ug/L	20	20.6	103	75-125	
2,2-Dichloropropane	ug/L	20	15.9	80	66-130	
2-Butanone (MEK)	ug/L	100	117	117	64-126	
2-Chlorotoluene	ug/L	20	22.2	111	73-125	
4-Chlorotoluene	ug/L	20	23.1	115	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	116	116	71-125	
Acetone	ug/L	100	81.8	82	66-131	
Allyl chloride	ug/L	20	21.1	106	70-129	
Benzene	ug/L	20	20.1	101	75-125	
Bromobenzene	ug/L	20	20.7	103	75-125	
Bromochloromethane	ug/L	20	17.6	88	75-125	
Bromodichloromethane	ug/L	20	18.6	93	75-125	
Bromoform	ug/L	20	17.1	86	70-125	
Bromomethane	ug/L	20	10.5	53	30-150	CL
Carbon tetrachloride	ug/L	20	18.6	93	68-129	
Chlorobenzene	ug/L	20	19.6	98	75-125	
Chloroethane	ug/L	20	25.0	125	68-133	
Chloroform	ug/L	20	19.5	98	75-125	
Chloromethane	ug/L	20	17.8	89	57-140	
cis-1,2-Dichloroethene	ug/L	20	18.5	93	75-125	
cis-1,3-Dichloropropene	ug/L	20	16.3	82	75-125	
Dibromochloromethane	ug/L	20	18.8	94	75-125	
Dibromomethane	ug/L	20	15.9	80	75-125	
Dichlorodifluoromethane	ug/L	20	18.9	95	50-134	
Dichlorofluoromethane	ug/L	20	22.3	111	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	20.6	103	75-125	
Ethylbenzene	ug/L	20	20.2	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	19.1	95	74-128	
Isopropylbenzene (Cumene)	ug/L	20	22.0	110	73-125	
Methyl-tert-butyl ether	ug/L	20	19.6	98	75-125	
Methylene Chloride	ug/L	20	19.4	97	75-125	
n-Butylbenzene	ug/L	20	20.9	104	73-125	
n-Propylbenzene	ug/L	20	22.7	113	72-125	
Naphthalene	ug/L	20	15.4	77	74-125	
p-Isopropyltoluene	ug/L	20	21.7	109	74-125	
sec-Butylbenzene	ug/L	20	23.8	119	74-125	
Styrene	ug/L	20	22.3	112	75-125	
tert-Butylbenzene	ug/L	20	22.3	112	74-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1849139

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	17.2	86	71-125	
Tetrahydrofuran	ug/L	200	148	74	70-125	
Toluene	ug/L	20	19.5	97	75-125	
trans-1,2-Dichloroethene	ug/L	20	18.4	92	73-125	
trans-1,3-Dichloropropene	ug/L	20	18.1	91	75-125	
Trichloroethene	ug/L	20	16.4	82	75-125	
Trichlorofluoromethane	ug/L	20	21.6	108	70-128	
Vinyl chloride	ug/L	20	16.2	81	70-130	
Xylene (Total)	ug/L	60	60.0	100	75-125	
1,2-Dichloroethane-d4 (S)	%			123	75-125	
4-Bromofluorobenzene (S)	%			107	75-125	
Toluene-d8 (S)	%			111	75-125	

MATRIX SPIKE SAMPLE: 1851222

Parameter	Units	10288707004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	14.3	71	74-131	M1
1,1,1-Trichloroethane	ug/L	ND	20	15.1	75	73-139	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	18.9	95	72-125	
1,1,2-Trichloroethane	ug/L	ND	20	16.4	82	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	12.6	63	68-150	M1
1,1-Dichloroethane	ug/L	ND	20	17.6	83	73-132	
1,1-Dichloroethene	ug/L	ND	20	14.6	73	71-142	
1,1-Dichloropropene	ug/L	ND	20	14.5	73	73-139	
1,2,3-Trichlorobenzene	ug/L	ND	20	12.5	63	70-129	M1
1,2,3-Trichloropropane	ug/L	ND	20	17.8	89	74-125	
1,2,4-Trichlorobenzene	ug/L	ND	20	11.5	57	70-129	M1
1,2,4-Trimethylbenzene	ug/L	ND	20	15.0	73	72-136	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	41.1	82	66-127	
1,2-Dibromoethane (EDB)	ug/L	ND	20	14.6	73	75-125	M1
1,2-Dichlorobenzene	ug/L	ND	20	15.3	76	75-125	
1,2-Dichloroethane	ug/L	ND	20	15.6	78	68-128	
1,2-Dichloropropane	ug/L	ND	20	14.9	75	74-131	
1,3,5-Trimethylbenzene	ug/L	ND	20	14.3	72	75-131	M1
1,3-Dichlorobenzene	ug/L	ND	20	15.0	75	73-125	
1,3-Dichloropropane	ug/L	ND	20	17.1	86	75-125	
1,4-Dichlorobenzene	ug/L	ND	20	14.9	75	73-125	
2,2-Dichloropropane	ug/L	ND	20	12.8	64	58-150	
2-Butanone (MEK)	ug/L	ND	100	90.8	91	56-140	
2-Chlorotoluene	ug/L	ND	20	15.9	80	70-130	
4-Chlorotoluene	ug/L	ND	20	16.9	84	73-126	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	97.1	97	69-128	
Acetone	ug/L	ND	100	60.6	61	57-143	
Allyl chloride	ug/L	ND	20	15.2	76	65-146	
Benzene	ug/L	ND	20	14.7	70	75-129	M1

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

MATRIX SPIKE SAMPLE:	1851222						
Parameter	Units	10288707004 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromobenzene	ug/L	ND	20	16.0	80	74-125	
Bromochloromethane	ug/L	ND	20	13.3	66	75-126	M1
Bromodichloromethane	ug/L	ND	20	14.9	75	75-128	
Bromoform	ug/L	ND	20	14.1	71	66-130	
Bromomethane	ug/L	ND	20	9.6	48	30-150	CL
Carbon tetrachloride	ug/L	ND	20	13.6	68	69-148	M1
Chlorobenzene	ug/L	ND	20	14.7	73	75-125	M1
Chloroethane	ug/L	ND	20	25.3	126	71-143	
Chloroform	ug/L	ND	20	16.0	80	75-126	
Chloromethane	ug/L	ND	20	17.3	86	55-150	
cis-1,2-Dichloroethene	ug/L	1.2	20	15.5	72	75-130	M1
cis-1,3-Dichloropropene	ug/L	ND	20	13.1	65	72-129	M1
Dibromochloromethane	ug/L	ND	20	14.9	74	73-129	
Dibromomethane	ug/L	ND	20	13.2	66	75-125	M1
Dichlorodifluoromethane	ug/L	ND	20	19.3	96	70-150	
Dichlorofluoromethane	ug/L	ND	20	21.7	108	75-135	
Diethyl ether (Ethyl ether)	ug/L	ND	20	16.2	81	72-126	
Ethylbenzene	ug/L	ND	20	15.4	77	75-128	
Hexachloro-1,3-butadiene	ug/L	ND	20	11.0	55	65-144	M1
Isopropylbenzene (Cumene)	ug/L	ND	20	14.8	74	75-131	M1
Methyl-tert-butyl ether	ug/L	ND	20	15.4	77	74-128	
Methylene Chloride	ug/L	ND	20	15.6	78	69-125	
n-Butylbenzene	ug/L	ND	20	13.2	66	70-137	M1
n-Propylbenzene	ug/L	ND	20	16.0	80	72-131	
Naphthalene	ug/L	ND	20	11.0	55	70-132	M1
p-Isopropyltoluene	ug/L	ND	20	14.4	72	73-133	M1
sec-Butylbenzene	ug/L	ND	20	15.2	76	74-133	
Styrene	ug/L	ND	20	15.6	78	75-128	
tert-Butylbenzene	ug/L	ND	20	15.7	79	74-130	
Tetrachloroethene	ug/L	ND	20	13.0	65	68-140	M1
Tetrahydrofuran	ug/L	ND	200	111	56	65-131	M1
Toluene	ug/L	ND	20	14.7	74	75-129	M1
trans-1,2-Dichloroethene	ug/L	ND	20	14.0	70	70-136	
trans-1,3-Dichloropropene	ug/L	ND	20	14.3	72	71-125	
Trichloroethene	ug/L	ND	20	13.3	66	72-135	M1
Trichlorofluoromethane	ug/L	ND	20	20.4	102	75-150	
Vinyl chloride	ug/L	2.3	20	19.8	88	73-150	
Xylene (Total)	ug/L	ND	60	45.8	76	75-129	
1,2-Dichloroethane-d4 (S)	%				119	75-125	
4-Bromofluorobenzene (S)	%				107	75-125	
Toluene-d8 (S)	%				113	75-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

SAMPLE DUPLICATE: 1851223

Parameter	Units	10288707008 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	1.1		30	C8
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	0.64J		30	
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	0.21J		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	CL
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	9.4	9.7	4	30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

SAMPLE DUPLICATE: 1851223

Parameter	Units	10288707008 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	0.50J		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	2.3J		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	3.3	3.2	2	30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	115	118	2		
4-Bromofluorobenzene (S)	%.	119	116	2		
Toluene-d8 (S)	%.	115	113	2		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288430

QC Batch: MSV/29454      Analysis Method: EPA 8260  
QC Batch Method: EPA 8260      Analysis Description: 8260 MSV 465 W  
Associated Lab Samples: 10288430007

METHOD BLANK: 1849389      Matrix: Water  
Associated Lab Samples: 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/20/14 14:24	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/20/14 14:24	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/20/14 14:24	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/20/14 14:24	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/20/14 14:24	
1,1-Dichloroethane	ug/L	ND	1.0	11/20/14 14:24	
1,1-Dichloroethene	ug/L	ND	1.0	11/20/14 14:24	
1,1-Dichloropropene	ug/L	ND	1.0	11/20/14 14:24	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/20/14 14:24	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/20/14 14:24	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/20/14 14:24	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/20/14 14:24	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/20/14 14:24	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/20/14 14:24	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/20/14 14:24	
1,2-Dichloroethane	ug/L	ND	1.0	11/20/14 14:24	
1,2-Dichloropropane	ug/L	ND	4.0	11/20/14 14:24	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/20/14 14:24	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/20/14 14:24	
1,3-Dichloropropane	ug/L	ND	1.0	11/20/14 14:24	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/20/14 14:24	
2,2-Dichloropropane	ug/L	ND	4.0	11/20/14 14:24	
2-Butanone (MEK)	ug/L	ND	5.0	11/20/14 14:24	
2-Chlorotoluene	ug/L	ND	1.0	11/20/14 14:24	
4-Chlorotoluene	ug/L	ND	1.0	11/20/14 14:24	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/20/14 14:24	
Acetone	ug/L	ND	20.0	11/20/14 14:24	
Allyl chloride	ug/L	ND	4.0	11/20/14 14:24	
Benzene	ug/L	ND	1.0	11/20/14 14:24	
Bromobenzene	ug/L	ND	1.0	11/20/14 14:24	
Bromochloromethane	ug/L	ND	1.0	11/20/14 14:24	
Bromodichloromethane	ug/L	ND	1.0	11/20/14 14:24	
Bromoform	ug/L	ND	4.0	11/20/14 14:24	
Bromomethane	ug/L	ND	4.0	11/20/14 14:24	
Carbon tetrachloride	ug/L	ND	1.0	11/20/14 14:24	
Chlorobenzene	ug/L	ND	1.0	11/20/14 14:24	
Chloroethane	ug/L	ND	4.0	11/20/14 14:24	
Chloroform	ug/L	ND	1.0	11/20/14 14:24	
Chloromethane	ug/L	ND	4.0	11/20/14 14:24	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/20/14 14:24	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/20/14 14:24	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

METHOD BLANK: 1849389

Matrix: Water

Associated Lab Samples: 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/20/14 14:24	
Dibromomethane	ug/L	ND	4.0	11/20/14 14:24	
Dichlorodifluoromethane	ug/L	ND	1.0	11/20/14 14:24	
Dichlorofluoromethane	ug/L	ND	4.0	11/20/14 14:24	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/20/14 14:24	
Ethylbenzene	ug/L	ND	1.0	11/20/14 14:24	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/20/14 14:24	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/20/14 14:24	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/20/14 14:24	
Methylene Chloride	ug/L	ND	4.0	11/20/14 14:24	
n-Butylbenzene	ug/L	ND	1.0	11/20/14 14:24	
n-Propylbenzene	ug/L	ND	1.0	11/20/14 14:24	
Naphthalene	ug/L	ND	4.0	11/20/14 14:24	
p-Isopropyltoluene	ug/L	ND	1.0	11/20/14 14:24	
sec-Butylbenzene	ug/L	ND	1.0	11/20/14 14:24	
Styrene	ug/L	ND	1.0	11/20/14 14:24	
tert-Butylbenzene	ug/L	ND	1.0	11/20/14 14:24	
Tetrachloroethene	ug/L	ND	1.0	11/20/14 14:24	
Tetrahydrofuran	ug/L	ND	10.0	11/20/14 14:24	
Toluene	ug/L	ND	1.0	11/20/14 14:24	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/20/14 14:24	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/20/14 14:24	
Trichloroethene	ug/L	ND	0.40	11/20/14 14:24	
Trichlorofluoromethane	ug/L	ND	4.0	11/20/14 14:24	
Vinyl chloride	ug/L	ND	0.40	11/20/14 14:24	
Xylene (Total)	ug/L	ND	3.0	11/20/14 14:24	
1,2-Dichloroethane-d4 (S)	%	98	75-125	11/20/14 14:24	
4-Bromofluorobenzene (S)	%	97	75-125	11/20/14 14:24	
Toluene-d8 (S)	%	101	75-125	11/20/14 14:24	

LABORATORY CONTROL SAMPLE: 1849390

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.9	105	75-125	
1,1,1-Trichloroethane	ug/L	20	20.9	105	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	18.1	91	74-125	
1,1,2-Trichloroethane	ug/L	20	19.9	100	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	22.2	111	56-133	
1,1-Dichloroethane	ug/L	20	17.6	88	75-125	
1,1-Dichloroethene	ug/L	20	19.8	99	70-125	
1,1-Dichloropropene	ug/L	20	19.9	99	73-125	
1,2,3-Trichlorobenzene	ug/L	20	20.2	101	75-125	
1,2,3-Trichloropropane	ug/L	20	20.1	101	75-125	
1,2,4-Trichlorobenzene	ug/L	20	20.1	101	75-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1849390

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.1	106	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	47.8	96	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	19.2	96	75-125	
1,2-Dichlorobenzene	ug/L	20	19.7	98	75-125	
1,2-Dichloroethane	ug/L	20	19.5	97	75-125	
1,2-Dichloropropane	ug/L	20	18.6	93	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.1	105	75-125	
1,3-Dichlorobenzene	ug/L	20	20.7	103	75-125	
1,3-Dichloropropane	ug/L	20	19.4	97	75-125	
1,4-Dichlorobenzene	ug/L	20	19.9	99	75-125	
2,2-Dichloropropane	ug/L	20	20.1	101	66-130	
2-Butanone (MEK)	ug/L	100	73.7	74	64-126	
2-Chlorotoluene	ug/L	20	19.9	100	73-125	
4-Chlorotoluene	ug/L	20	19.6	98	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	88.2	88	71-125	
Acetone	ug/L	100	89.2	89	66-131	
Allyl chloride	ug/L	20	16.1	81	70-129	
Benzene	ug/L	20	16.4	82	75-125	
Bromobenzene	ug/L	20	20.4	102	75-125	
Bromochloromethane	ug/L	20	20.3	102	75-125	
Bromodichloromethane	ug/L	20	20.2	101	75-125	
Bromoform	ug/L	20	21.1	106	70-125	
Bromomethane	ug/L	20	29.3	146	30-150	CH
Carbon tetrachloride	ug/L	20	22.0	110	68-129	
Chlorobenzene	ug/L	20	20.2	101	75-125	
Chloroethane	ug/L	20	19.0	95	68-133	
Chloroform	ug/L	20	20.1	100	75-125	
Chloromethane	ug/L	20	19.6	98	57-140	
cis-1,2-Dichloroethene	ug/L	20	19.6	98	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.6	98	75-125	
Dibromochloromethane	ug/L	20	23.0	115	75-125	
Dibromomethane	ug/L	20	21.4	107	75-125	
Dichlorodifluoromethane	ug/L	20	20.3	102	50-134	
Dichlorofluoromethane	ug/L	20	21.1	106	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	20.1	100	75-125	
Ethylbenzene	ug/L	20	21.8	109	75-125	
Hexachloro-1,3-butadiene	ug/L	20	21.8	109	74-128	
Isopropylbenzene (Cumene)	ug/L	20	19.9	100	73-125	
Methyl-tert-butyl ether	ug/L	20	18.4	92	75-125	
Methylene Chloride	ug/L	20	18.1	91	75-125	
n-Butylbenzene	ug/L	20	21.6	108	73-125	
n-Propylbenzene	ug/L	20	20.4	102	72-125	
Naphthalene	ug/L	20	17.4	87	74-125	
p-Isopropyltoluene	ug/L	20	21.8	109	74-125	
sec-Butylbenzene	ug/L	20	20.2	101	74-125	
Styrene	ug/L	20	19.9	99	75-125	
tert-Butylbenzene	ug/L	20	20.5	102	74-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1849390

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	22.7	113	71-125	
Tetrahydrofuran	ug/L	200	190	95	70-125	
Toluene	ug/L	20	20.0	100	75-125	
trans-1,2-Dichloroethene	ug/L	20	20.4	102	73-125	
trans-1,3-Dichloropropene	ug/L	20	20.8	104	75-125	
Trichloroethene	ug/L	20	20.9	105	75-125	
Trichlorofluoromethane	ug/L	20	21.6	108	70-128	
Vinyl chloride	ug/L	20	18.6	93	70-130	
Xylene (Total)	ug/L	60	62.7	105	75-125	
1,2-Dichloroethane-d4 (S)	%			101	75-125	
4-Bromofluorobenzene (S)	%			98	75-125	
Toluene-d8 (S)	%			102	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1850892 1850893

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10288653005 Result	Spike Conc.	Spike Conc.	MS Result						
1,1,1,2-Tetrachloroethane	ug/L	ND	100	100	101	97.5	101	98	74-131	4	30
1,1,1-Trichloroethane	ug/L	ND	100	100	99.5	96.3	100	96	73-139	3	30
1,1,2,2-Tetrachloroethane	ug/L	ND	100	100	90.6	87.1	91	87	72-125	4	30
1,1,2-Trichloroethane	ug/L	ND	100	100	98.6	94.8	99	95	75-125	4	30
1,1,2-Trichlorotrifluoroethane	ug/L	ND	100	100	110	110	110	110	68-150	0	30
1,1-Dichloroethane	ug/L	ND	100	100	83.0	80.5	83	80	73-132	3	30
1,1-Dichloroethene	ug/L	ND	100	100	96.2	95.2	96	95	71-142	1	30
1,1-Dichloropropene	ug/L	ND	100	100	96.1	91.7	96	92	73-139	5	30
1,2,3-Trichlorobenzene	ug/L	ND	100	100	104	103	104	103	70-129	1	30
1,2,3-Trichloropropane	ug/L	ND	100	100	96.5	93.5	96	94	74-125	3	30
1,2,4-Trichlorobenzene	ug/L	ND	100	100	103	98.2	103	98	70-129	5	30
1,2,4-Trimethylbenzene	ug/L	ND	100	100	103	95.9	103	96	72-136	7	30
1,2-Dibromo-3-chloropropane	ug/L	ND	250	250	255	245	102	98	66-127	4	30
1,2-Dibromoethane (EDB)	ug/L	ND	100	100	96.2	94.4	96	94	75-125	2	30
1,2-Dichlorobenzene	ug/L	ND	100	100	102	97.9	102	98	75-125	4	30
1,2-Dichloroethane	ug/L	ND	100	100	98.2	93.5	98	93	68-128	5	30
1,2-Dichloropropane	ug/L	ND	100	100	88.3	86.5	88	86	74-131	2	30
1,3,5-Trimethylbenzene	ug/L	ND	100	100	103	97.1	103	97	75-131	6	30
1,3-Dichlorobenzene	ug/L	ND	100	100	103	97.5	103	98	73-125	5	30
1,3-Dichloropropane	ug/L	ND	100	100	96.3	93.5	96	94	75-125	3	30
1,4-Dichlorobenzene	ug/L	ND	100	100	97.9	96.7	98	97	73-125	1	30
2,2-Dichloropropane	ug/L	ND	100	100	94.0	90.4	94	90	58-150	4	30
2-Butanone (MEK)	ug/L	ND	500	500	405	408	81	82	56-140	1	30
2-Chlorotoluene	ug/L	ND	100	100	97.9	92.8	98	93	70-130	5	30
4-Chlorotoluene	ug/L	ND	100	100	95.1	91.2	95	91	73-126	4	30
4-Methyl-2-pentanone (MIBK)	ug/L	ND	500	500	457	458	91	92	69-128	0	30
Acetone	ug/L	ND	500	500	470	464	94	93	57-143	1	30

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1850892 1850893												
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	Qual
		10288653005 Result	Spike Conc.	Spike Conc.	MS Conc.							
Allyl chloride	ug/L	ND	100	100	73.7	71.9	74	72	65-146	2	30	
Benzene	ug/L	ND	100	100	77.0	73.8	77	74	75-129	4	30	M1
Bromobenzene	ug/L	ND	100	100	100	95.5	100	95	74-125	5	30	
Bromochloromethane	ug/L	ND	100	100	100	96.9	100	97	75-126	3	30	
Bromodichloromethane	ug/L	ND	100	100	98.9	100	99	100	75-128	1	30	
Bromoform	ug/L	ND	100	100	108	103	108	103	66-130	5	30	
Bromomethane	ug/L	ND	100	100	98.4	115	98	115	30-150	16	30	CH
Carbon tetrachloride	ug/L	ND	100	100	101	99.0	101	99	69-148	2	30	
Chlorobenzene	ug/L	ND	100	100	97.0	93.4	97	93	75-125	4	30	
Chloroethane	ug/L	ND	100	100	91.7	88.6	92	89	71-143	3	30	
Chloroform	ug/L	ND	100	100	94.4	92.1	94	92	75-126	3	30	
Chloromethane	ug/L	ND	100	100	88.8	85.0	89	85	55-150	4	30	
cis-1,2-Dichloroethene	ug/L	ND	100	100	98.5	93.0	94	89	75-130	6	30	
cis-1,3-Dichloropropene	ug/L	ND	100	100	95.3	91.6	95	92	72-129	4	30	
Dibromochloromethane	ug/L	ND	100	100	113	111	113	111	73-129	2	30	
Dibromomethane	ug/L	ND	100	100	105	104	105	104	75-125	1	30	
Dichlorodifluoromethane	ug/L	ND	100	100	95.1	92.1	95	92	70-150	3	30	
Dichlorofluoromethane	ug/L	ND	100	100	98.6	97.6	99	98	75-135	1	30	
Diethyl ether (Ethyl ether)	ug/L	ND	100	100	100	98.1	100	98	72-126	2	30	
Ethylbenzene	ug/L	ND	100	100	104	99.3	104	99	75-128	5	30	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	92.3	90.5	92	91	65-144	2	30	
Isopropylbenzene (Cumene)	ug/L	ND	100	100	99.4	94.2	99	94	75-131	5	30	
Methyl-tert-butyl ether	ug/L	ND	100	100	91.8	90.6	92	91	74-128	1	30	
Methylene Chloride	ug/L	ND	100	100	91.2	86.5	91	87	69-125	5	30	
n-Butylbenzene	ug/L	ND	100	100	105	98.5	105	99	70-137	6	30	
n-Propylbenzene	ug/L	ND	100	100	98.4	94.0	98	94	72-131	5	30	
Naphthalene	ug/L	ND	100	100	97.2	95.8	97	96	70-132	1	30	
p-Isopropyltoluene	ug/L	ND	100	100	105	101	105	101	73-133	4	30	
sec-Butylbenzene	ug/L	ND	100	100	99.0	93.8	99	94	74-133	5	30	
Styrene	ug/L	ND	100	100	97.7	94.1	98	94	75-128	4	30	
tert-Butylbenzene	ug/L	ND	100	100	98.1	92.7	98	93	74-130	6	30	
Tetrachloroethene	ug/L	843	100	100	943	885	100	42	68-140	6	30	M1
Tetrahydrofuran	ug/L	ND	1000	1000	916	949	92	95	65-131	4	30	
Toluene	ug/L	ND	100	100	95.3	87.4	95	87	75-129	9	30	
trans-1,2-Dichloroethene	ug/L	ND	100	100	98.8	92.6	99	93	70-136	7	30	
trans-1,3-Dichloropropene	ug/L	ND	100	100	101	101	101	101	71-125	0	30	
Trichloroethene	ug/L	6.4	100	100	107	101	101	95	72-135	6	30	
Trichlorofluoromethane	ug/L	ND	100	100	99.3	98.1	99	98	75-150	1	30	
Vinyl chloride	ug/L	ND	100	100	87.9	82.7	88	83	73-150	6	30	
Xylene (Total)	ug/L	ND	300	300	306	287	102	96	75-129	6	30	
1,2-Dichloroethane-d4 (S)	%						102	104	75-125			
4-Bromofluorobenzene (S)	%						94	96	75-125			
Toluene-d8 (S)	%						102	103	75-125			

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: MSV/29462

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 465 W

Associated Lab Samples: 10288430002

METHOD BLANK: 1850067

Matrix: Water

Associated Lab Samples: 10288430002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/21/14 10:31	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/21/14 10:31	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/21/14 10:31	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/21/14 10:31	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/21/14 10:31	
1,1-Dichloroethane	ug/L	ND	1.0	11/21/14 10:31	
1,1-Dichloroethene	ug/L	ND	1.0	11/21/14 10:31	
1,1-Dichloropropene	ug/L	ND	1.0	11/21/14 10:31	
1,2,3-Trichlorobenzene	ug/L	0.53J	1.0	11/21/14 10:31	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/21/14 10:31	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/21/14 10:31	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/21/14 10:31	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/21/14 10:31	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/21/14 10:31	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/21/14 10:31	
1,2-Dichloroethane	ug/L	ND	1.0	11/21/14 10:31	
1,2-Dichloropropane	ug/L	ND	4.0	11/21/14 10:31	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/21/14 10:31	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/21/14 10:31	
1,3-Dichloropropane	ug/L	ND	1.0	11/21/14 10:31	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/21/14 10:31	
2,2-Dichloropropane	ug/L	ND	4.0	11/21/14 10:31	
2-Butanone (MEK)	ug/L	ND	5.0	11/21/14 10:31	
2-Chlorotoluene	ug/L	ND	1.0	11/21/14 10:31	
4-Chlorotoluene	ug/L	ND	1.0	11/21/14 10:31	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/21/14 10:31	
Acetone	ug/L	ND	20.0	11/21/14 10:31	
Allyl chloride	ug/L	ND	4.0	11/21/14 10:31	
Benzene	ug/L	ND	1.0	11/21/14 10:31	
Bromobenzene	ug/L	ND	1.0	11/21/14 10:31	
Bromochloromethane	ug/L	ND	1.0	11/21/14 10:31	
Bromodichloromethane	ug/L	ND	1.0	11/21/14 10:31	
Bromoform	ug/L	ND	4.0	11/21/14 10:31	
Bromomethane	ug/L	ND	4.0	11/21/14 10:31	
Carbon tetrachloride	ug/L	ND	1.0	11/21/14 10:31	
Chlorobenzene	ug/L	ND	1.0	11/21/14 10:31	
Chloroethane	ug/L	ND	1.0	11/21/14 10:31	
Chloroform	ug/L	ND	1.0	11/21/14 10:31	
Chloromethane	ug/L	ND	4.0	11/21/14 10:31	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/21/14 10:31	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/21/14 10:31	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

METHOD BLANK: 1850067

Matrix: Water

Associated Lab Samples: 10288430002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/21/14 10:31	
Dibromomethane	ug/L	ND	4.0	11/21/14 10:31	
Dichlorodifluoromethane	ug/L	ND	1.0	11/21/14 10:31	
Dichlorofluoromethane	ug/L	ND	1.0	11/21/14 10:31	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/21/14 10:31	
Ethylbenzene	ug/L	ND	1.0	11/21/14 10:31	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/21/14 10:31	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/21/14 10:31	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/21/14 10:31	
Methylene Chloride	ug/L	ND	4.0	11/21/14 10:31	
n-Butylbenzene	ug/L	ND	1.0	11/21/14 10:31	
n-Propylbenzene	ug/L	ND	1.0	11/21/14 10:31	
Naphthalene	ug/L	ND	4.0	11/21/14 10:31	
p-Isopropyltoluene	ug/L	ND	1.0	11/21/14 10:31	
sec-Butylbenzene	ug/L	ND	1.0	11/21/14 10:31	
Styrene	ug/L	ND	1.0	11/21/14 10:31	
tert-Butylbenzene	ug/L	ND	1.0	11/21/14 10:31	
Tetrachloroethene	ug/L	ND	1.0	11/21/14 10:31	
Tetrahydrofuran	ug/L	ND	10.0	11/21/14 10:31	
Toluene	ug/L	ND	1.0	11/21/14 10:31	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/21/14 10:31	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/21/14 10:31	
Trichloroethene	ug/L	ND	0.40	11/21/14 10:31	
Trichlorofluoromethane	ug/L	ND	1.0	11/21/14 10:31	
Vinyl chloride	ug/L	ND	0.40	11/21/14 10:31	
Xylene (Total)	ug/L	ND	3.0	11/21/14 10:31	
1,2-Dichloroethane-d4 (S)	%	119	75-125	11/21/14 10:31	
4-Bromofluorobenzene (S)	%	117	75-125	11/21/14 10:31	
Toluene-d8 (S)	%	116	75-125	11/21/14 10:31	

LABORATORY CONTROL SAMPLE: 1850068

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	18.0	90	75-125	
1,1,1-Trichloroethane	ug/L	20	18.9	95	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	21.8	109	74-125	
1,1,2-Trichloroethane	ug/L	20	20.1	100	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	18.0	90	56-133	
1,1-Dichloroethane	ug/L	20	19.8	99	75-125	
1,1-Dichloroethene	ug/L	20	20.2	101	70-125	
1,1-Dichloropropene	ug/L	20	20.4	102	73-125	
1,2,3-Trichlorobenzene	ug/L	20	16.3	81	75-125	
1,2,3-Trichloropropane	ug/L	20	20.9	105	75-125	
1,2,4-Trichlorobenzene	ug/L	20	16.4	82	75-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1850068

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	22.3	111	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	48.9	98	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	18.8	94	75-125	
1,2-Dichlorobenzene	ug/L	20	20.6	103	75-125	
1,2-Dichloroethane	ug/L	20	19.1	95	75-125	
1,2-Dichloropropane	ug/L	20	18.4	92	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.5	103	75-125	
1,3-Dichlorobenzene	ug/L	20	20.9	104	75-125	
1,3-Dichloropropane	ug/L	20	21.5	108	75-125	
1,4-Dichlorobenzene	ug/L	20	20.8	104	75-125	
2,2-Dichloropropane	ug/L	20	19.2	96	66-130	
2-Butanone (MEK)	ug/L	100	112	112	64-126	
2-Chlorotoluene	ug/L	20	22.4	112	73-125	
4-Chlorotoluene	ug/L	20	22.9	114	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	114	114	71-125	
Acetone	ug/L	100	76.4	76	66-131	
Allyl chloride	ug/L	20	21.7	109	70-129	
Benzene	ug/L	20	20.7	104	75-125	
Bromobenzene	ug/L	20	20.7	103	75-125	
Bromochloromethane	ug/L	20	18.5	92	75-125	
Bromodichloromethane	ug/L	20	19.2	96	75-125	
Bromoform	ug/L	20	17.8	89	70-125	
Bromomethane	ug/L	20	12.5	63	30-150	
Carbon tetrachloride	ug/L	20	19.8	99	68-129	
Chlorobenzene	ug/L	20	20.1	100	75-125	
Chloroethane	ug/L	20	27.2	136	68-133	L0
Chloroform	ug/L	20	20.4	102	75-125	
Chloromethane	ug/L	20	17.1	85	57-140	
cis-1,2-Dichloroethene	ug/L	20	19.4	97	75-125	
cis-1,3-Dichloropropene	ug/L	20	17.0	85	75-125	
Dibromochloromethane	ug/L	20	20.0	100	75-125	
Dibromomethane	ug/L	20	17.0	85	75-125	
Dichlorodifluoromethane	ug/L	20	19.7	99	50-134	
Dichlorofluoromethane	ug/L	20	22.4	112	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	20.6	103	75-125	
Ethylbenzene	ug/L	20	21.5	107	75-125	
Hexachloro-1,3-butadiene	ug/L	20	19.3	97	74-128	
Isopropylbenzene (Cumene)	ug/L	20	23.2	116	73-125	
Methyl-tert-butyl ether	ug/L	20	19.3	96	75-125	
Methylene Chloride	ug/L	20	19.7	99	75-125	
n-Butylbenzene	ug/L	20	21.4	107	73-125	
n-Propylbenzene	ug/L	20	23.4	117	72-125	
Naphthalene	ug/L	20	14.0	70	74-125	L0
p-Isopropyltoluene	ug/L	20	22.0	110	74-125	
sec-Butylbenzene	ug/L	20	24.4	122	74-125	
Styrene	ug/L	20	22.8	114	75-125	
tert-Butylbenzene	ug/L	20	22.5	113	74-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1850068

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	18.1	91	71-125	
Tetrahydrofuran	ug/L	200	152	76	70-125	
Toluene	ug/L	20	20.1	101	75-125	
trans-1,2-Dichloroethene	ug/L	20	19.3	97	73-125	
trans-1,3-Dichloropropene	ug/L	20	18.9	94	75-125	
Trichloroethene	ug/L	20	17.1	86	75-125	
Trichlorofluoromethane	ug/L	20	21.5	107	70-128	
Vinyl chloride	ug/L	20	16.8	84	70-130	
Xylene (Total)	ug/L	60	63.9	106	75-125	
1,2-Dichloroethane-d4 (S)	%			121	75-125	
4-Bromofluorobenzene (S)	%			103	75-125	
Toluene-d8 (S)	%			112	75-125	

MATRIX SPIKE SAMPLE: 1852595

Parameter	Units	10288597003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	16.3	81	74-131	
1,1,1-Trichloroethane	ug/L	ND	20	17.8	89	73-139	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	20.7	104	72-125	
1,1,2-Trichloroethane	ug/L	ND	20	18.4	92	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	18.1	91	68-150	
1,1-Dichloroethane	ug/L	ND	20	18.8	94	73-132	
1,1-Dichloroethene	ug/L	ND	20	18.1	91	71-142	
1,1-Dichloropropene	ug/L	ND	20	19.2	96	73-139	
1,2,3-Trichlorobenzene	ug/L	ND	20	16.7	83	70-129	
1,2,3-Trichloropropane	ug/L	ND	20	19.9	99	74-125	
1,2,4-Trichlorobenzene	ug/L	ND	20	15.5	78	70-129	
1,2,4-Trimethylbenzene	ug/L	ND	20	19.9	100	72-136	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	49.0	98	66-127	
1,2-Dibromoethane (EDB)	ug/L	ND	20	16.5	82	75-125	
1,2-Dichlorobenzene	ug/L	ND	20	18.4	92	75-125	
1,2-Dichloroethane	ug/L	2.5	20	19.9	87	68-128	
1,2-Dichloropropane	ug/L	ND	20	16.9	84	74-131	
1,3,5-Trimethylbenzene	ug/L	ND	20	18.8	94	75-131	
1,3-Dichlorobenzene	ug/L	ND	20	18.7	94	73-125	
1,3-Dichloropropane	ug/L	ND	20	19.8	99	75-125	
1,4-Dichlorobenzene	ug/L	ND	20	18.9	94	73-125	
2,2-Dichloropropane	ug/L	ND	20	18.8	94	58-150	
2-Butanone (MEK)	ug/L	ND	100	113	113	56-140	
2-Chlorotoluene	ug/L	ND	20	20.2	101	70-130	
4-Chlorotoluene	ug/L	ND	20	21.3	107	73-126	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	113	113	69-128	
Acetone	ug/L	ND	100	73.4	73	57-143	
Allyl chloride	ug/L	ND	20	20.8	104	65-146	
Benzene	ug/L	ND	20	19.1	95	75-129	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

MATRIX SPIKE SAMPLE:	1852595	10288597003	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromobenzene	ug/L	ND	20	18.5	93	74-125	
Bromochloromethane	ug/L	ND	20	16.3	81	75-126	
Bromodichloromethane	ug/L	ND	20	18.1	90	75-128	
Bromoform	ug/L	ND	20	16.1	80	66-130	
Bromomethane	ug/L	ND	20	7.7	38	30-150	
Carbon tetrachloride	ug/L	ND	20	18.8	94	69-148	
Chlorobenzene	ug/L	ND	20	18.1	91	75-125	
Chloroethane	ug/L	ND	20	27.1	136	71-143	
Chloroform	ug/L	ND	20	18.5	93	75-126	
Chloromethane	ug/L	ND	20	17.8	89	55-150	
cis-1,2-Dichloroethene	ug/L	ND	20	16.4	82	75-130	
cis-1,3-Dichloropropene	ug/L	ND	20	15.3	77	72-129	
Dibromochloromethane	ug/L	ND	20	17.4	87	73-129	
Dibromomethane	ug/L	ND	20	15.2	76	75-125	
Dichlorodifluoromethane	ug/L	ND	20	21.6	108	70-150	
Dichlorofluoromethane	ug/L	ND	20	24.7	124	75-135	
Diethyl ether (Ethyl ether)	ug/L	ND	20	19.0	95	72-126	
Ethylbenzene	ug/L	ND	20	19.0	95	75-128	
Hexachloro-1,3-butadiene	ug/L	ND	20	18.6	93	65-144	
Isopropylbenzene (Cumene)	ug/L	ND	20	20.3	101	75-131	
Methyl-tert-butyl ether	ug/L	ND	20	19.6	93	74-128	
Methylene Chloride	ug/L	ND	20	18.3	91	69-125	
n-Butylbenzene	ug/L	ND	20	19.4	97	70-137	
n-Propylbenzene	ug/L	ND	20	21.4	107	72-131	
Naphthalene	ug/L	ND	20	14.9	74	70-132	
p-Isopropyltoluene	ug/L	ND	20	19.7	98	73-133	
sec-Butylbenzene	ug/L	ND	20	22.2	111	74-133	
Styrene	ug/L	ND	20	20.1	100	75-128	
tert-Butylbenzene	ug/L	ND	20	20.1	101	74-130	
Tetrachloroethene	ug/L	ND	20	17.3	87	68-140	
Tetrahydrofuran	ug/L	ND	200	137	69	65-131	
Toluene	ug/L	ND	20	18.5	92	75-129	
trans-1,2-Dichloroethene	ug/L	ND	20	18.0	90	70-136	
trans-1,3-Dichloropropene	ug/L	ND	20	16.8	84	71-125	
Trichloroethene	ug/L	ND	20	15.5	78	72-135	
Trichlorofluoromethane	ug/L	ND	20	25.8	129	75-150	
Vinyl chloride	ug/L	ND	20	18.4	92	73-150	
Xylene (Total)	ug/L	ND	60	56.5	94	75-129	
1,2-Dichloroethane-d4 (S)	%				123	75-125	
4-Bromofluorobenzene (S)	%				107	75-125	
Toluene-d8 (S)	%				113	75-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

SAMPLE DUPLICATE: 1852594

Parameter	Units	10289148038 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	1.9		30	C8
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	1.0		30	C8
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	0.28J		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	0.60J		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	4.6J		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	0.19J		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

SAMPLE DUPLICATE: 1852594

Parameter	Units	10289148038 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	0.76J		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	0.36J		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	119	123	3		
4-Bromofluorobenzene (S)	%.	115	117	1		
Toluene-d8 (S)	%.	116	117	1		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: OEXT/27244 Analysis Method: EPA 8270  
 QC Batch Method: EPA 3550 Analysis Description: 8270 Solid MSSV  
 Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

METHOD BLANK: 1842360 Matrix: Solid  
 Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	11/17/14 17:28	
1,2-Dichlorobenzene	ug/kg	ND	330	11/17/14 17:28	
1,2-Diphenylhydrazine	ug/kg	ND	330	11/17/14 17:28	
1,3-Dichlorobenzene	ug/kg	ND	330	11/17/14 17:28	
1,4-Dichlorobenzene	ug/kg	ND	330	11/17/14 17:28	
1-Methylnaphthalene	ug/kg	ND	330	11/17/14 17:28	
2,4,5-Trichlorophenol	ug/kg	ND	330	11/17/14 17:28	
2,4,6-Trichlorophenol	ug/kg	ND	330	11/17/14 17:28	
2,4-Dichlorophenol	ug/kg	ND	330	11/17/14 17:28	
2,4-Dimethylphenol	ug/kg	ND	330	11/17/14 17:28	
2,4-Dinitrophenol	ug/kg	ND	330	11/17/14 17:28	
2,4-Dinitrotoluene	ug/kg	ND	330	11/17/14 17:28	
2,6-Dinitrotoluene	ug/kg	ND	330	11/17/14 17:28	
2-Chloronaphthalene	ug/kg	ND	330	11/17/14 17:28	
2-Chlorophenol	ug/kg	ND	330	11/17/14 17:28	
2-Methylnaphthalene	ug/kg	ND	330	11/17/14 17:28	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	11/17/14 17:28	
2-Nitroaniline	ug/kg	ND	330	11/17/14 17:28	
2-Nitrophenol	ug/kg	ND	330	11/17/14 17:28	
3&4-Methylphenol	ug/kg	ND	660	11/17/14 17:28	
3,3'-Dichlorobenzidine	ug/kg	ND	330	11/17/14 17:28	
3-Nitroaniline	ug/kg	ND	330	11/17/14 17:28	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1700	11/17/14 17:28	
4-Bromophenylphenyl ether	ug/kg	ND	330	11/17/14 17:28	
4-Chloro-3-methylphenol	ug/kg	ND	330	11/17/14 17:28	
4-Chloroaniline	ug/kg	ND	330	11/17/14 17:28	
4-Chlorophenylphenyl ether	ug/kg	ND	330	11/17/14 17:28	
4-Nitroaniline	ug/kg	ND	330	11/17/14 17:28	
4-Nitrophenol	ug/kg	ND	330	11/17/14 17:28	
Acenaphthene	ug/kg	ND	330	11/17/14 17:28	
Acenaphthylene	ug/kg	ND	330	11/17/14 17:28	
Anthracene	ug/kg	ND	330	11/17/14 17:28	
Benzo(a)anthracene	ug/kg	ND	330	11/17/14 17:28	
Benzo(a)pyrene	ug/kg	ND	330	11/17/14 17:28	
Benzo(b)fluoranthene	ug/kg	ND	330	11/17/14 17:28	
Benzo(g,h,i)perylene	ug/kg	ND	330	11/17/14 17:28	
Benzo(k)fluoranthene	ug/kg	ND	330	11/17/14 17:28	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	11/17/14 17:28	
bis(2-Chloroethyl) ether	ug/kg	ND	330	11/17/14 17:28	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	11/17/14 17:28	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	11/17/14 17:28	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

METHOD BLANK: 1842360

Matrix: Solid

Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	11/17/14 17:28	
Carbazole	ug/kg	ND	330	11/17/14 17:28	
Chrysene	ug/kg	ND	330	11/17/14 17:28	
Di-n-butylphthalate	ug/kg	ND	330	11/17/14 17:28	
Di-n-octylphthalate	ug/kg	ND	330	11/17/14 17:28	
Dibenz(a,h)anthracene	ug/kg	ND	330	11/17/14 17:28	
Dibenzofuran	ug/kg	ND	330	11/17/14 17:28	
Diethylphthalate	ug/kg	ND	330	11/17/14 17:28	
Dimethylphthalate	ug/kg	ND	330	11/17/14 17:28	
Fluoranthene	ug/kg	ND	330	11/17/14 17:28	
Fluorene	ug/kg	ND	330	11/17/14 17:28	
Hexachloro-1,3-butadiene	ug/kg	ND	330	11/17/14 17:28	
Hexachlorobenzene	ug/kg	ND	330	11/17/14 17:28	
Hexachloroethane	ug/kg	ND	330	11/17/14 17:28	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	11/17/14 17:28	
Isophorone	ug/kg	ND	330	11/17/14 17:28	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	11/17/14 17:28	
N-Nitrosodimethylamine	ug/kg	ND	330	11/17/14 17:28	
N-Nitrosodiphenylamine	ug/kg	ND	330	11/17/14 17:28	
Naphthalene	ug/kg	ND	330	11/17/14 17:28	
Nitrobenzene	ug/kg	ND	330	11/17/14 17:28	
Pentachlorophenol	ug/kg	ND	670	11/17/14 17:28	
Phenanthrene	ug/kg	ND	330	11/17/14 17:28	
Phenol	ug/kg	ND	330	11/17/14 17:28	
Pyrene	ug/kg	ND	330	11/17/14 17:28	
2,4,6-Tribromophenol (S)	%	78	41-125	11/17/14 17:28	
2-Fluorobiphenyl (S)	%	79	46-125	11/17/14 17:28	
2-Fluorophenol (S)	%	80	31-125	11/17/14 17:28	
Nitrobenzene-d5 (S)	%	85	30-125	11/17/14 17:28	
Phenol-d6 (S)	%	82	38-125	11/17/14 17:28	
Terphenyl-d14 (S)	%	87	64-125	11/17/14 17:28	

LABORATORY CONTROL SAMPLE: 1842361

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1270	76	40-125	
1,2-Dichlorobenzene	ug/kg	1670	1300	78	32-125	
1,2-Diphenylhydrazine	ug/kg	1670	1610	96	63-125	
1,3-Dichlorobenzene	ug/kg	1670	1280	77	31-125	
1,4-Dichlorobenzene	ug/kg	1670	1290	78	30-125	
1-Methylnaphthalene	ug/kg	1670	1320	79	54-125	
2,4,5-Trichlorophenol	ug/kg	1670	1340	80	63-125	
2,4,6-Trichlorophenol	ug/kg	1670	1380	83	62-125	
2,4-Dichlorophenol	ug/kg	1670	1340	81	56-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1842361

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dimethylphenol	ug/kg	1670	1220	73	55-125	
2,4-Dinitrophenol	ug/kg	1670	1130	68	30-129	
2,4-Dinitrotoluene	ug/kg	1670	1390	83	61-125	
2,6-Dinitrotoluene	ug/kg	1670	1430	86	63-125	
2-Chloronaphthalene	ug/kg	1670	1340	81	60-125	
2-Chlorophenol	ug/kg	1670	1310	79	37-125	
2-Methylnaphthalene	ug/kg	1670	1320	79	56-125	
2-Methylphenol(o-Cresol)	ug/kg	1670	1360	81	45-125	
2-Nitroaniline	ug/kg	1670	1610	97	63-125	
2-Nitrophenol	ug/kg	1670	1290	77	47-125	
3&4-Methylphenol	ug/kg	1670	1340	80	50-125	
3,3'-Dichlorobenzidine	ug/kg	1670	1020	61	49-125	
3-Nitroaniline	ug/kg	1670	1030	62	48-125	
4,6-Dinitro-2-methylphenol	ug/kg	1670	1270J	76	39-125	
4-Bromophenylphenyl ether	ug/kg	1670	1390	83	65-125	
4-Chloro-3-methylphenol	ug/kg	1670	1480	89	63-125	
4-Chloroaniline	ug/kg	1670	693	42	30-125	
4-Chlorophenylphenyl ether	ug/kg	1670	1370	82	66-125	
4-Nitroaniline	ug/kg	1670	1280	77	60-125	
4-Nitrophenol	ug/kg	1670	1630	98	59-125	
Acenaphthene	ug/kg	1670	1370	82	62-125	
Acenaphthylene	ug/kg	1670	1340	81	64-125	
Anthracene	ug/kg	1670	1400	84	66-125	
Benzo(a)anthracene	ug/kg	1670	1430	86	66-125	
Benzo(a)pyrene	ug/kg	1670	1390	84	66-125	
Benzo(b)fluoranthene	ug/kg	1670	1410	84	65-125	
Benzo(g,h,i)perylene	ug/kg	1670	1450	87	67-125	
Benzo(k)fluoranthene	ug/kg	1670	1470	88	66-125	
bis(2-Chloroethoxy)methane	ug/kg	1670	1460	88	51-125	
bis(2-Chloroethyl) ether	ug/kg	1670	1620	97	30-125	
bis(2-Chloroisopropyl) ether	ug/kg	1670	1810	109	30-125	1M
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1510	91	68-125	
Butylbenzylphthalate	ug/kg	1670	1500	90	67-125	
Carbazole	ug/kg	1670	1390	83	63-125	
Chrysene	ug/kg	1670	1400	84	67-125	
Di-n-butylphthalate	ug/kg	1670	1470	88	68-125	
Di-n-octylphthalate	ug/kg	1670	1490	90	65-125	
Dibenz(a,h)anthracene	ug/kg	1670	1420	85	67-125	
Dibenzofuran	ug/kg	1670	1360	82	64-125	
Diethylphthalate	ug/kg	1670	1430	86	65-125	
Dimethylphthalate	ug/kg	1670	1390	83	63-125	
Fluoranthene	ug/kg	1670	1370	82	66-125	
Fluorene	ug/kg	1670	1390	84	64-125	
Hexachloro-1,3-butadiene	ug/kg	1670	1230	74	33-125	
Hexachlorobenzene	ug/kg	1670	1430	86	65-125	
Hexachloroethane	ug/kg	1670	1320	79	30-125	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1410	84	67-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE: 1842361

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1500	90	56-125	
N-Nitroso-di-n-propylamine	ug/kg	1670	1510	91	45-125	
N-Nitrosodimethylamine	ug/kg	1670	1530	92	30-125	
N-Nitrosodiphenylamine	ug/kg	1670	1380	83	65-125	
Naphthalene	ug/kg	1670	1330	80	44-125	
Nitrobenzene	ug/kg	1670	1500	90	39-125	
Pentachlorophenol	ug/kg	1670	1230	74	45-125	
Phenanthrene	ug/kg	1670	1410	85	66-125	
Phenol	ug/kg	1670	1440	86	44-125	
Pyrene	ug/kg	1670	1420	85	67-125	
2,4,6-Tribromophenol (S)	%			81	41-125	
2-Fluorobiphenyl (S)	%			76	46-125	
2-Fluorophenol (S)	%			80	31-125	
Nitrobenzene-d5 (S)	%			86	30-125	
Phenol-d6 (S)	%			85	38-125	
Terphenyl-d14 (S)	%			84	64-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1842362 1842363

Parameter	Units	10288296001		MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	Result						
1,2,4-Trichlorobenzene	ug/kg	ND	1940	1930	1510J	1590J	78	82	38-125		30		
1,2-Dichlorobenzene	ug/kg	ND	1940	1930	1490J	1580J	77	82	42-125		30		
1,2-Diphenylhydrazine	ug/kg	ND	1940	1930	1820J	1920	94	100	58-125		30		
1,3-Dichlorobenzene	ug/kg	ND	1940	1930	1490J	1570J	77	81	32-125		30		
1,4-Dichlorobenzene	ug/kg	ND	1940	1930	1550J	1520J	80	79	31-125		30		
1-Methylnaphthalene	ug/kg	ND	1940	1930	1630J	1630J	84	85	56-125		30		
2,4,5-Trichlorophenol	ug/kg	ND	1940	1930	1670J	1620J	86	84	56-125		30		
2,4,6-Trichlorophenol	ug/kg	ND	1940	1930	1650J	1650J	86	86	57-125		30		
2,4-Dichlorophenol	ug/kg	ND	1940	1930	1560J	1580J	81	82	55-125		30		
2,4-Dimethylphenol	ug/kg	ND	1940	1930	1590J	1650J	82	86	55-125		30		
2,4-Dinitrophenol	ug/kg	ND	1940	1930	ND	ND	0	0	30-127		30	M1	
2,4-Dinitrotoluene	ug/kg	ND	1940	1930	1590J	1740J	82	90	36-129		30		
2,6-Dinitrotoluene	ug/kg	ND	1940	1930	1720J	1670J	89	87	37-127		30		
2-Chloronaphthalene	ug/kg	ND	1940	1930	1670J	1670J	86	87	56-125		30		
2-Chlorophenol	ug/kg	ND	1940	1930	1550J	1680J	80	87	46-125		30		
2-Methylnaphthalene	ug/kg	ND	1940	1930	1590J	1600J	82	83	54-125		30		
2-Methylphenol(o-Cresol)	ug/kg	ND	1940	1930	1670J	1740J	86	90	53-125		30		
2-Nitroaniline	ug/kg	ND	1940	1930	1930	2030	100	105	59-125	5	30		
2-Nitrophenol	ug/kg	ND	1940	1930	1510J	1520J	78	79	30-125		30		
3&4-Methylphenol	ug/kg	ND	1940	1930	1620J	1740J	84	90	54-125		30		
3,3'-Dichlorobenzidine	ug/kg	ND	1940	1930	842J	772J	44	40	30-148		30		
3-Nitroaniline	ug/kg	ND	1940	1930	ND	1280J	0	67	31-125		30	M1	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1940	1930	ND	ND	36	0	30-150		30	M1	
4-Bromophenylphenyl ether	ug/kg	ND	1940	1930	1610J	1710J	83	89	59-125		30		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1842362		1842363										
Parameter	Units	MS		MSD		MS		MSD		% Rec	Limits	RPD	Max RPD	Qual
		10288296001	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
4-Chloro-3-methylphenol	ug/kg	ND	1940	1930	1670J	1700J	87	88	62-125				30	
4-Chloroaniline	ug/kg	ND	1940	1930	677J	653J	35	34	30-125				30	
4-Chlorophenylphenyl ether	ug/kg	ND	1940	1930	1500J	1670J	77	86	61-125				30	
4-Nitroaniline	ug/kg	ND	1940	1930	1620J	1580J	84	82	53-125				30	
4-Nitrophenol	ug/kg	ND	1940	1930	1760J	1740J	91	90	45-125				30	
Acenaphthene	ug/kg	ND	1940	1930	1580J	1680J	81	87	58-125				30	
Acenaphthylene	ug/kg	ND	1940	1930	1660J	1730J	86	90	59-125				30	
Anthracene	ug/kg	ND	1940	1930	1650J	1690J	85	88	54-125				30	
Benzo(a)anthracene	ug/kg	ND	1940	1930	1730J	1810J	89	94	61-125				30	
Benzo(a)pyrene	ug/kg	ND	1940	1930	1670J	1700J	86	88	41-129				30	
Benzo(b)fluoranthene	ug/kg	ND	1940	1930	1620J	1790J	84	93	43-129				30	
Benzo(g,h,i)perylene	ug/kg	ND	1940	1930	1570J	1770J	81	92	55-125				30	
Benzo(k)fluoranthene	ug/kg	ND	1940	1930	1570J	1640J	81	85	53-125				30	
bis(2-Chloroethoxy)methane	ug/kg	ND	1940	1930	1760J	1750J	91	91	52-125				30	
bis(2-Chloroethyl) ether	ug/kg	ND	1940	1930	1920	1850J	99	96	30-125				30	1M
bis(2-Chloroisopropyl) ether	ug/kg	ND	1940	1930	2000	1900J	104	98	30-127				30	1M
bis(2-Ethylhexyl)phthalate	ug/kg	ND	1940	1930	3260	3610	85	103	67-125	10			30	
Butylbenzylphthalate	ug/kg	ND	1940	1930	1850J	1820J	96	95	63-125				30	
Carbazole	ug/kg	ND	1940	1930	1630J	1700J	84	88	58-125				30	
Chrysene	ug/kg	ND	1940	1930	1650J	1650J	85	86	39-133				30	
Di-n-butylphthalate	ug/kg	ND	1940	1930	1700J	1870J	88	97	64-125				30	
Di-n-octylphthalate	ug/kg	ND	1940	1930	2340	2200	121	114	64-125	6			30	
Dibenz(a,h)anthracene	ug/kg	ND	1940	1930	1680J	1790J	87	93	58-125				30	
Dibenzofuran	ug/kg	ND	1940	1930	1650J	1740J	85	90	60-125				30	
Diethylphthalate	ug/kg	ND	1940	1930	1630J	1790J	84	93	63-125				30	
Dimethylphthalate	ug/kg	ND	1940	1930	1620J	1800J	84	93	63-125				30	
Fluoranthene	ug/kg	ND	1940	1930	1600J	1690J	83	88	54-125				30	
Fluorene	ug/kg	ND	1940	1930	1630J	1690J	84	88	60-125				30	
Hexachloro-1,3-butadiene	ug/kg	ND	1940	1930	1470J	1460J	76	76	35-125				30	
Hexachlorobenzene	ug/kg	ND	1940	1930	1550J	1680J	80	87	58-125				30	
Hexachloroethane	ug/kg	ND	1940	1930	1510J	1540J	78	80	30-125				30	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	1940	1930	1700J	1850J	88	96	51-125				30	
Isophorone	ug/kg	ND	1940	1930	1740J	1850J	90	96	54-125				30	
N-Nitroso-di-n-propylamine	ug/kg	ND	1940	1930	1790J	1910	92	99	51-125				30	
N-Nitrosodimethylamine	ug/kg	ND	1940	1930	1490J	1500J	77	78	30-130				30	
N-Nitrosodiphenylamine	ug/kg	ND	1940	1930	1690J	1860J	87	96	61-125				30	
Naphthalene	ug/kg	ND	1940	1930	1590J	1600J	82	83	46-125				30	
Nitrobenzene	ug/kg	ND	1940	1930	1830J	1810J	95	94	41-125				30	
Pentachlorophenol	ug/kg	ND	1940	1930	1270J	1360J	65	70	30-136				30	
Phenanthrene	ug/kg	ND	1940	1930	1650J	1760J	85	91	55-125				30	
Phenol	ug/kg	ND	1940	1930	1710J	1720J	88	89	49-125				30	
Pyrene	ug/kg	ND	1940	1930	1710J	1790J	88	93	43-129				30	
2,4,6-Tribromophenol (S)	%						76	89	41-125					
2-Fluorobiphenyl (S)	%						86	94	46-125					
2-Fluorophenol (S)	%						87	86	31-125					
Nitrobenzene-d5 (S)	%						93	92	30-125					D3

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1842362		1842363									
Parameter	Units	10288296001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Phenol-d6 (S)	%.						92	91	38-125				
Terphenyl-d14 (S)	%.						88	90	64-125				

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: OEXT/27237 Analysis Method: EPA 8270  
 QC Batch Method: EPA 3520 Analysis Description: 8270 Water MSSV  
 Associated Lab Samples: 10288430002, 10288430007

METHOD BLANK: 1842054 Matrix: Water

Associated Lab Samples: 10288430002, 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	10.0	11/14/14 08:58	
1,2-Dichlorobenzene	ug/L	ND	10.0	11/14/14 08:58	
1,2-Diphenylhydrazine	ug/L	ND	10.0	11/14/14 08:58	
1,3-Dichlorobenzene	ug/L	ND	10.0	11/14/14 08:58	
1,4-Dichlorobenzene	ug/L	ND	10.0	11/14/14 08:58	
1-Methylnaphthalene	ug/L	ND	10.0	11/14/14 08:58	
2,4,5-Trichlorophenol	ug/L	ND	10.0	11/14/14 08:58	
2,4,6-Trichlorophenol	ug/L	ND	10.0	11/14/14 08:58	
2,4-Dichlorophenol	ug/L	ND	10.0	11/14/14 08:58	
2,4-Dimethylphenol	ug/L	ND	50.0	11/14/14 08:58	
2,4-Dinitrophenol	ug/L	ND	10.0	11/14/14 08:58	
2,4-Dinitrotoluene	ug/L	ND	10.0	11/14/14 08:58	
2,6-Dinitrotoluene	ug/L	ND	10.0	11/14/14 08:58	
2-Chloronaphthalene	ug/L	ND	10.0	11/14/14 08:58	
2-Chlorophenol	ug/L	ND	10.0	11/14/14 08:58	
2-Methylnaphthalene	ug/L	ND	10.0	11/14/14 08:58	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	11/14/14 08:58	
2-Nitroaniline	ug/L	ND	10.0	11/14/14 08:58	
2-Nitrophenol	ug/L	ND	10.0	11/14/14 08:58	
3&4-Methylphenol	ug/L	ND	20.0	11/14/14 08:58	
3,3'-Dichlorobenzidine	ug/L	ND	50.0	11/14/14 08:58	
3-Nitroaniline	ug/L	ND	10.0	11/14/14 08:58	
4,6-Dinitro-2-methylphenol	ug/L	ND	10.0	11/14/14 08:58	
4-Bromophenylphenyl ether	ug/L	ND	10.0	11/14/14 08:58	
4-Chloro-3-methylphenol	ug/L	ND	10.0	11/14/14 08:58	
4-Chloroaniline	ug/L	ND	50.0	11/14/14 08:58	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	11/14/14 08:58	
4-Nitroaniline	ug/L	ND	10.0	11/14/14 08:58	
4-Nitrophenol	ug/L	ND	10.0	11/14/14 08:58	
Acenaphthene	ug/L	ND	10.0	11/14/14 08:58	
Acenaphthylene	ug/L	ND	10.0	11/14/14 08:58	
Anthracene	ug/L	ND	10.0	11/14/14 08:58	
Benzo(a)anthracene	ug/L	ND	10.0	11/14/14 08:58	
Benzo(a)pyrene	ug/L	ND	10.0	11/14/14 08:58	
Benzo(b)fluoranthene	ug/L	ND	10.0	11/14/14 08:58	
Benzo(g,h,i)perylene	ug/L	ND	10.0	11/14/14 08:58	
Benzo(k)fluoranthene	ug/L	ND	10.0	11/14/14 08:58	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	11/14/14 08:58	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	11/14/14 08:58	
bis(2-Chloroisopropyl) ether	ug/L	ND	10.0	11/14/14 08:58	
bis(2-Ethylhexyl)phthalate	ug/L	ND	10.0	11/14/14 08:58	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

METHOD BLANK: 1842054

Matrix: Water

Associated Lab Samples: 10288430002, 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/L	ND	10.0	11/14/14 08:58	
Carbazole	ug/L	ND	10.0	11/14/14 08:58	
Chrysene	ug/L	ND	10.0	11/14/14 08:58	
Di-n-butylphthalate	ug/L	ND	10.0	11/14/14 08:58	
Di-n-octylphthalate	ug/L	ND	10.0	11/14/14 08:58	
Dibenz(a,h)anthracene	ug/L	ND	10.0	11/14/14 08:58	
Dibenzofuran	ug/L	ND	10.0	11/14/14 08:58	
Diethylphthalate	ug/L	ND	10.0	11/14/14 08:58	
Dimethylphthalate	ug/L	ND	10.0	11/14/14 08:58	
Fluoranthene	ug/L	ND	10.0	11/14/14 08:58	
Fluorene	ug/L	ND	10.0	11/14/14 08:58	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	11/14/14 08:58	
Hexachlorobenzene	ug/L	ND	10.0	11/14/14 08:58	
Hexachloroethane	ug/L	ND	10.0	11/14/14 08:58	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	11/14/14 08:58	
Isophorone	ug/L	ND	10.0	11/14/14 08:58	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	11/14/14 08:58	
N-Nitrosodimethylamine	ug/L	ND	10.0	11/14/14 08:58	
N-Nitrosodiphenylamine	ug/L	ND	10.0	11/14/14 08:58	
Naphthalene	ug/L	ND	10.0	11/14/14 08:58	
Nitrobenzene	ug/L	ND	10.0	11/14/14 08:58	
Pentachlorophenol	ug/L	ND	20.0	11/14/14 08:58	
Phenanthrene	ug/L	ND	10.0	11/14/14 08:58	
Phenol	ug/L	ND	10.0	11/14/14 08:58	
Pyrene	ug/L	ND	10.0	11/14/14 08:58	
2,4,6-Tribromophenol (S)	%	83	66-125	11/14/14 08:58	
2-Fluorobiphenyl (S)	%	76	55-125	11/14/14 08:58	
2-Fluorophenol (S)	%	82	53-125	11/14/14 08:58	
Nitrobenzene-d5 (S)	%	88	60-125	11/14/14 08:58	
Phenol-d6 (S)	%	88	59-125	11/14/14 08:58	
Terphenyl-d14 (S)	%	92	67-125	11/14/14 08:58	

LABORATORY CONTROL SAMPLE & LCSD: 1842055

1842056

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	40.4	40.5	81	81	60-125	0	20	
1,2-Dichlorobenzene	ug/L	50	37.6	40.9	75	82	59-125	8	20	
1,2-Diphenylhydrazine	ug/L	50	52.8	49.3	106	99	71-125	7	20	
1,3-Dichlorobenzene	ug/L	50	36.7	39.0	73	78	56-125	6	20	
1,4-Dichlorobenzene	ug/L	50	36.6	38.8	73	78	57-125	6	20	
1-Methylnaphthalene	ug/L	50	43.4	43.4	87	87	69-125	0	20	
2,4,5-Trichlorophenol	ug/L	50	46.2	44.5	92	89	75-125	4	20	
2,4,6-Trichlorophenol	ug/L	50	45.8	43.0	92	86	74-125	6	20	
2,4-Dichlorophenol	ug/L	50	41.7	41.7	83	83	68-125	0	20	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE & LCSD:		1842055	1842056								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
2,4-Dimethylphenol	ug/L	50	38.0J	37.3J	76	75	45-125		20		
2,4-Dinitrophenol	ug/L	50	35.1	37.0	70	74	30-142	5	20		
2,4-Dinitrotoluene	ug/L	50	47.4	45.5	95	91	75-125	4	20		
2,6-Dinitrotoluene	ug/L	50	48.6	46.1	97	92	75-125	5	20		
2-Chloronaphthalene	ug/L	50	46.3	43.6	93	87	72-125	6	20		
2-Chlorophenol	ug/L	50	43.2	44.6	86	89	57-125	3	20		
2-Methylnaphthalene	ug/L	50	42.5	43.1	85	86	70-125	1	20		
2-Methylphenol(o-Cresol)	ug/L	50	43.9	45.6	88	91	61-125	4	20		
2-Nitroaniline	ug/L	50	53.9	50.9	108	102	74-125	6	20		
2-Nitrophenol	ug/L	50	42.2	43.5	84	87	65-125	3	20		
3&4-Methylphenol	ug/L	50	44.4	45.8	89	92	65-125	3	20		
3,3'-Dichlorobenzidine	ug/L	50	52.9	49.4J	106	99	65-129		20		
3-Nitroaniline	ug/L	50	52.8	48.2	106	96	70-127	9	20		
4,6-Dinitro-2-methylphenol	ug/L	50	41.7	42.8	83	86	45-134	2	20		
4-Bromophenylphenyl ether	ug/L	50	46.1	47.5	92	95	75-125	3	20		
4-Chloro-3-methylphenol	ug/L	50	47.5	44.6	95	89	75-125	6	20		
4-Chloroaniline	ug/L	50	45.8J	43.0J	92	86	45-125		20		
4-Chlorophenylphenyl ether	ug/L	50	46.7	43.4	93	87	75-125	7	20		
4-Nitroaniline	ug/L	50	48.8	44.0	98	88	71-125	10	20		
4-Nitrophenol	ug/L	50	52.4	50.3	105	101	65-126	4	20		
Acenaphthene	ug/L	50	45.5	43.9	91	88	75-125	4	20		
Acenaphthylene	ug/L	50	45.6	44.8	91	90	75-125	2	20		
Anthracene	ug/L	50	46.7	46.8	93	94	75-125	0	20		
Benzo(a)anthracene	ug/L	50	48.7	45.5	97	91	75-125	7	20		
Benzo(a)pyrene	ug/L	50	47.5	46.0	95	92	75-125	3	20		
Benzo(b)fluoranthene	ug/L	50	45.6	45.4	91	91	75-125	0	20		
Benzo(g,h,i)perylene	ug/L	50	46.2	45.1	92	90	75-125	3	20		
Benzo(k)fluoranthene	ug/L	50	48.8	47.4	98	95	75-125	3	20		
bis(2-Chloroethoxy)methane	ug/L	50	46.2	45.7	92	91	66-125	1	20		
bis(2-Chloroethyl) ether	ug/L	50	49.9	52.2	100	104	54-125	4	20	1M	
bis(2-Chloroisopropyl) ether	ug/L	50	53.3	55.0	107	110	51-125	3	20	1M	
bis(2-Ethylhexyl)phthalate	ug/L	50	50.0	47.4	100	95	75-125	5	20		
Butylbenzylphthalate	ug/L	50	49.9	47.9	100	96	75-125	4	20		
Carbazole	ug/L	50	46.6	46.8	93	94	75-125	0	20		
Chrysene	ug/L	50	48.4	45.1	97	90	75-125	7	20		
Di-n-butylphthalate	ug/L	50	48.8	49.0	98	98	75-125	0	20		
Di-n-octylphthalate	ug/L	50	49.9	47.2	100	94	75-125	6	20		
Dibenz(a,h)anthracene	ug/L	50	47.4	46.3	95	93	75-125	2	20		
Dibenzofuran	ug/L	50	46.9	45.0	94	90	75-125	4	20		
Diethylphthalate	ug/L	50	49.0	45.6	98	91	75-125	7	20		
Dimethylphthalate	ug/L	50	48.7	45.7	97	91	75-125	6	20		
Fluoranthene	ug/L	50	45.5	46.7	91	93	75-125	2	20		
Fluorene	ug/L	50	47.0	43.6	94	87	75-125	8	20		
Hexachloro-1,3-butadiene	ug/L	50	37.6	39.0	75	78	56-125	4	20		
Hexachlorobenzene	ug/L	50	45.1	47.0	90	94	75-125	4	20		
Hexachloroethane	ug/L	50	35.5	39.6	71	79	52-125	11	20		
Indeno(1,2,3-cd)pyrene	ug/L	50	48.0	46.1	96	92	75-125	4	20		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

LABORATORY CONTROL SAMPLE & LCSD:		1842055	1842056				% Rec		Max	
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	RPD	Qualifiers
Isophorone	ug/L	50	48.1	46.3	96	93	71-125	4	20	
N-Nitroso-di-n-propylamine	ug/L	50	49.2	50.4	98	101	65-125	2	20	
N-Nitrosodimethylamine	ug/L	50	47.5	52.1	95	104	54-125	9	20	1M
N-Nitrosodiphenylamine	ug/L	50	46.4	47.4	93	95	75-125	2	20	
Naphthalene	ug/L	50	41.3	42.5	83	85	65-125	3	20	
Nitrobenzene	ug/L	50	47.0	45.3	94	91	61-125	4	20	
Pentachlorophenol	ug/L	50	46.5	46.2	93	92	46-128	1	20	
Phenanthrene	ug/L	50	46.7	46.4	93	93	75-125	1	20	
Phenol	ug/L	50	45.8	47.6	92	95	60-125	4	20	
Pyrene	ug/L	50	48.6	45.5	97	91	75-125	7	20	
2,4,6-Tribromophenol (S)	%				86	83	66-125			
2-Fluorobiphenyl (S)	%				79	75	55-125			
2-Fluorophenol (S)	%				79	84	53-125			
Nitrobenzene-d5 (S)	%				85	82	60-125			
Phenol-d6 (S)	%				84	89	59-125			
Terphenyl-d14 (S)	%				88	83	67-125			

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch:	OEXT/27250	Analysis Method:	WI MOD DRO
QC Batch Method:	WI MOD DRO	Analysis Description:	WIDRO GCS
Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006			

METHOD BLANK: 1843048 Matrix: Solid  
Associated Lab Samples: 10288430001, 10288430003, 10288430004, 10288430005, 10288430006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	11/15/14 16:47	
n-Triacontane (S)	%.	81	50-150	11/15/14 16:47	

LABORATORY CONTROL SAMPLE & LCSD: 1843049

1843050

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	65.1	73.7	81	92	70-120	12	20	
n-Triacontane (S)	%.				81	81	50-150			

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

QC Batch: OEXT/27240 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10288430002, 10288430007

METHOD BLANK: 1842160 Matrix: Water

Associated Lab Samples: 10288430002, 10288430007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	11/14/14 09:38	
n-Triacontane (S)	%.	100	50-150	11/14/14 09:38	

LABORATORY CONTROL SAMPLE & LCSD: 1842161

1842162

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/L	2	1.7	1.8	83	88	75-115	5	20	
n-Triacontane (S)	%.				87	83	50-150			

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## QUALIFIERS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

### BATCH QUALIFIERS

Batch: MSSV/11422

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1M The associated compound was outside of 20% for the associated continuing calibration but within 40% of the true value.

2M The sample was analyzed at a dilution due to a large amount of sediment in the vials.

B Analyte was detected in the associated method blank.

C8 Result may be biased high due to carryover from previously analyzed sample.

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

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

H1 Analysis conducted outside the recognized method holding time.

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

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.

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

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## QUALIFIERS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

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### ANALYTE QUALIFIERS

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.  
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.  
T6 High boiling point hydrocarbons are present in the sample.  
pH Post-analysis pH measurement indicates insufficient VOA sample preservation.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10288430001	DP-17 (6-7)	WI MOD DRO	OEXT/27250	WI MOD DRO	GCSV/14507
10288430003	DP-16 (4-5)	WI MOD DRO	OEXT/27250	WI MOD DRO	GCSV/14507
10288430004	DP-15 (2-3)	WI MOD DRO	OEXT/27250	WI MOD DRO	GCSV/14507
10288430005	DP-14 (3-4)	WI MOD DRO	OEXT/27250	WI MOD DRO	GCSV/14507
10288430006	DP-3 (4-5)	WI MOD DRO	OEXT/27250	WI MOD DRO	GCSV/14507
10288430002	DP-17	WI MOD DRO	OEXT/27240	WI MOD DRO	GCSV/14497
10288430007	DP-3	WI MOD DRO	OEXT/27240	WI MOD DRO	GCSV/14497
10288430001	DP-17 (6-7)	TPH GRO/PVOC WI ext.	GCV/12949	WI MOD GRO	GCV/12965
10288430003	DP-16 (4-5)	TPH GRO/PVOC WI ext.	GCV/12949	WI MOD GRO	GCV/12965
10288430004	DP-15 (2-3)	TPH GRO/PVOC WI ext.	GCV/12949	WI MOD GRO	GCV/12965
10288430005	DP-14 (3-4)	TPH GRO/PVOC WI ext.	GCV/12949	WI MOD GRO	GCV/12965
10288430006	DP-3 (4-5)	TPH GRO/PVOC WI ext.	GCV/12949	WI MOD GRO	GCV/12965
10288430002	DP-17	WI MOD GRO	GCV/12968		
10288430007	DP-3	WI MOD GRO	GCV/12968		
10288430008	TB	WI MOD GRO	GCV/12967		
10288430001	DP-17 (6-7)	EPA 3050	MPRP/50575	EPA 6010C	ICP/21715
10288430003	DP-16 (4-5)	EPA 3050	MPRP/50575	EPA 6010C	ICP/21715
10288430004	DP-15 (2-3)	EPA 3050	MPRP/50575	EPA 6010C	ICP/21715
10288430005	DP-14 (3-4)	EPA 3050	MPRP/50575	EPA 6010C	ICP/21715
10288430006	DP-3 (4-5)	EPA 3050	MPRP/50575	EPA 6010C	ICP/21715
10288430002	DP-17	EPA 3010	MPRP/50606	EPA 6010C	ICP/21713
10288430007	DP-3	EPA 3010	MPRP/50606	EPA 6010C	ICP/21713
10288430002	DP-17	EPA 7470A	MERP/12149	EPA 7470A	MERC/14062
10288430007	DP-3	EPA 7470A	MERP/12149	EPA 7470A	MERC/14062
10288430001	DP-17 (6-7)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288430003	DP-16 (4-5)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288430004	DP-15 (2-3)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288430005	DP-14 (3-4)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288430006	DP-3 (4-5)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288430001	DP-17 (6-7)	ASTM D2974	MPRP/50831		
10288430003	DP-16 (4-5)	ASTM D2974	MPRP/50831		
10288430004	DP-15 (2-3)	ASTM D2974	MPRP/50831		
10288430005	DP-14 (3-4)	ASTM D2974	MPRP/50831		
10288430006	DP-3 (4-5)	ASTM D2974	MPRP/50831		
10288430001	DP-17 (6-7)	EPA 3550	OEXT/27244	EPA 8270	MSSV/11439
10288430003	DP-16 (4-5)	EPA 3550	OEXT/27244	EPA 8270	MSSV/11439
10288430004	DP-15 (2-3)	EPA 3550	OEXT/27244	EPA 8270	MSSV/11439
10288430005	DP-14 (3-4)	EPA 3550	OEXT/27244	EPA 8270	MSSV/11439
10288430006	DP-3 (4-5)	EPA 3550	OEXT/27244	EPA 8270	MSSV/11439
10288430002	DP-17	EPA 3520	OEXT/27237	EPA 8270	MSSV/11422
10288430007	DP-3	EPA 3520	OEXT/27237	EPA 8270	MSSV/11422
10288430001	DP-17 (6-7)	EPA 5035/5030B	MSV/29370	EPA 8260	MSV/29378
10288430003	DP-16 (4-5)	EPA 5035/5030B	MSV/29370	EPA 8260	MSV/29378

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288430

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10288430004	DP-15 (2-3)	EPA 5035/5030B	MSV/29370	EPA 8260	MSV/29378
10288430005	DP-14 (3-4)	EPA 5035/5030B	MSV/29370	EPA 8260	MSV/29378
10288430006	DP-3 (4-5)	EPA 5035/5030B	MSV/29370	EPA 8260	MSV/29378
10288430002	DP-17	EPA 8260	MSV/29462		
10288430007	DP-3	EPA 8260	MSV/29454		
10288430008	TB	EPA 8260	MSV/29449		

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**CHAIN-OF-CUSTODY / Analytical Request Document**  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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**Section A**  
Required Client Information:  
Company: WSP  
Address: 123 N 3rd #507  
City: Mpls MN 55401  
Phone: 612 343 0514  
Requested Due Date/TAT: 5td

**Section B**  
Required Project Information:  
Report To: Paula Berger  
Copy To: Joy Andrews  
Purchase Order No.: MN001135W  
Project Name: MN001135W  
Project Number: 1402370-01

**Section C**  
Invoice Information:  
Attention: Accounting  
Company Name: WSP  
Address: Syracuse NY  
Reference: Kabor  
Pace Project Manager: Kabor  
Pace Profile #:

**REGULATORY AGENCY**  
NPDES  GROUND WATER  DRINKING WATER   
UST  RCRA  OTHER   
Site Location: MN  
STATE:

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)	Pace Project No./ Lab I.D.
					COMPOSITE START	COMPOSITE END/GRAB						
1	DP-17(6-7)	Drinking Water	SL		DATE: 11-11 11:00	TIME: 11:00	8	Unpreserved	VOCS (1926)	X		001
2	DP-17	Water	WT		DATE: 11-11 11:35	TIME: 11:35	101	H <sub>2</sub> SO <sub>4</sub>	GR0 (WJ Mod)	X		003
3	DP-16(4-5)	Waste Water	SL		DATE: 11-11 12:30	TIME: 12:30	8	HCl	DR0 (WJ Mod)	X		004
4	DP-15(2-3)	Product	SL		DATE: 11-11 13:07	TIME: 13:07	8	HNO <sub>3</sub>	GR0 (WJ Mod)	X		005
5	DP-14(3-4)	Soil/Solid	SL		DATE: 11-11 13:45	TIME: 13:45	8	NaOH	GR0 (WJ Mod)	X		006
6	DP-3(4-5)	Oil	SL		DATE: 11-11 15:17	TIME: 15:17	8	Metanol	GR0 (WJ Mod)	X		007
7	DP-3	Wipe	WT		DATE: 11-11 16:05	TIME: 16:05	101	Other	GR0 (WJ Mod)	X		007
8		Air										
9		Tissue										
10		Other										
11												
12												

**ADDITIONAL COMMENTS**  
Joy Chen / WSP

**RELINQUISHED BY / AFFILIATION**  
Joy Chen / WSP

**DATE**  
11-11-14

**TIME**  
1740

**ACCEPTED BY / AFFILIATION**  
Joy Chen

**DATE**  
11/11/14

**TIME**  
1740

**SAMPLE CONDITIONS**  
Received on Ice (Y/N)   
Custody Sealed Cooler (Y/N)   
Temp in °C 1.1  
2.3

**SAMPLES INTACT**  
Samples Intact (Y/N)

**Sample Condition Upon Receipt**

Client Name: WSP

Project #:

**WO# : 10288430**



Courier:  Fed Ex  UPS  USPS  Client  
 Commercial  Pace  Speedee  Other: \_\_\_\_\_

Tracking Number: \_\_\_\_\_

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

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

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

Cooler Temp Read (°C): 0.8, 2.0      Cooler Temp Corrected (°C): 11.23      Biological Tissue Frozen?  Yes  No  N/A

Temp should be above freezing to 6°C      Correction Factor: +0.3      Date and Initials of Person Examining Contents: RA 11/11/14

**Comments:**

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	8. <u>VOA Vials have sediment</u>
Correct Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	12. <u>container count is wrong.</u>
-Includes Date/Time/ID/Analysis Matrix: <u>SL, WT</u>			
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl < 2; NaOH > 9 Sulfide, NaOH > 12 Cyanide)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	Sample # <u>02907</u>
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Initial when completed: _____ Lot # of added preservative: _____
Headspace in VOA Vials (>6mm)?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	14. <u>6/6 DP-3</u>
Trip Blank Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>102114-01</u>			

**CLIENT NOTIFICATION/RESOLUTION**

Field Data Required?  Yes  No

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/Resolution: \_\_\_\_\_

Project Manager Review: Kathy King

Date: Nov 12, 2014 Nov 11, 2014 KXI

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)

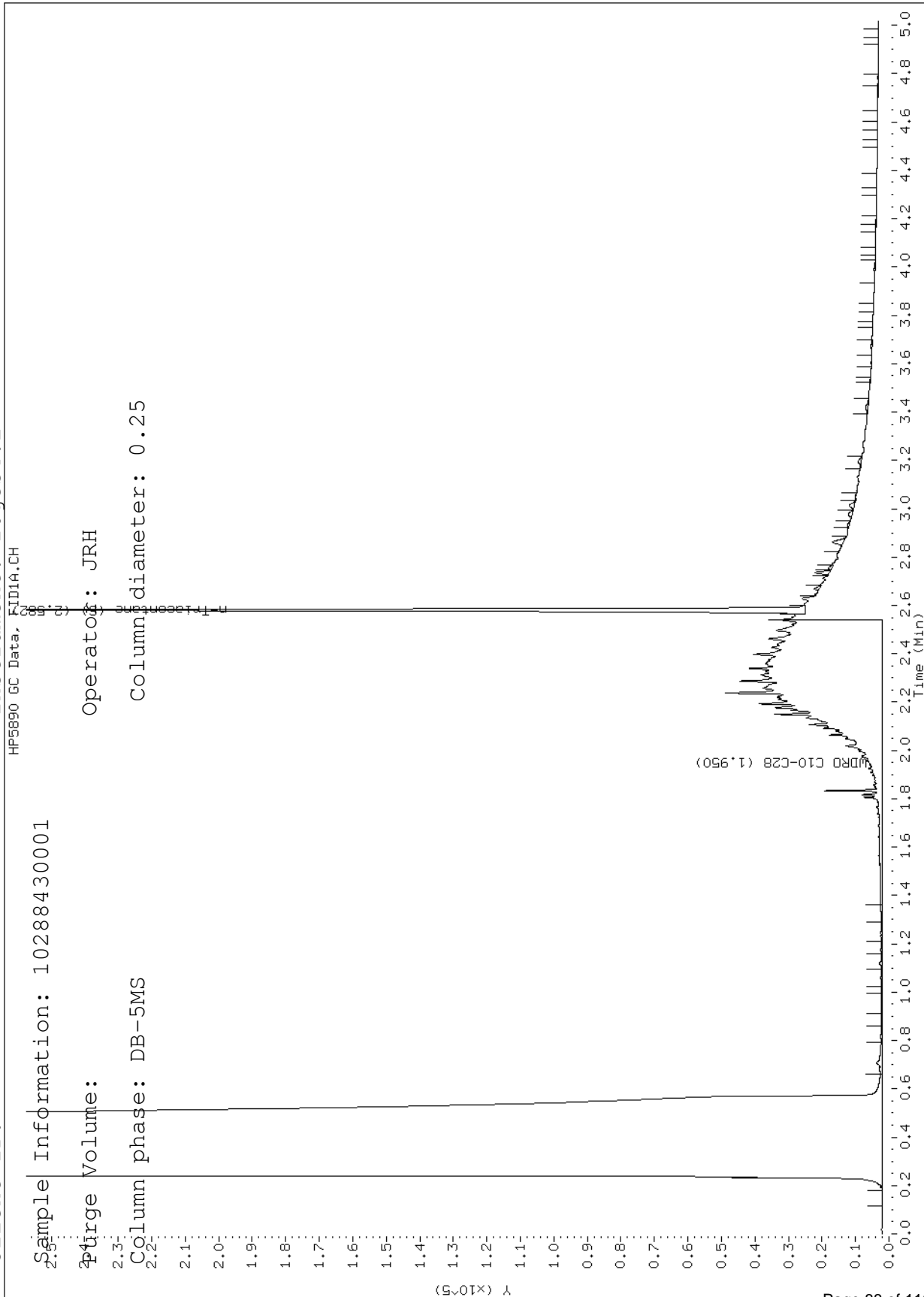
Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150045.D

Report Date: 11/16/2014

Sample ID: 10288430001

Client ID:

Instrument: 10gcs4.i



Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150046.D

Report Date: 11/16/2014

Sample ID: 10288430003

Client ID: Instrument: 10gcs4.i

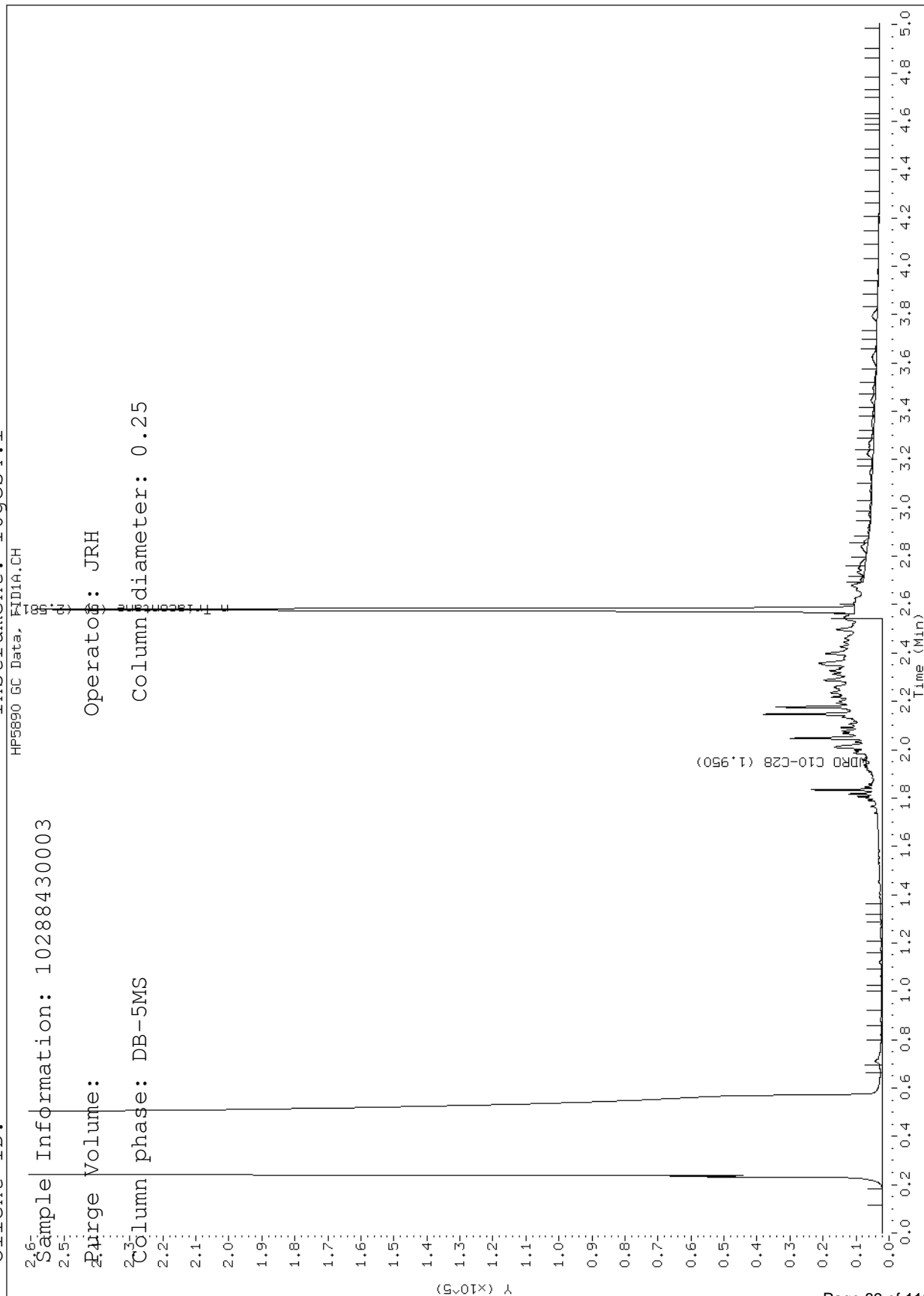
Sample Information: 10288430003

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25





Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150047.D

Report Date: 11/16/2014

Sample ID: 10288430004

Client ID:

Instrument: 10gcs4.i

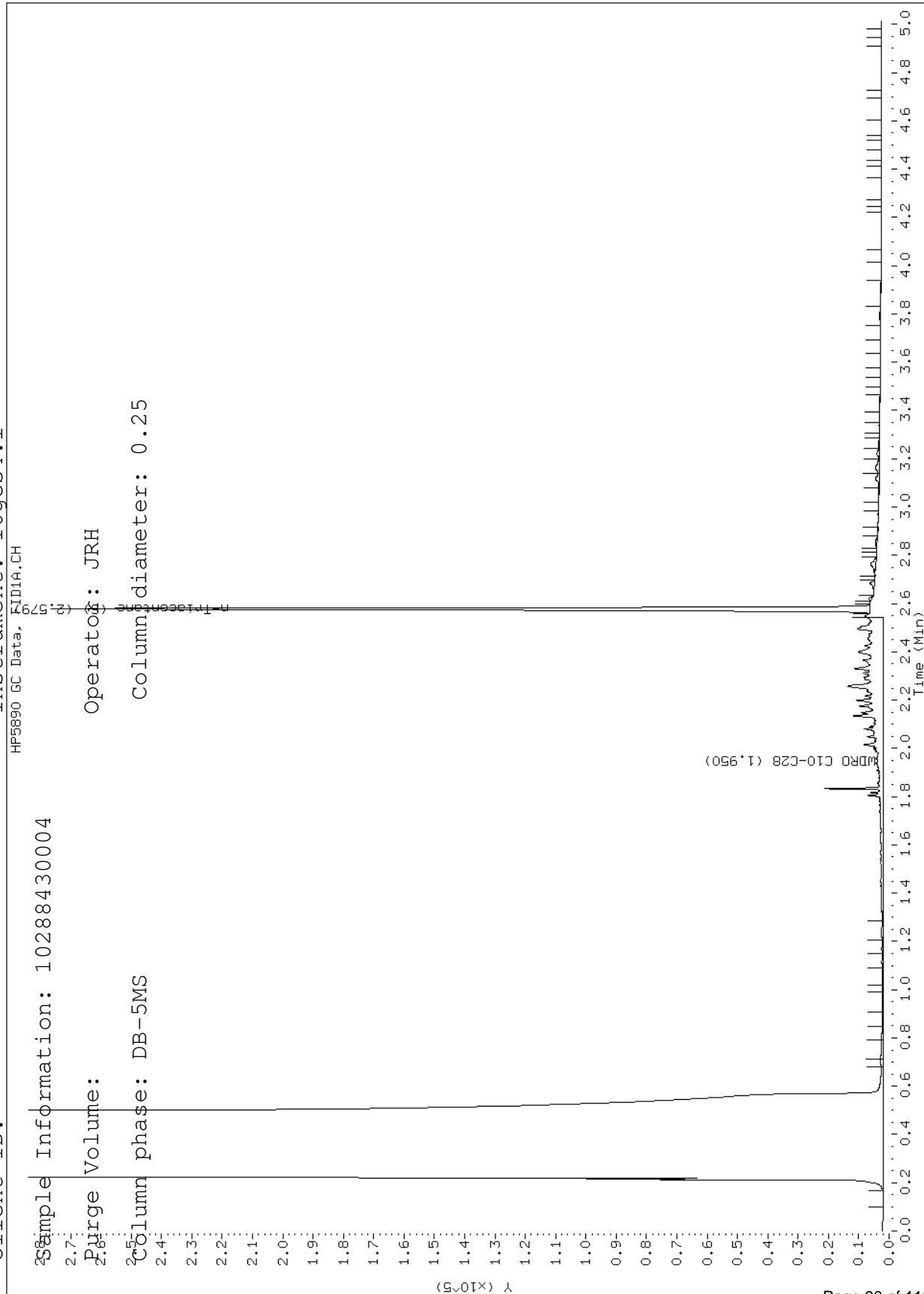
Sample Information: 10288430004

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



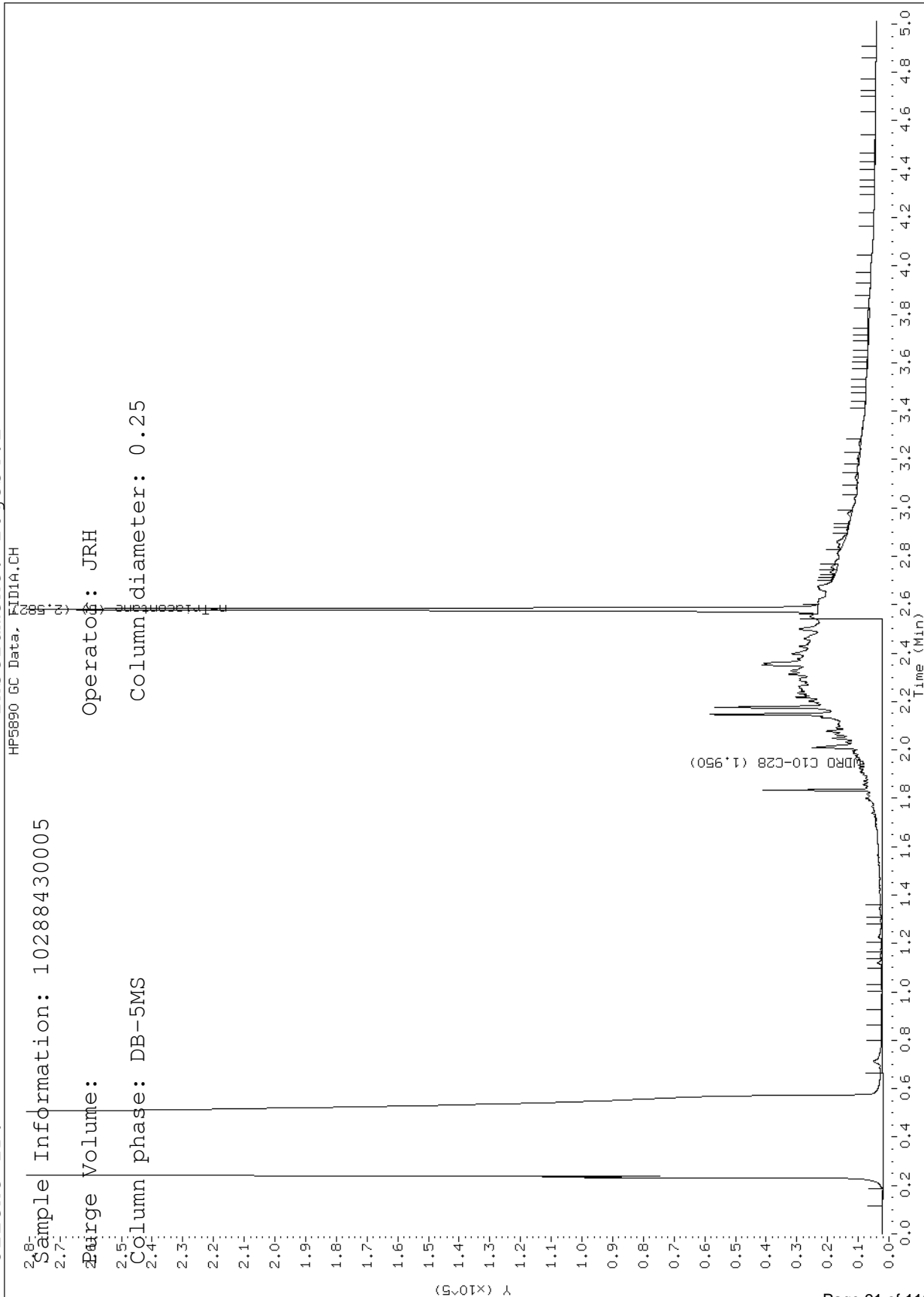
Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150043.D

Report Date: 11/16/2014

Sample ID: 10288430005

Client ID:

Instrument: 10gcs4.i



Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150048.D

Report Date: 11/16/2014

Sample ID: 10288430006

Client ID:

Instrument: 10gcs4.i

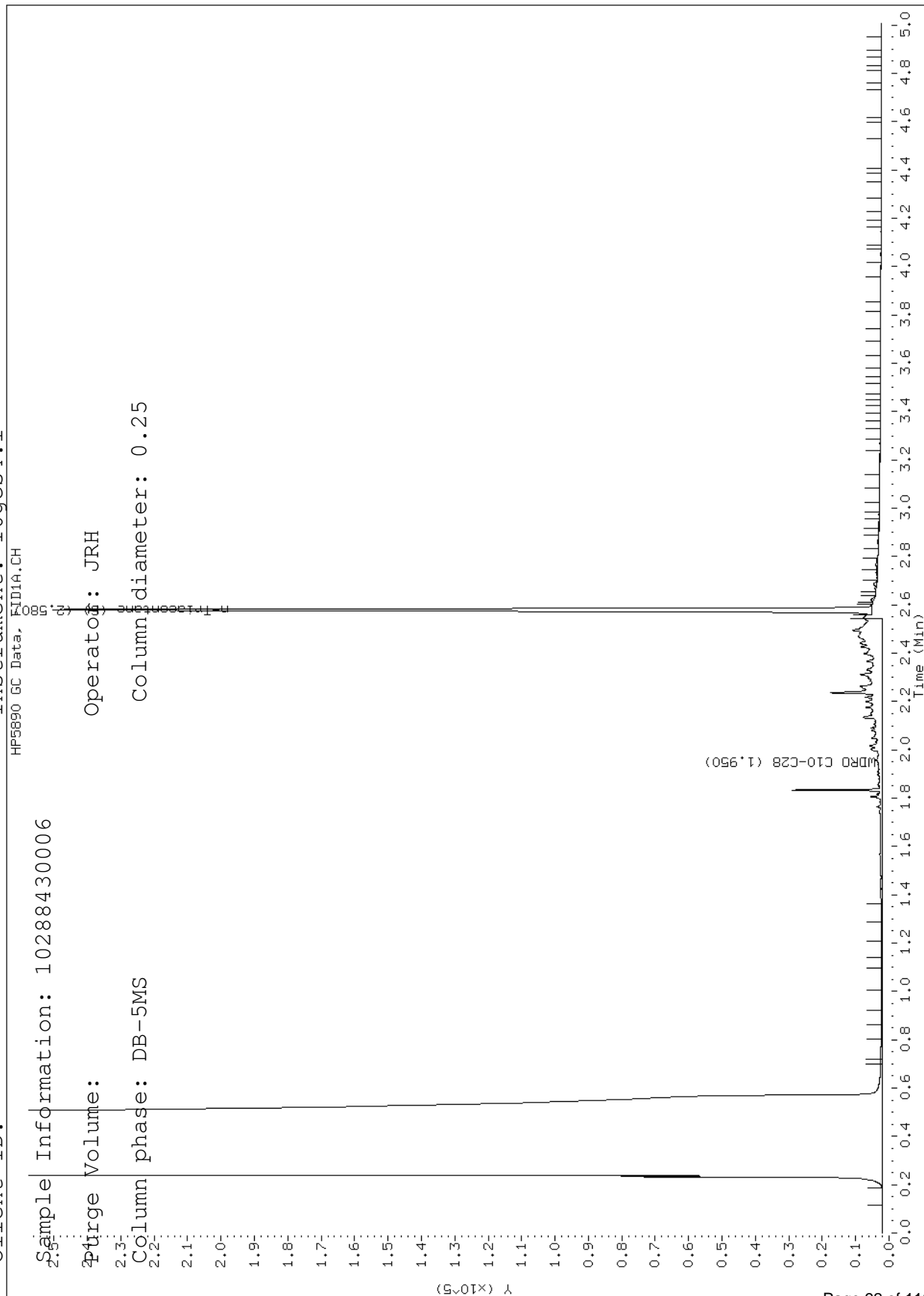
Sample Information: 10288430006

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



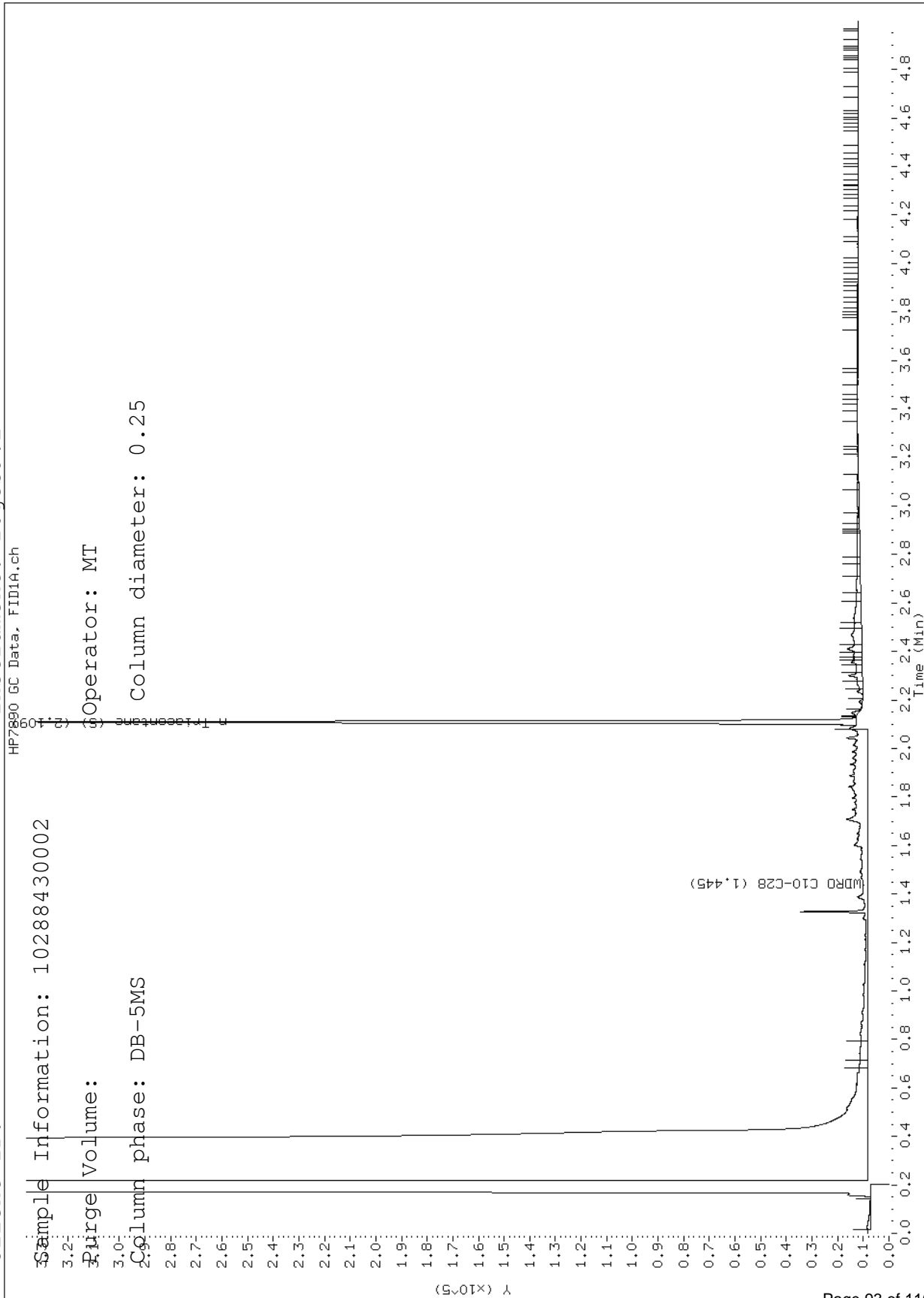
Data File: \\192.168.10.12\chem\10gcs9.i\111414dro.b\111414000014.D

Report Date: 11/14/2014

Sample ID: 10288430002

Client ID:

Instrument: 10gcs9.i



Data File: \\192.168.10.12\chem\10gcs9.i\111414dro.b\111414000023.D

Report Date: 11/14/2014

Sample ID: 10288430007

Client ID:

Instrument: 10gcs9.i

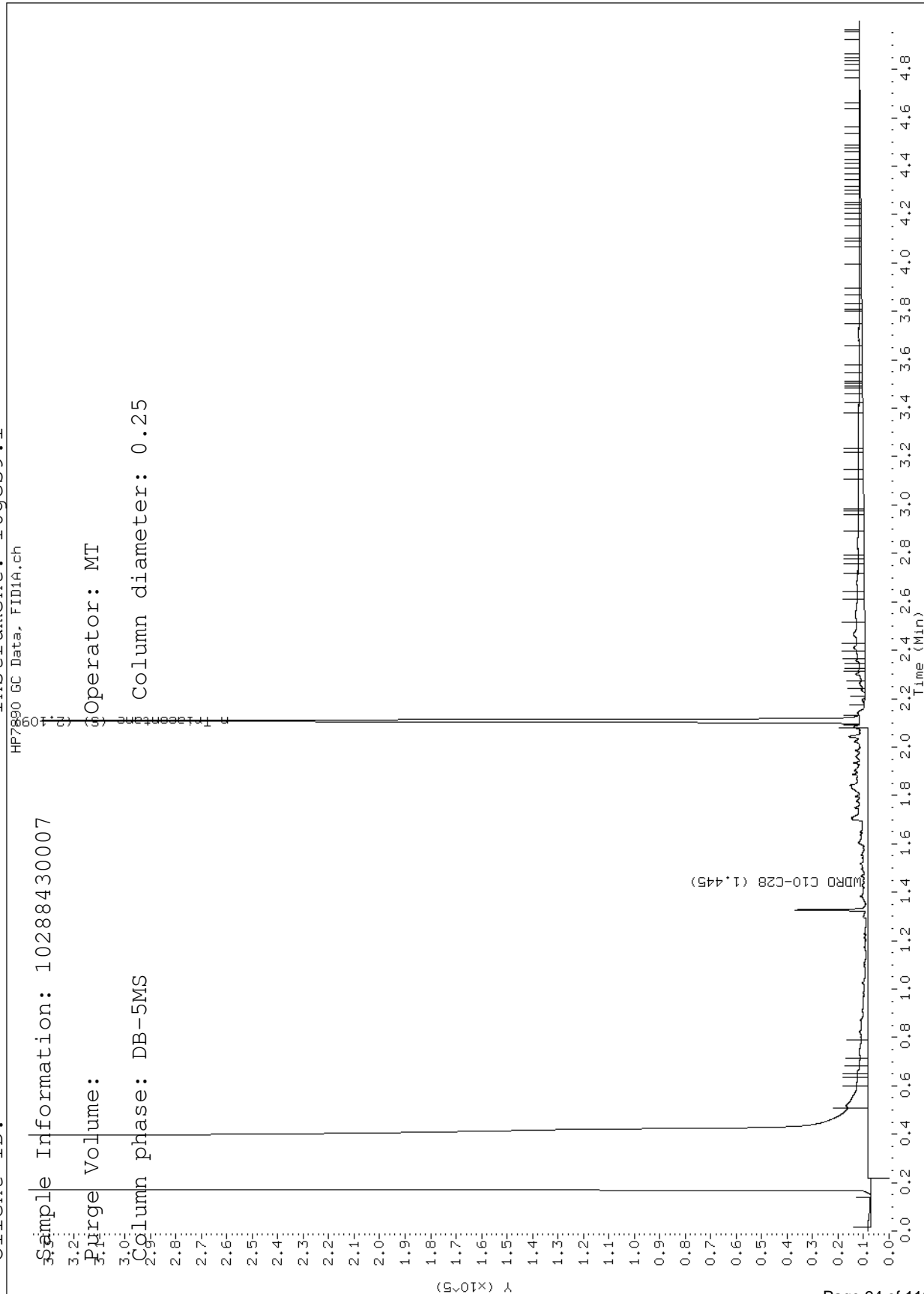
Sample Information: 10288430007

Purge Volume:

Operator: MT

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcv3.i\112114b-1.b/G1-32549.d

Report Date: 11/24/2014

Sample ID: 10288430001

Client ID:

Instrument: 10gcv3.i

HP5890 GC Data, FID1B.CH

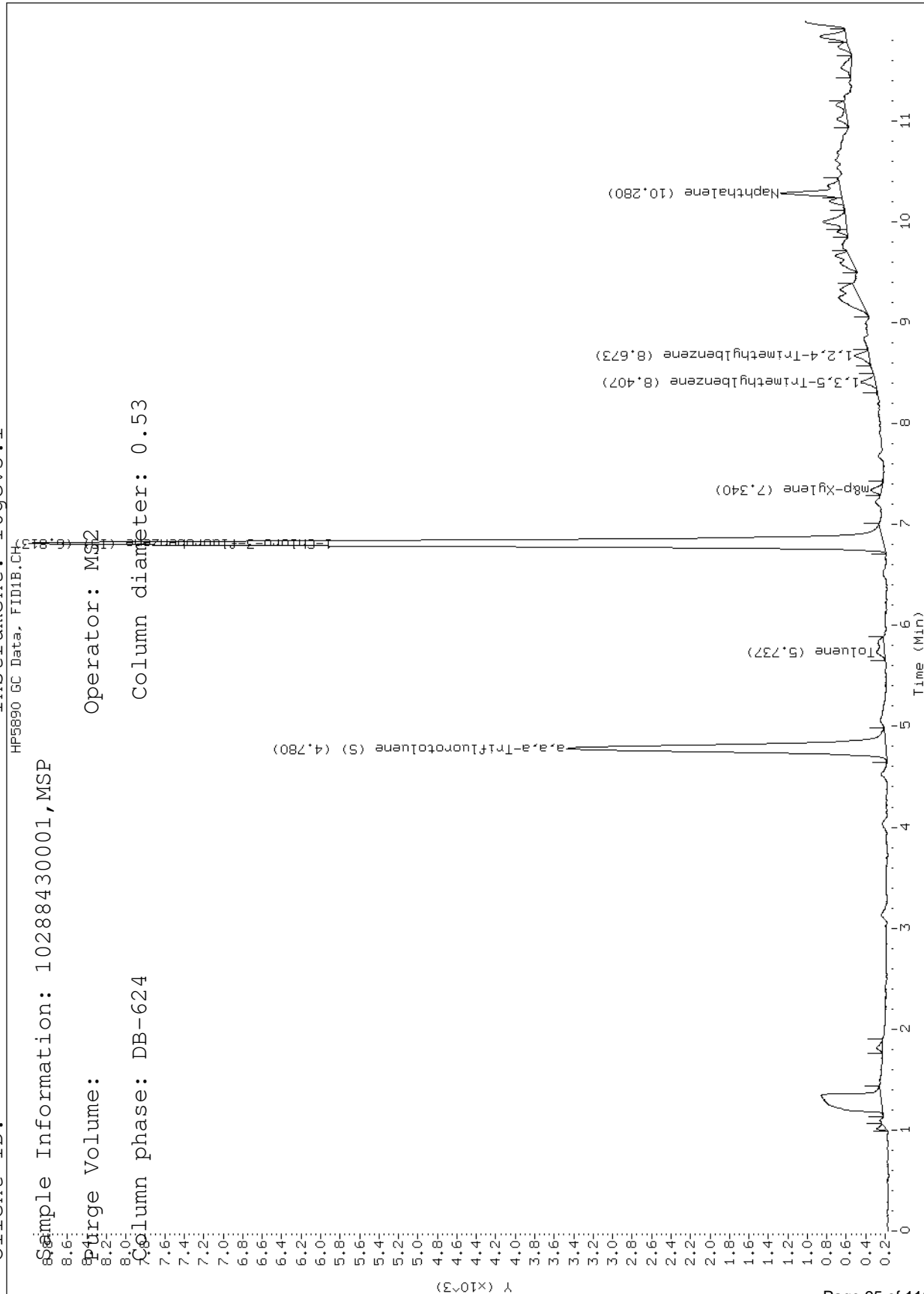
Sample Information: 10288430001, MSP

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112114b-2.b/G1-32549.d

Report Date: 11/24/2014

Sample ID: 10288430001

Client ID:

Instrument: 10gcv3.i

HP5890 GC Data, FID2A.CH

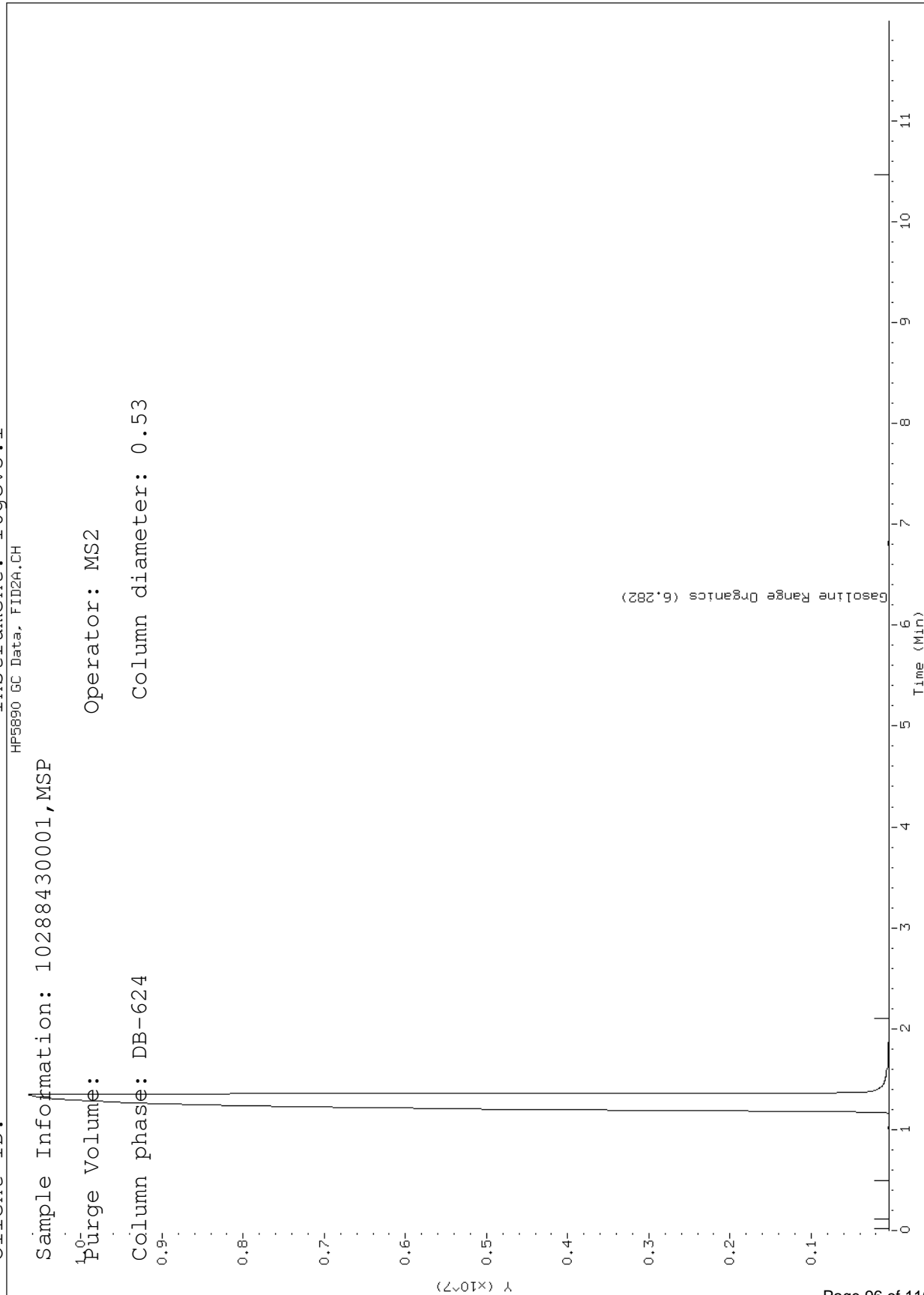
Sample Information: 10288430001, MSP

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53





Data File: \\192.168.10.12\chem\10gcv3.i\112114b-1.b/G1-32551.d

Report Date: 11/24/2014

Sample ID: 10288430003

Client ID:

Instrument: 10gcv3.i

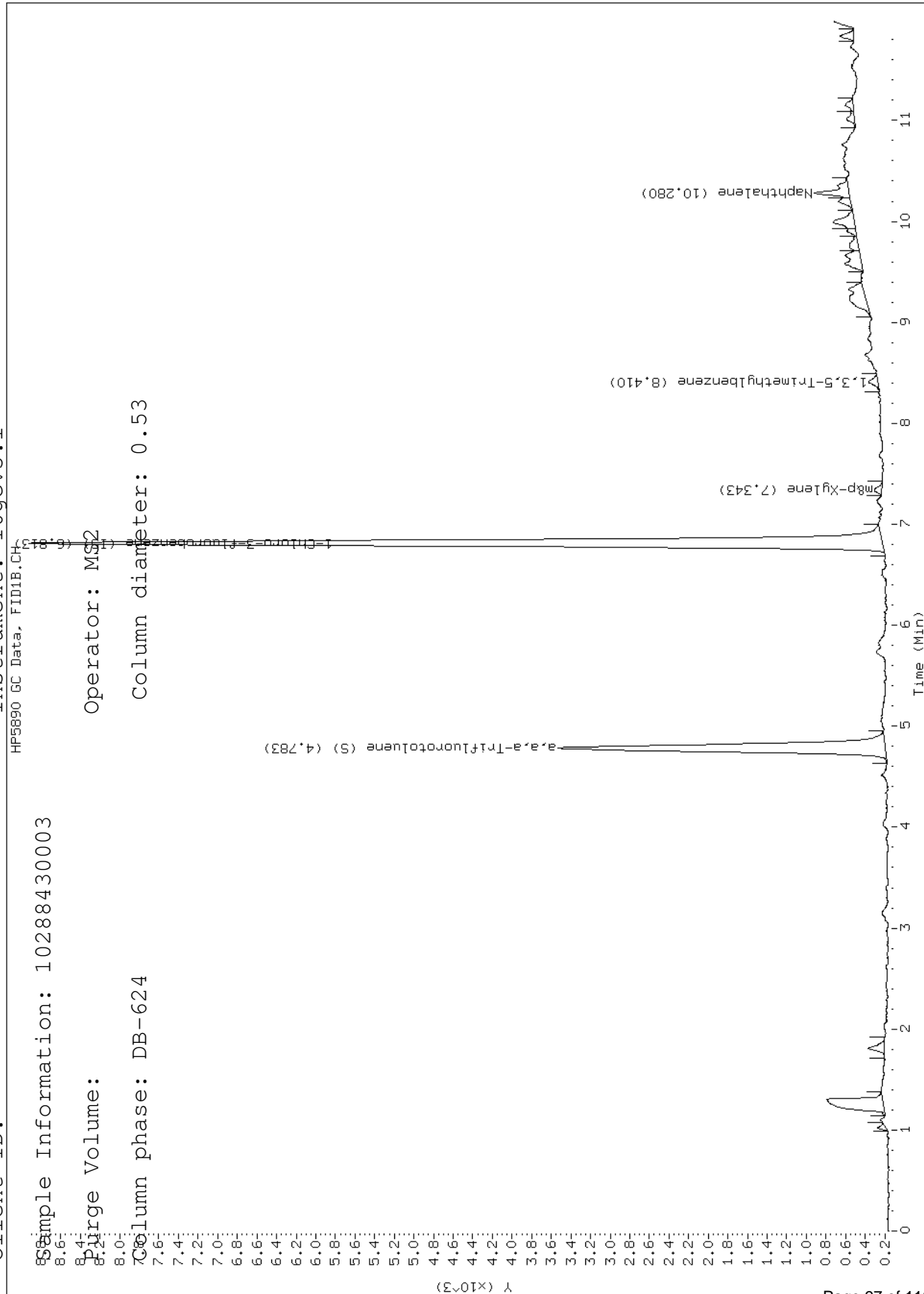
Sample Information: 10288430003

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112114b-2.b/G1-32551.d

Report Date: 11/24/2014

Sample ID: 10288430003

Client ID: Instrument: 10gcv3.i

HP5890 GC Data, FID2A.CH

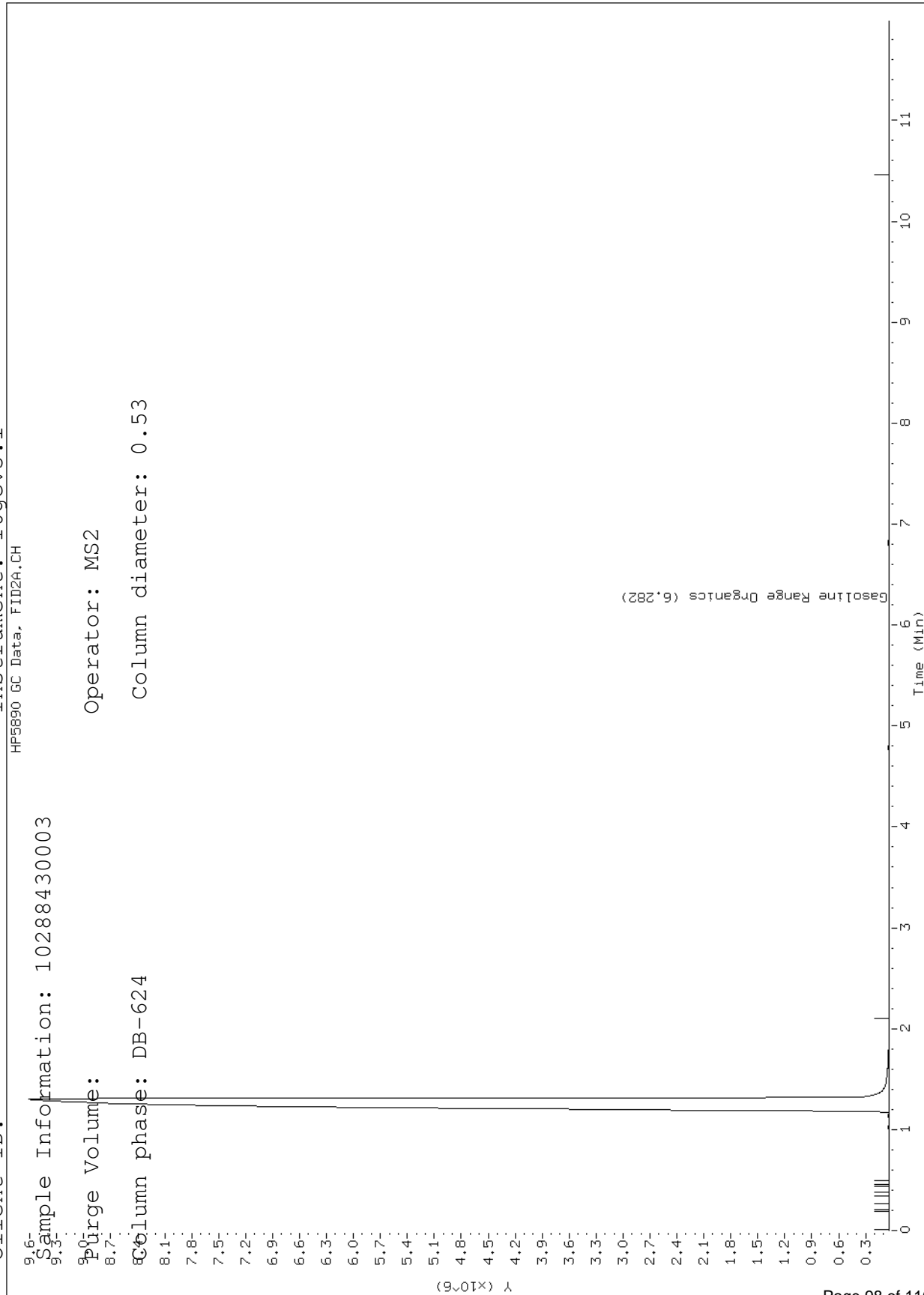
Sample Information: 10288430003

Purge Volume: 9.0

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112414a-1.b/G1-32825.d

Report Date: 11/25/2014

Sample ID: 10288430004

Client ID:

Instrument: 10gcv3.i

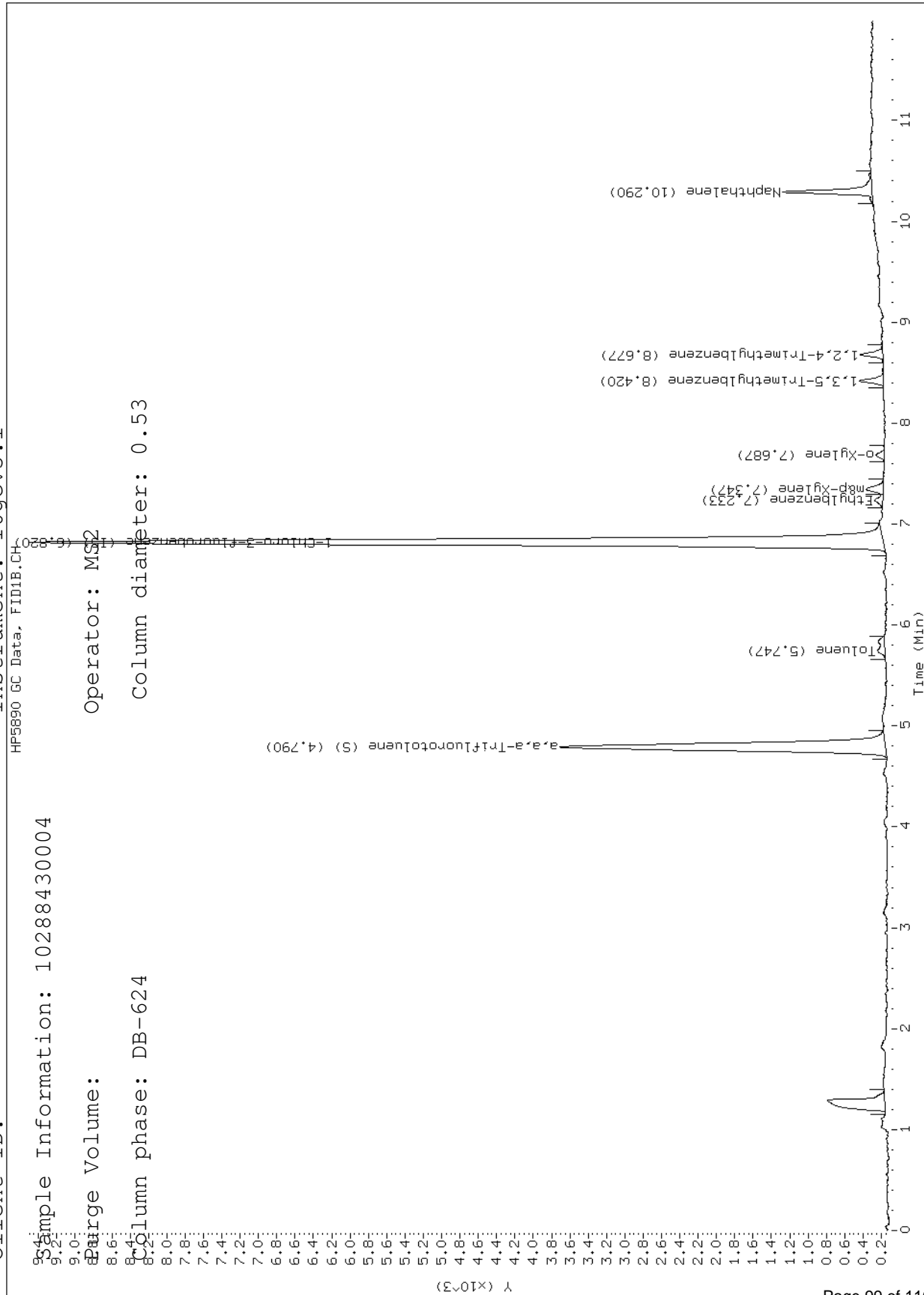
Sample Information: 10288430004

Injection Volume: 1

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112414a-2.b/G1-32825.d

Report Date: 11/25/2014

Sample ID: 10288430004

Client ID:

Instrument: 10gcv3.i

HP5890 GC Data, FID2A.CH

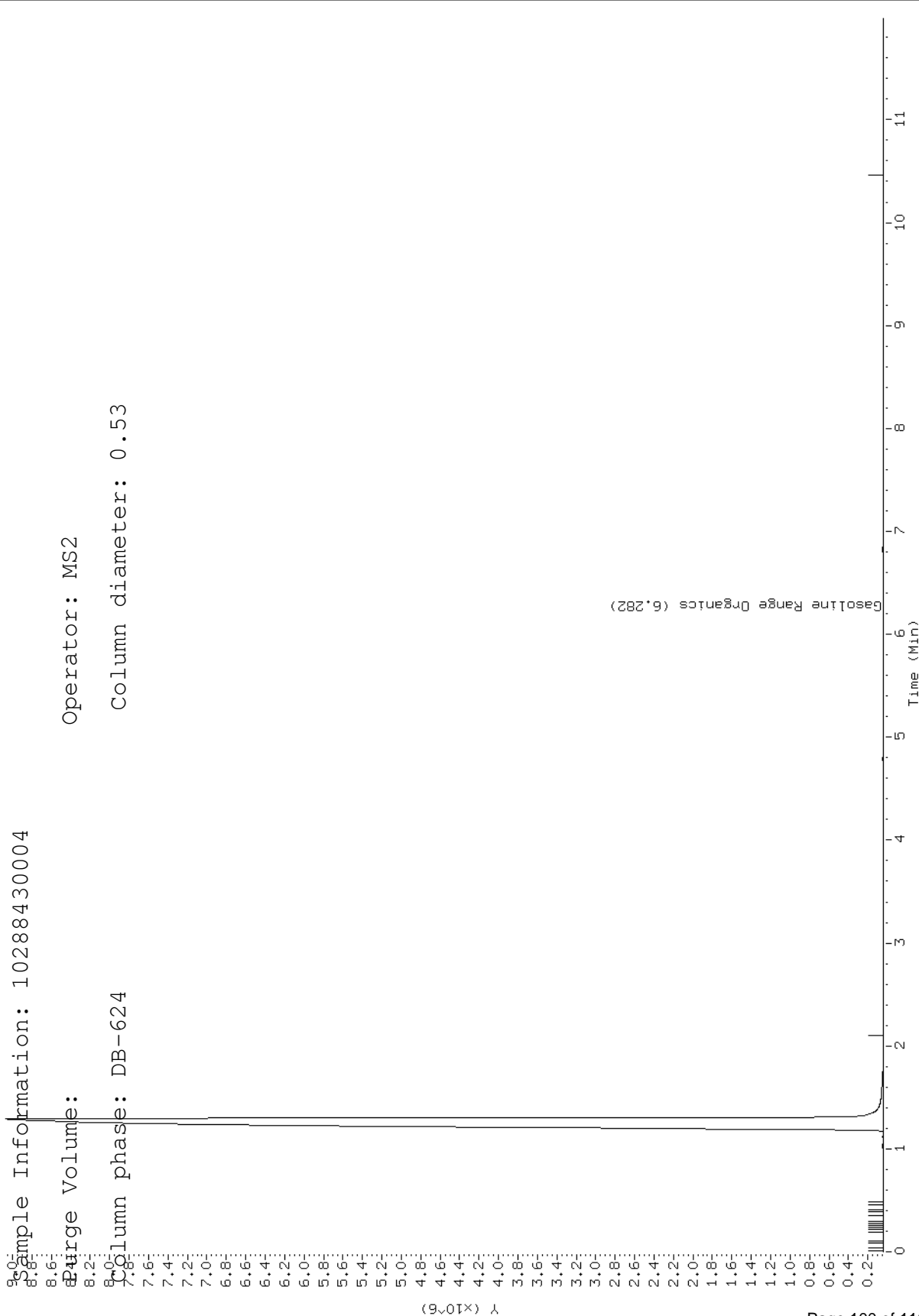
Sample Information: 10288430004

Purge Volume: 8.2

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112414a-1.b/G1-32826.d

Report Date: 11/25/2014

Sample ID: 10288430005

Client ID:

Instrument: 10gcv3.i

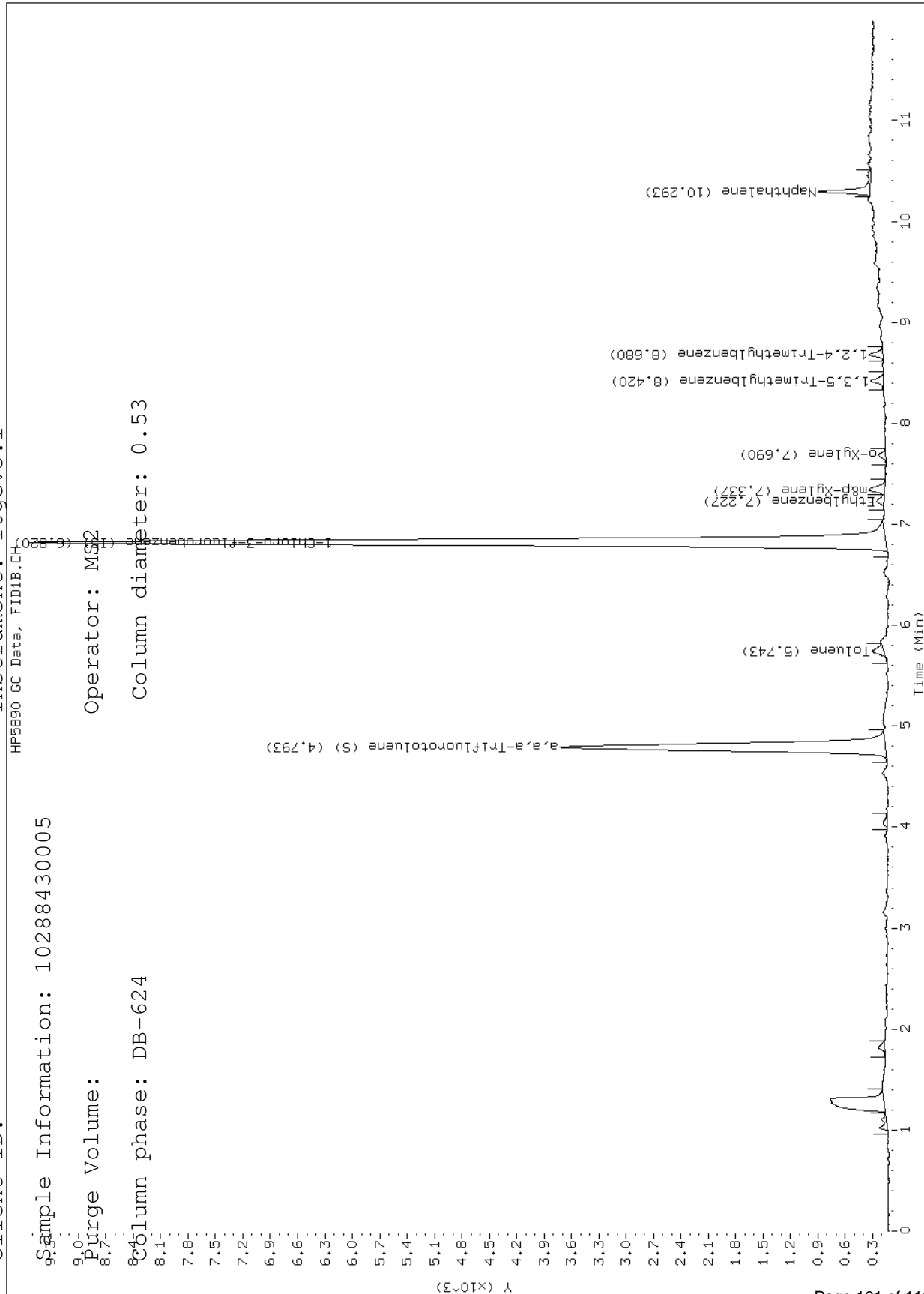
Sample Information: 10288430005

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112414a-2.b/G1-32826.d

Report Date: 11/25/2014

Sample ID: 10288430005

Client ID:

Instrument: 10gcv3.i

HP5890 GC Data, FID2A.CH

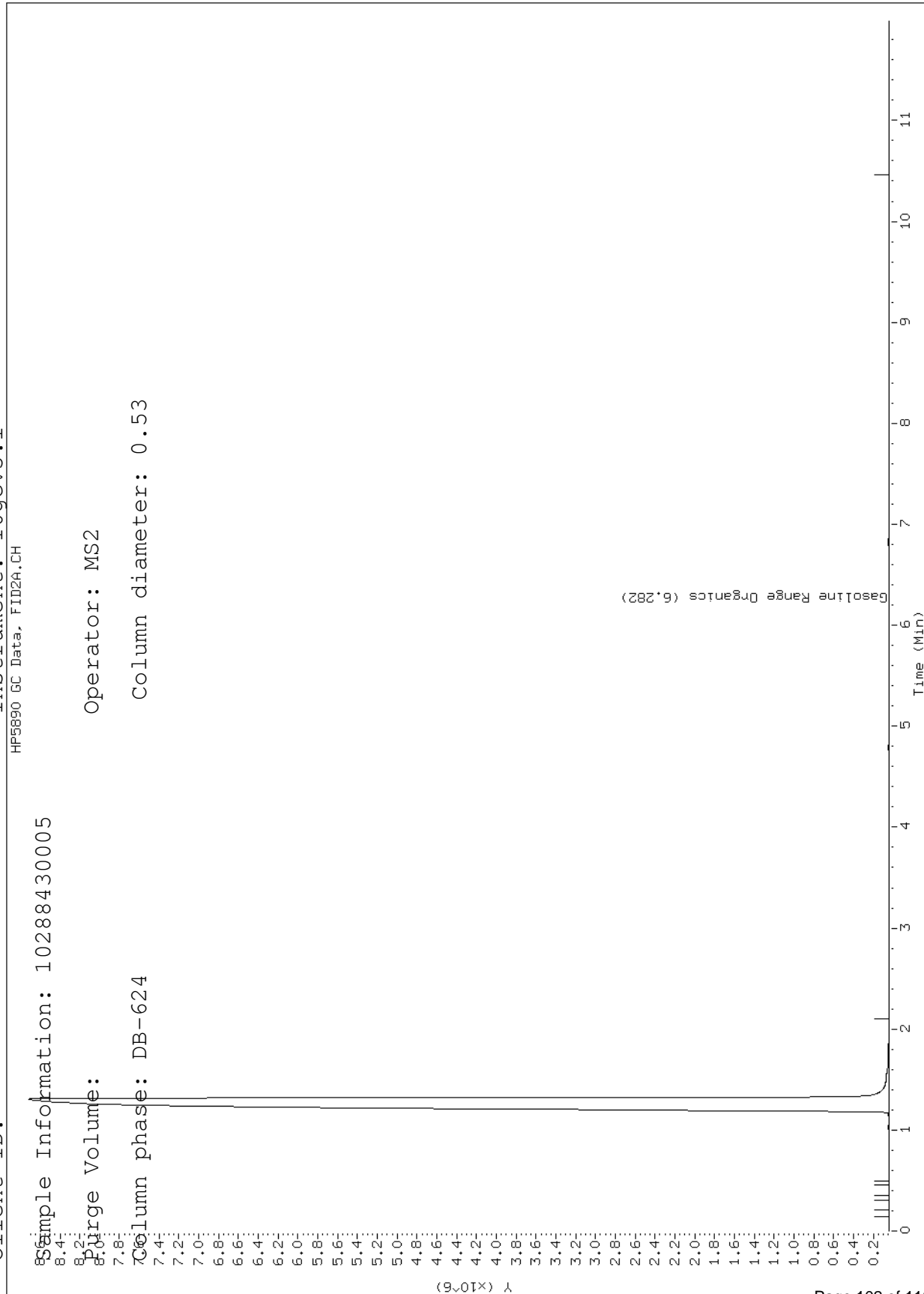
Sample Information: 10288430005

Injection Volume: 0.2

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv3.i\112414a-1.b/G1-32827.d

Report Date: 11/25/2014

Sample ID: 10288430006

Client ID:

Instrument: 10gcv3.i

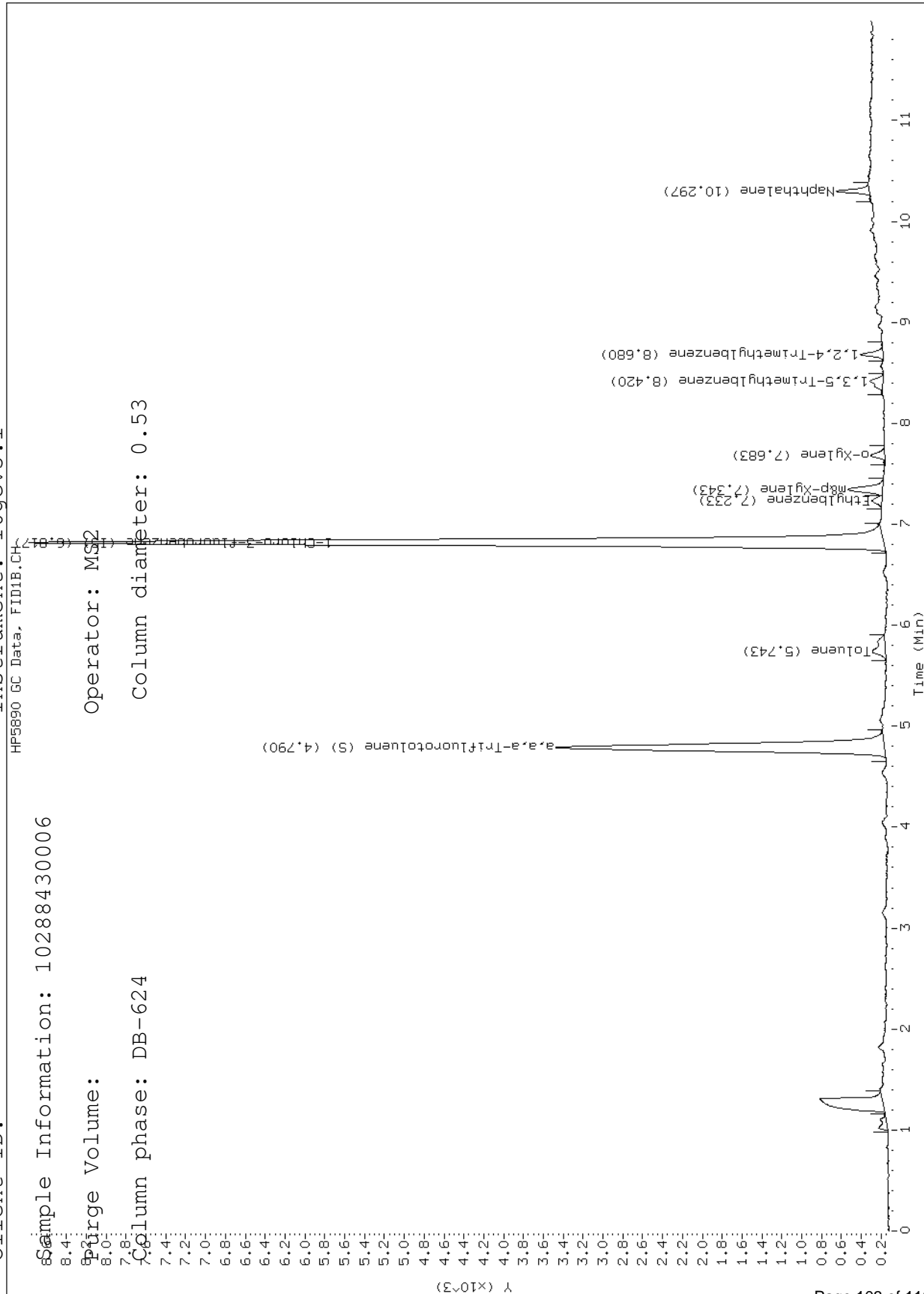
Sample Information: 10288430006

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53





Data File: \\192.168.10.12\chem\10gcv3.i\112414a-2.b/G1-32827.d

Report Date: 11/25/2014

Sample ID: 10288430006

Client ID:

Instrument: 10gcv3.i

HP5890 GC Data, FID2A.CH

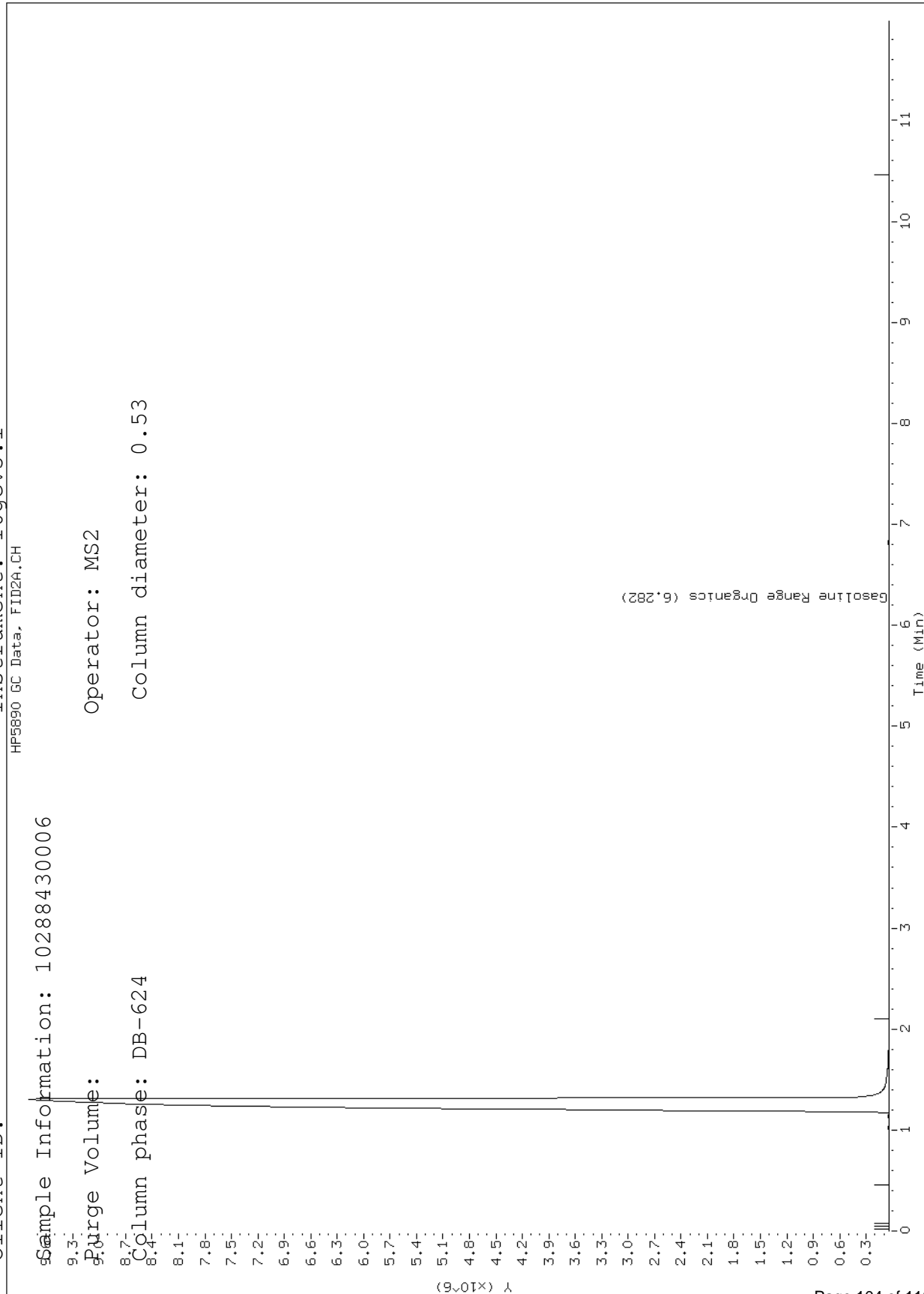
Sample Information: 10288430006

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112514b-1.b\112514040.d

Report Date: 11/26/2014

Sample ID: 10288430002

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

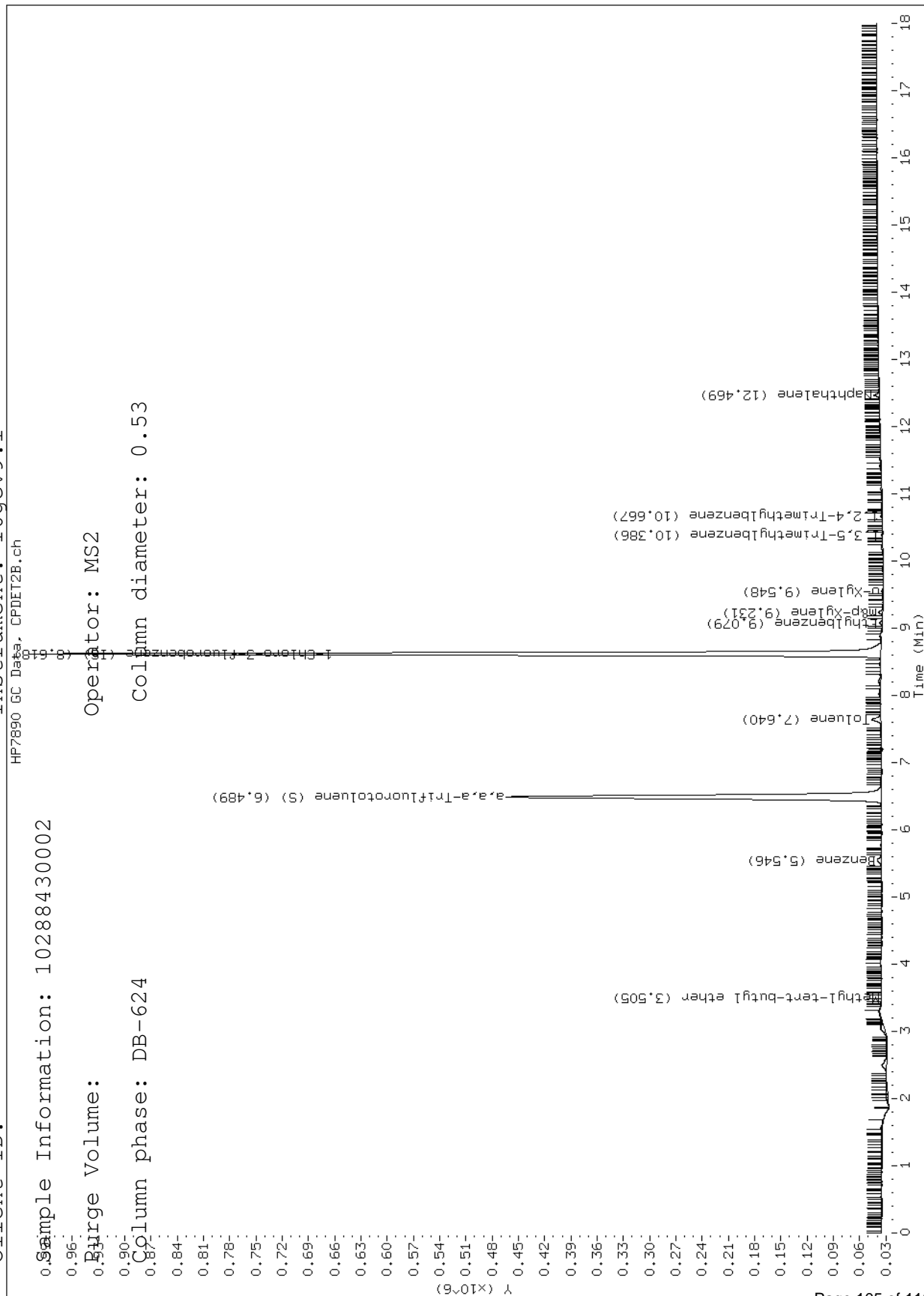
Sample Information: 10288430002

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112514b-2.b\112514040.d

Report Date: 11/26/2014

Sample ID: 10288430002

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

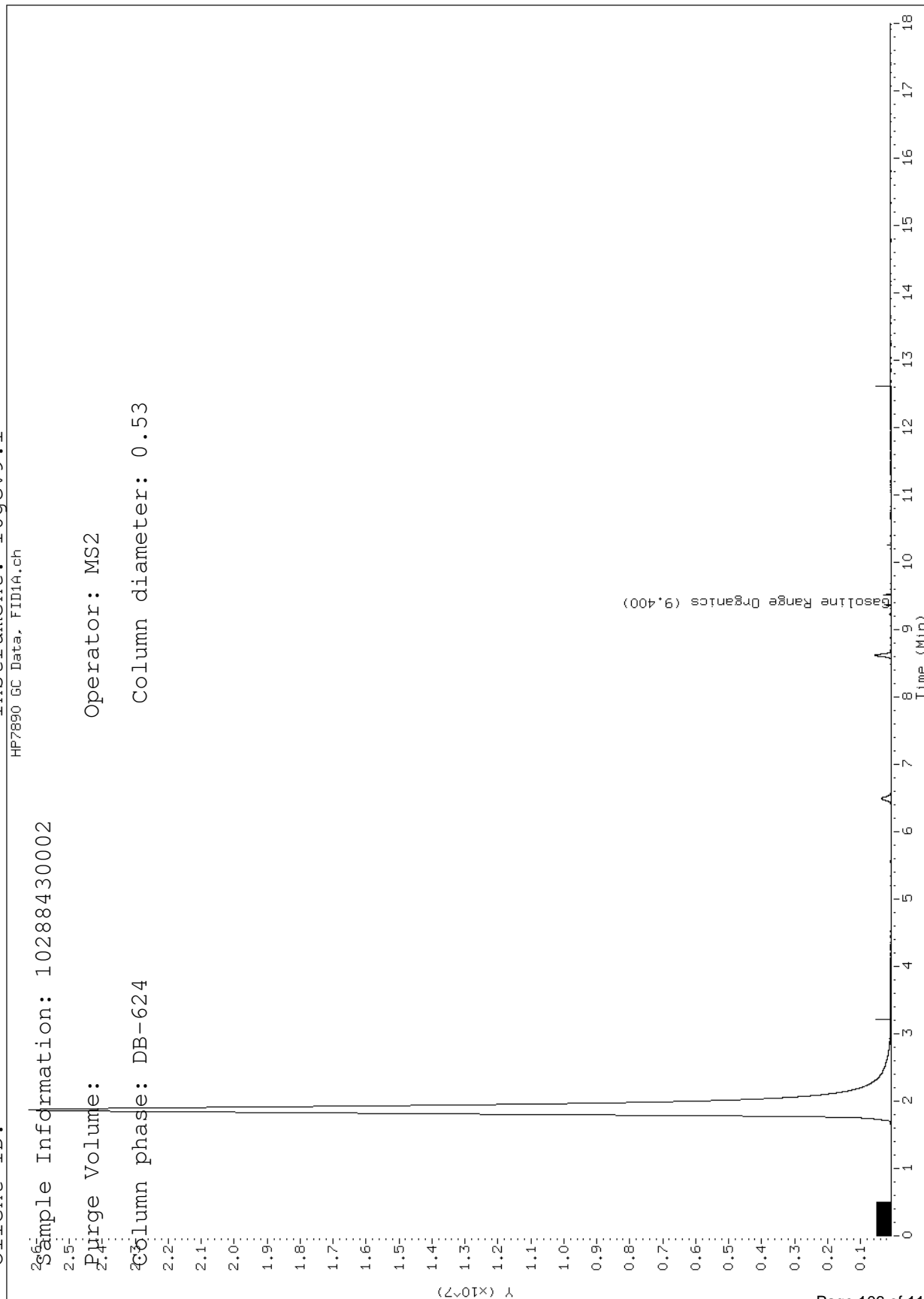
Sample Information: 10288430002

Purge Volume: 2.4

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Baseline Range Organics (9.400)

Data File: \\192.168.10.12\chem\10gcv9.i\112514b-1.b\112514034.d

Report Date: 11/26/2014

Sample ID: 10288430007

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

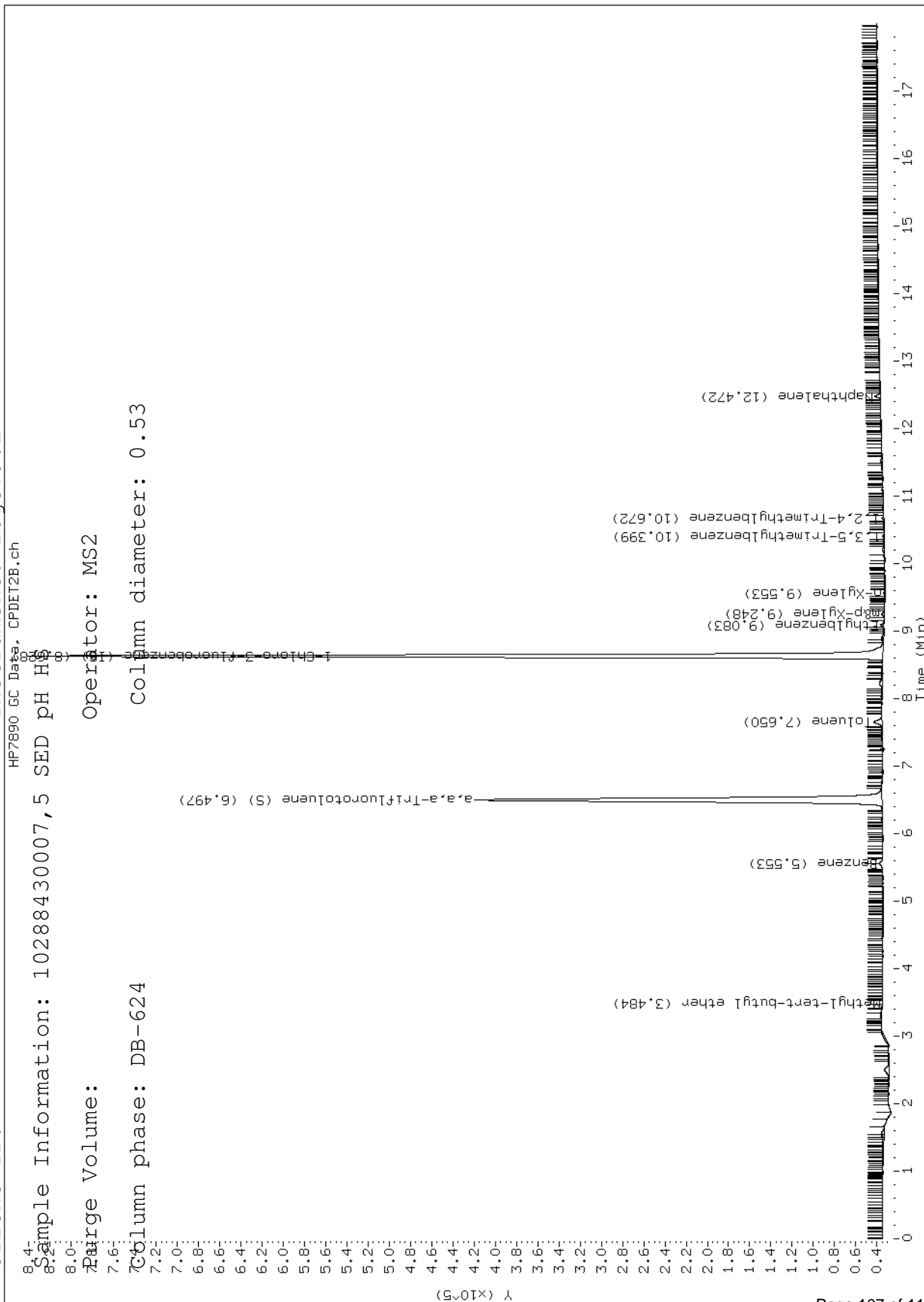
Sample Information: 10288430007, 5 SED pH HB

Sample Volume: 1.0

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112514b-2.b\112514034.d

Report Date: 11/26/2014

Sample ID: 10288430007

Client ID: Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

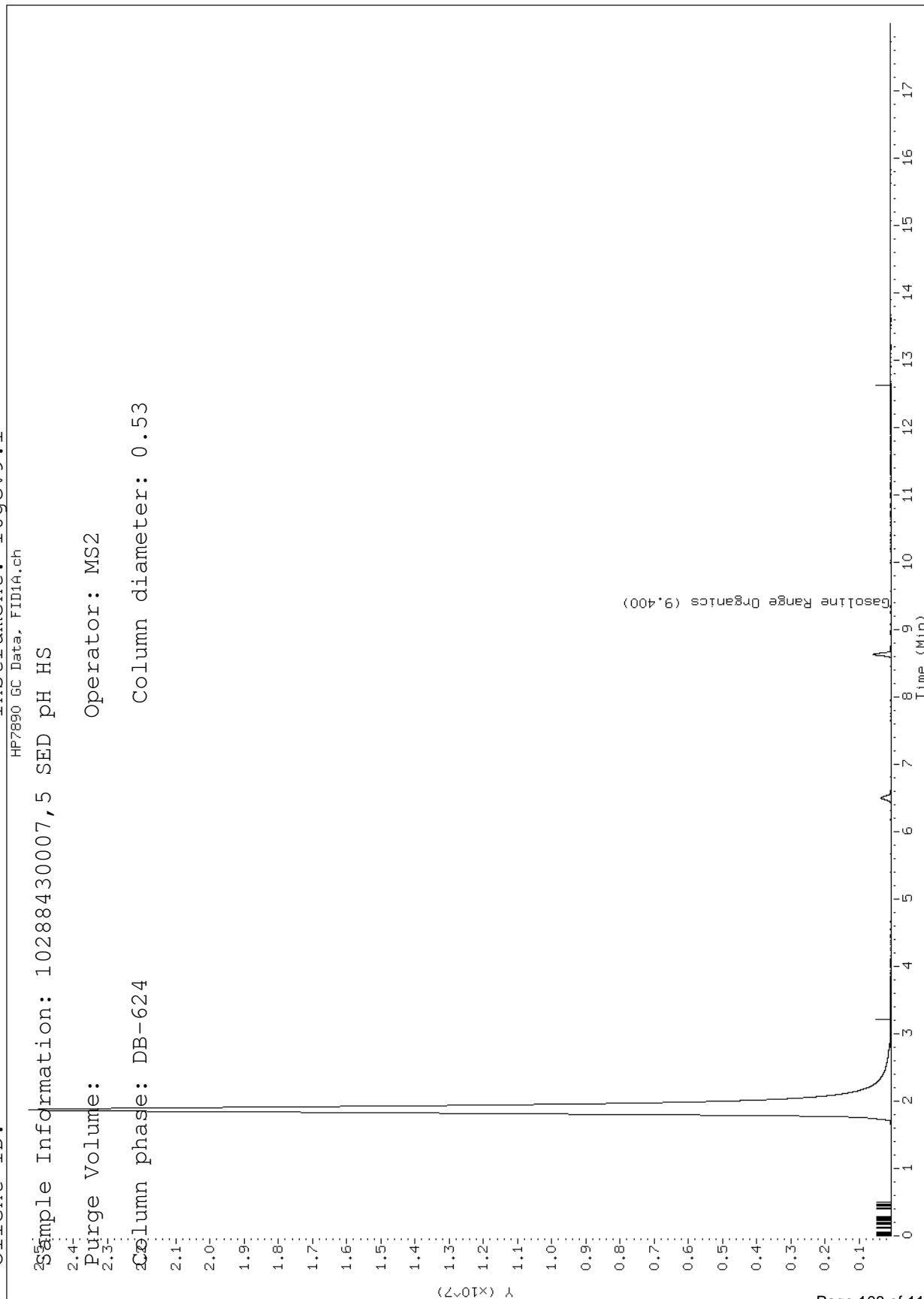
Sample Information: 10288430007, 5 SED pH HS

Purge Volume: 2.4

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112114c-1.b\112114057.d

Report Date: 11/24/2014

Sample ID: 10288430008

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

Sample Information: 10288430008, TB

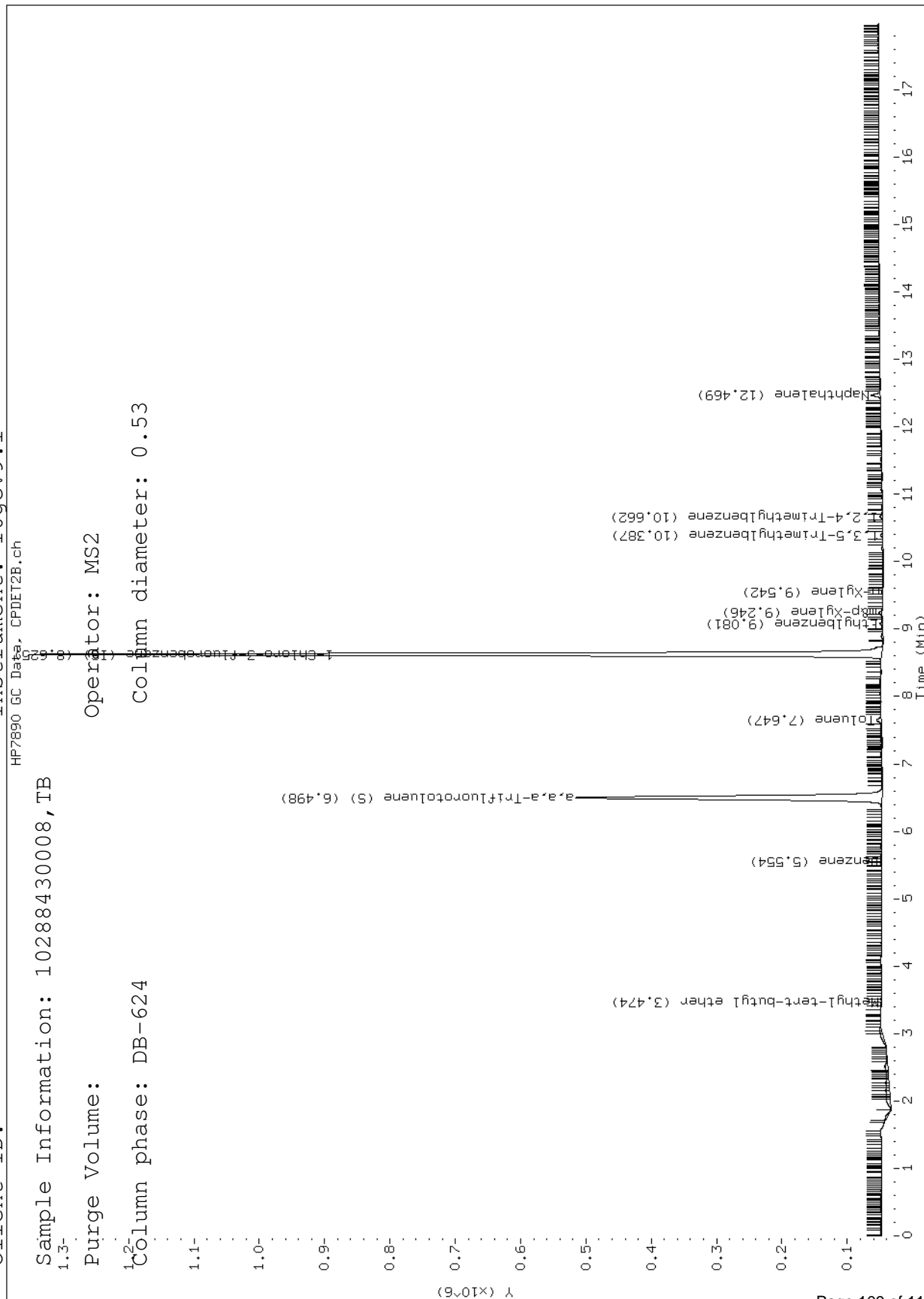
1.3-

Purge Volume:

Operator: MS2

1.2-  
Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112114c-2.b\112114057.d

Report Date: 11/24/2014

Sample ID: 10288430008

Client ID: Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

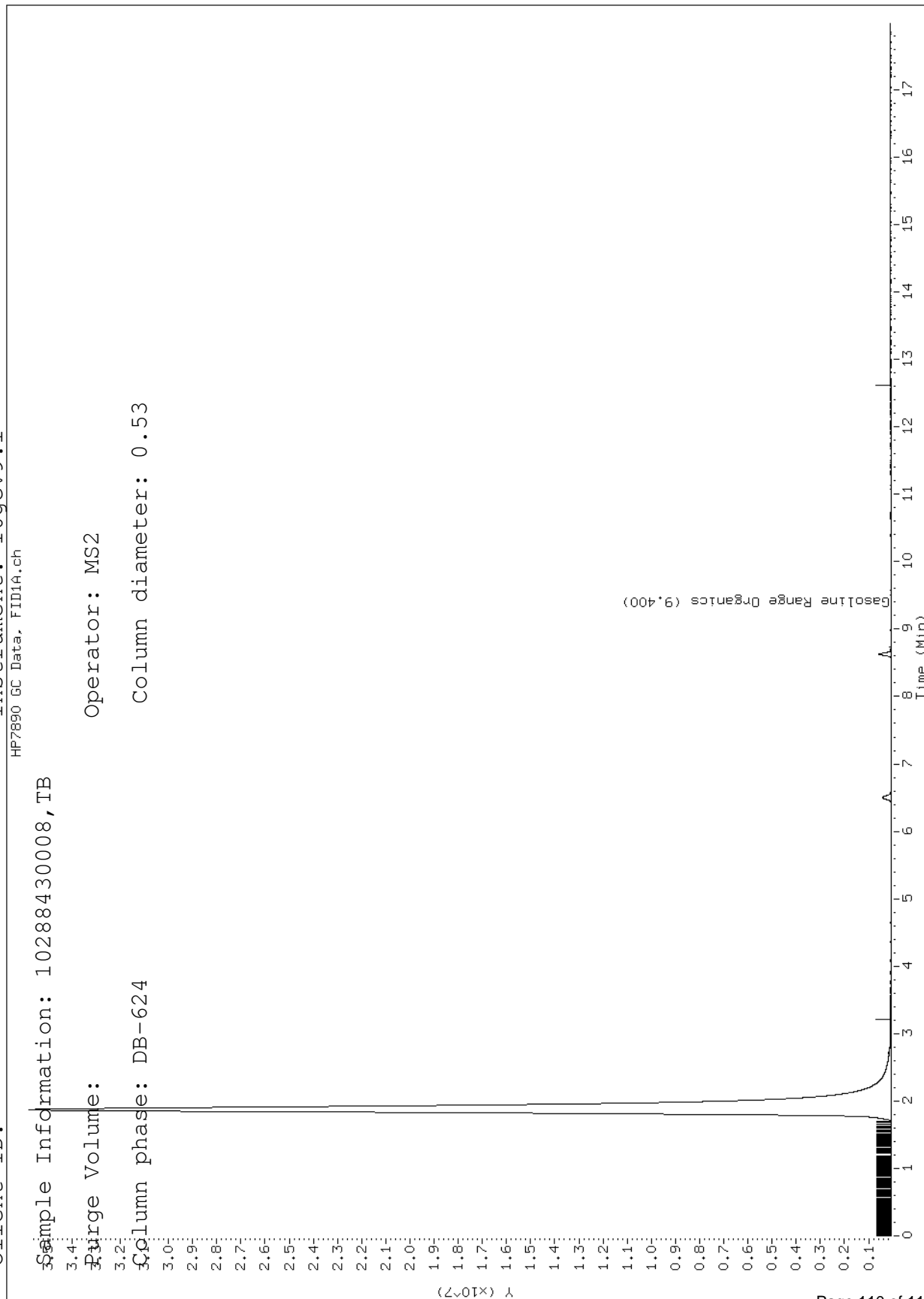
Sample Information: 10288430008, TB

Purge Volume: 3.4

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



December 01, 2014

Ms. Paula Berger  
WSP Environment and Energy  
123 North Third Street  
Suite 808  
Minneapolis, MN 55401

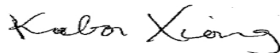
RE: Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

Dear Ms. Berger:

Enclosed are the analytical results for sample(s) received by the laboratory on November 12, 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,



Kabor Xiong  
kabor.xiong@pacelabs.com  
Project Manager

Enclosures

cc: Ms. Judy Andrews, WSP Environment and Energy



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

---

### Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414  
A2LA Certification #: 2926.01  
Alaska Certification #: UST-078  
Alaska Certification #MN00064  
Alabama Certification #40770  
Arizona Certification #: AZ-0014  
Arkansas Certification #: 88-0680  
California Certification #: 01155CA  
Colorado Certification #Pace  
Connecticut Certification #: PH-0256  
EPA Region 8 Certification #: 8TMS-L  
Florida/NELAP Certification #: E87605  
Guam Certification #:14-008r  
Georgia Certification #: 959  
Georgia EPD #: Pace  
Idaho Certification #: MN00064  
Hawaii Certification #MN00064  
Illinois Certification #: 200011  
Indiana Certification#C-MN-01  
Iowa Certification #: 368  
Kansas Certification #: E-10167  
Kentucky Dept of Envi. Protection - DW #90062  
Kentucky Dept of Envi. Protection - WW #:90062  
Louisiana DEQ Certification #: 3086  
Louisiana DHH #: LA140001  
Maine Certification #: 2013011  
Maryland Certification #: 322  
Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137  
Mississippi Certification #: Pace  
Montana Certification #: MT0092  
Nevada Certification #: MN\_00064  
Nebraska Certification #: Pace  
New Jersey Certification #: MN-002  
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  
West Virginia Certification #: 382  
West Virginia DHHR #:9952C  
Wisconsin Certification #: 999407970

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10288603001	DP-4 (4-5)	Solid	11/12/14 09:10	11/12/14 16:49
10288603002	DP-11 (4-5)	Solid	11/12/14 13:30	11/12/14 16:49
10288603003	DP-11	Water	11/12/14 14:00	11/12/14 16:49
10288603004	DP-13 (4-5)	Solid	11/12/14 15:30	11/12/14 16:49
10288603005	TB	Water	11/12/14 00:00	11/12/14 16:49
10288603006	TB	Solid	11/12/14 00:00	11/12/14 16:49

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10288603001	DP-4 (4-5)	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	IP	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	AAN1	70	PASI-M
10288603002	DP-11 (4-5)	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	IP	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	AAN1	70	PASI-M
10288603003	DP-11	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	SH2	70	PASI-M
10288603004	DP-13 (4-5)	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	IP	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
10288603005	TB	EPA 8260	AAN1	70	PASI-M
		EPA 8260	SH2	70	PASI-M
10288603006	TB	EPA 8260	AAN1	70	PASI-M

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-4 (4-5)**      **Lab ID: 10288603001**      Collected: 11/12/14 09:10      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>5.8J</b>	mg/kg	7.5	1.1	1	11/19/14 08:04	11/20/14 16:18		B
<b>Surrogates</b>									
n-Triacontane (S)	80 %		50-150		1	11/19/14 08:04	11/20/14 16:18	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>5.2J</b>	mg/kg	10.3	5.2	1	11/21/14 09:17	11/25/14 02:00		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	85 %		80-125		1	11/21/14 09:17	11/25/14 02:00	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>0.81</b>	mg/kg	0.69	0.20	1	11/15/14 12:01	11/17/14 13:01	7440-38-2	
Barium	<b>20.3</b>	mg/kg	0.34	0.038	1	11/15/14 12:01	11/17/14 13:01	7440-39-3	
Cadmium	<b>0.089J</b>	mg/kg	0.10	0.012	1	11/15/14 12:01	11/17/14 13:01	7440-43-9	B
Chromium	<b>5.2</b>	mg/kg	0.34	0.045	1	11/15/14 12:01	11/17/14 13:01	7440-47-3	
Lead	<b>15.1</b>	mg/kg	0.69	0.051	1	11/15/14 12:01	11/17/14 13:01	7439-92-1	
Selenium	<b>0.50J</b>	mg/kg	0.52	0.23	1	11/15/14 12:01	11/17/14 13:01	7782-49-2	B
Silver	ND	mg/kg	0.34	0.034	1	11/15/14 12:01	11/17/14 13:01	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	ND	mg/kg	0.020	0.0060	1	11/20/14 12:25	11/20/14 17:28	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>3.1</b>	%	0.10	0.10	1		11/24/14 12:58		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	83-32-9	
Acenaphthylene	ND	ug/kg	341	66.6	1	11/19/14 11:38	11/20/14 11:51	208-96-8	
Anthracene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	120-12-7	
Benzo(a)anthracene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	56-55-3	
Benzo(a)pyrene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	341	43.2	1	11/19/14 11:38	11/20/14 11:51	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	341	41.4	1	11/19/14 11:38	11/20/14 11:51	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	101-55-3	
Butylbenzylphthalate	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	85-68-7	
Carbazole	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	59-50-7	
4-Chloroaniline	ND	ug/kg	341	87.2	1	11/19/14 11:38	11/20/14 11:51	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	108-60-1	
2-Chloronaphthalene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	91-58-7	
2-Chlorophenol	ND	ug/kg	341	42.6	1	11/19/14 11:38	11/20/14 11:51	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	7005-72-3	
Chrysene	ND	ug/kg	341	45.8	1	11/19/14 11:38	11/20/14 11:51	218-01-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-4 (4-5)**      **Lab ID: 10288603001**      Collected: 11/12/14 09:10      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	53-70-3	
Dibenzofuran	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	341	39.8	1	11/19/14 11:38	11/20/14 11:51	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	341	96.5	1	11/19/14 11:38	11/20/14 11:51	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	120-83-2	
Diethylphthalate	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	341	59.9	1	11/19/14 11:38	11/20/14 11:51	105-67-9	
Dimethylphthalate	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	131-11-3	
Di-n-butylphthalate	ND	ug/kg	341	47.2	1	11/19/14 11:38	11/20/14 11:51	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1750	877	1	11/19/14 11:38	11/20/14 11:51	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	341	65.9	1	11/19/14 11:38	11/20/14 11:51	606-20-2	
Di-n-octylphthalate	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	341	58.2	1	11/19/14 11:38	11/20/14 11:51	117-81-7	
Fluoranthene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	206-44-0	
Fluorene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	341	34.5	1	11/19/14 11:38	11/20/14 11:51	87-68-3	
Hexachlorobenzene	ND	ug/kg	341	44.8	1	11/19/14 11:38	11/20/14 11:51	118-74-1	
Hexachloroethane	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	193-39-5	
Isophorone	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	78-59-1	
1-Methylnaphthalene	ND	ug/kg	341	40.0	1	11/19/14 11:38	11/20/14 11:51	90-12-0	
2-Methylnaphthalene	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	95-48-7	
3&4-Methylphenol	ND	ug/kg	681	170	1	11/19/14 11:38	11/20/14 11:51		
Naphthalene	ND	ug/kg	341	24.3	1	11/19/14 11:38	11/20/14 11:51	91-20-3	
2-Nitroaniline	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	88-74-4	
3-Nitroaniline	ND	ug/kg	341	75.6	1	11/19/14 11:38	11/20/14 11:51	99-09-2	
4-Nitroaniline	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	100-01-6	
Nitrobenzene	ND	ug/kg	341	38.4	1	11/19/14 11:38	11/20/14 11:51	98-95-3	
2-Nitrophenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	88-75-5	
4-Nitrophenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	86-30-6	
Pentachlorophenol	ND	ug/kg	692	170	1	11/19/14 11:38	11/20/14 11:51	87-86-5	
Phenanthrene	ND	ug/kg	341	48.7	1	11/19/14 11:38	11/20/14 11:51	85-01-8	
Phenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	108-95-2	
Pyrene	ND	ug/kg	341	43.0	1	11/19/14 11:38	11/20/14 11:51	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	341	37.2	1	11/19/14 11:38	11/20/14 11:51	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	341	37.8	1	11/19/14 11:38	11/20/14 11:51	95-95-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-4 (4-5)**      **Lab ID: 10288603001**      Collected: 11/12/14 09:10      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	341	170	1	11/19/14 11:38	11/20/14 11:51	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	73 %		30-125		1	11/19/14 11:38	11/20/14 11:51	4165-60-0	
2-Fluorobiphenyl (S)	71 %		46-125		1	11/19/14 11:38	11/20/14 11:51	321-60-8	
Terphenyl-d14 (S)	92 %		64-125		1	11/19/14 11:38	11/20/14 11:51	1718-51-0	
Phenol-d6 (S)	72 %		38-125		1	11/19/14 11:38	11/20/14 11:51	13127-88-3	
2-Fluorophenol (S)	65 %		31-125		1	11/19/14 11:38	11/20/14 11:51	367-12-4	
2,4,6-Tribromophenol (S)	78 %		41-125		1	11/19/14 11:38	11/20/14 11:51	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	999	500	1	11/20/14 17:13	11/23/14 00:52	67-64-1	
Allyl chloride	ND	ug/kg	200	6.6	1	11/20/14 17:13	11/23/14 00:52	107-05-1	
Benzene	ND	ug/kg	20.0	10	1	11/20/14 17:13	11/23/14 00:52	71-43-2	
Bromobenzene	ND	ug/kg	50.0	8.7	1	11/20/14 17:13	11/23/14 00:52	108-86-1	
Bromochloromethane	ND	ug/kg	50.0	6.8	1	11/20/14 17:13	11/23/14 00:52	74-97-5	
Bromodichloromethane	ND	ug/kg	50.0	8.9	1	11/20/14 17:13	11/23/14 00:52	75-27-4	
Bromoform	ND	ug/kg	200	99.9	1	11/20/14 17:13	11/23/14 00:52	75-25-2	
Bromomethane	ND	ug/kg	500	250	1	11/20/14 17:13	11/23/14 00:52	74-83-9	
2-Butanone (MEK)	ND	ug/kg	250	125	1	11/20/14 17:13	11/23/14 00:52	78-93-3	
n-Butylbenzene	<b>10.2J</b>	ug/kg	50.0	6.1	1	11/20/14 17:13	11/23/14 00:52	104-51-8	B
sec-Butylbenzene	ND	ug/kg	50.0	5.9	1	11/20/14 17:13	11/23/14 00:52	135-98-8	
tert-Butylbenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	98-06-6	
Carbon tetrachloride	ND	ug/kg	50.0	8.1	1	11/20/14 17:13	11/23/14 00:52	56-23-5	
Chlorobenzene	ND	ug/kg	50.0	7.7	1	11/20/14 17:13	11/23/14 00:52	108-90-7	
Chloroethane	ND	ug/kg	500	12.6	1	11/20/14 17:13	11/23/14 00:52	75-00-3	
Chloroform	ND	ug/kg	50.0	7.6	1	11/20/14 17:13	11/23/14 00:52	67-66-3	
Chloromethane	ND	ug/kg	200	9.1	1	11/20/14 17:13	11/23/14 00:52	74-87-3	
2-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	95-49-8	
4-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	500	26.5	1	11/20/14 17:13	11/23/14 00:52	96-12-8	
Dibromochloromethane	ND	ug/kg	50.0	10.8	1	11/20/14 17:13	11/23/14 00:52	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	50.0	6.2	1	11/20/14 17:13	11/23/14 00:52	106-93-4	
Dibromomethane	ND	ug/kg	50.0	14.0	1	11/20/14 17:13	11/23/14 00:52	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	200	23.1	1	11/20/14 17:13	11/23/14 00:52	75-71-8	
1,1-Dichloroethane	ND	ug/kg	50.0	7.0	1	11/20/14 17:13	11/23/14 00:52	75-34-3	
1,2-Dichloroethane	ND	ug/kg	50.0	11.8	1	11/20/14 17:13	11/23/14 00:52	107-06-2	
1,1-Dichloroethene	ND	ug/kg	50.0	10	1	11/20/14 17:13	11/23/14 00:52	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	50.0	10.2	1	11/20/14 17:13	11/23/14 00:52	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	50.0	9.9	1	11/20/14 17:13	11/23/14 00:52	156-60-5	
Dichlorofluoromethane	ND	ug/kg	500	250	1	11/20/14 17:13	11/23/14 00:52	75-43-4	
1,2-Dichloropropane	ND	ug/kg	50.0	8.0	1	11/20/14 17:13	11/23/14 00:52	78-87-5	
1,3-Dichloropropane	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-4 (4-5)**      **Lab ID: 10288603001**      Collected: 11/12/14 09:10      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	200	6.7	1	11/20/14 17:13	11/23/14 00:52	594-20-7	
1,1-Dichloropropene	ND	ug/kg	50.0	8.2	1	11/20/14 17:13	11/23/14 00:52	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	50.0	6.3	1	11/20/14 17:13	11/23/14 00:52	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	50.0	7.0	1	11/20/14 17:13	11/23/14 00:52	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	200	10.6	1	11/20/14 17:13	11/23/14 00:52	60-29-7	
Ethylbenzene	<b>12.2J</b>	ug/kg	50.0	6.3	1	11/20/14 17:13	11/23/14 00:52	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	250	125	1	11/20/14 17:13	11/23/14 00:52	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	98-82-8	
p-Isopropyltoluene	ND	ug/kg	50.0	7.2	1	11/20/14 17:13	11/23/14 00:52	99-87-6	
Methylene Chloride	ND	ug/kg	200	99.9	1	11/20/14 17:13	11/23/14 00:52	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	250	125	1	11/20/14 17:13	11/23/14 00:52	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	1634-04-4	
Naphthalene	ND	ug/kg	200	99.9	1	11/20/14 17:13	11/23/14 00:52	91-20-3	
n-Propylbenzene	ND	ug/kg	50.0	6.1	1	11/20/14 17:13	11/23/14 00:52	103-65-1	
Styrene	ND	ug/kg	50.0	7.5	1	11/20/14 17:13	11/23/14 00:52	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0	6.9	1	11/20/14 17:13	11/23/14 00:52	79-34-5	
Tetrachloroethene	ND	ug/kg	50.0	18.0	1	11/20/14 17:13	11/23/14 00:52	127-18-4	
Tetrahydrofuran	ND	ug/kg	2000	63.8	1	11/20/14 17:13	11/23/14 00:52	109-99-9	
Toluene	<b>10.8J</b>	ug/kg	50.0	6.8	1	11/20/14 17:13	11/23/14 00:52	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	50.0	11.9	1	11/20/14 17:13	11/23/14 00:52	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	50.0	9.1	1	11/20/14 17:13	11/23/14 00:52	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	50.0	8.5	1	11/20/14 17:13	11/23/14 00:52	79-00-5	
Trichloroethene	ND	ug/kg	50.0	6.2	1	11/20/14 17:13	11/23/14 00:52	79-01-6	
Trichlorofluoromethane	ND	ug/kg	200	8.9	1	11/20/14 17:13	11/23/14 00:52	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	200	6.6	1	11/20/14 17:13	11/23/14 00:52	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	200	20.9	1	11/20/14 17:13	11/23/14 00:52	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/23/14 00:52	108-67-8	
Vinyl chloride	ND	ug/kg	20.0	7.4	1	11/20/14 17:13	11/23/14 00:52	75-01-4	
Xylene (Total)	ND	ug/kg	150	19.6	1	11/20/14 17:13	11/23/14 00:52	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	101 %.		74-125		1	11/20/14 17:13	11/23/14 00:52	17060-07-0	
Toluene-d8 (S)	99 %.		75-125		1	11/20/14 17:13	11/23/14 00:52	2037-26-5	
4-Bromofluorobenzene (S)	99 %.		75-125		1	11/20/14 17:13	11/23/14 00:52	460-00-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-11 (4-5)**      **Lab ID: 10288603002**      Collected: 11/12/14 13:30      Received: 11/12/14 16:49      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>2.0J</b>	mg/kg	5.7	0.85	1	11/19/14 08:04	11/20/14 16:46		B
<b>Surrogates</b>									
n-Triacontane (S)	83 %		50-150		1	11/19/14 08:04	11/20/14 16:46	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>6.1J</b>	mg/kg	11.0	5.5	1	11/21/14 09:17	11/25/14 02:22		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	85 %		80-125		1	11/21/14 09:17	11/25/14 02:22	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>1.9</b>	mg/kg	0.88	0.26	1	11/15/14 12:01	11/17/14 13:07	7440-38-2	
Barium	<b>58.2</b>	mg/kg	0.44	0.048	1	11/15/14 12:01	11/17/14 13:07	7440-39-3	
Cadmium	<b>0.093J</b>	mg/kg	0.13	0.015	1	11/15/14 12:01	11/17/14 13:07	7440-43-9	B
Chromium	<b>9.5</b>	mg/kg	0.44	0.057	1	11/15/14 12:01	11/17/14 13:07	7440-47-3	
Lead	<b>3.6</b>	mg/kg	0.88	0.065	1	11/15/14 12:01	11/17/14 13:07	7439-92-1	
Selenium	<b>1.0</b>	mg/kg	0.66	0.30	1	11/15/14 12:01	11/17/14 13:07	7782-49-2	
Silver	ND	mg/kg	0.44	0.044	1	11/15/14 12:01	11/17/14 13:07	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.0076J</b>	mg/kg	0.022	0.0065	1	11/20/14 12:25	11/20/14 17:30	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>7.6</b>	%	0.10	0.10	1		11/24/14 12:58		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	83-32-9	
Acenaphthylene	ND	ug/kg	357	69.8	1	11/19/14 11:38	11/20/14 12:19	208-96-8	
Anthracene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	120-12-7	
Benzo(a)anthracene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	56-55-3	
Benzo(a)pyrene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	357	45.3	1	11/19/14 11:38	11/20/14 12:19	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	357	43.4	1	11/19/14 11:38	11/20/14 12:19	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	101-55-3	
Butylbenzylphthalate	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	85-68-7	
Carbazole	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	59-50-7	
4-Chloroaniline	ND	ug/kg	357	91.4	1	11/19/14 11:38	11/20/14 12:19	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	108-60-1	
2-Chloronaphthalene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	91-58-7	
2-Chlorophenol	ND	ug/kg	357	44.6	1	11/19/14 11:38	11/20/14 12:19	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	7005-72-3	
Chrysene	ND	ug/kg	357	48.0	1	11/19/14 11:38	11/20/14 12:19	218-01-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-11 (4-5)**      **Lab ID: 10288603002**      Collected: 11/12/14 13:30      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	53-70-3	
Dibenzofuran	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	357	41.7	1	11/19/14 11:38	11/20/14 12:19	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	357	101	1	11/19/14 11:38	11/20/14 12:19	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	120-83-2	
Diethylphthalate	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	357	62.8	1	11/19/14 11:38	11/20/14 12:19	105-67-9	
Dimethylphthalate	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	131-11-3	
Di-n-butylphthalate	ND	ug/kg	357	49.5	1	11/19/14 11:38	11/20/14 12:19	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1840	920	1	11/19/14 11:38	11/20/14 12:19	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	357	69.0	1	11/19/14 11:38	11/20/14 12:19	606-20-2	
Di-n-octylphthalate	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	357	61.0	1	11/19/14 11:38	11/20/14 12:19	117-81-7	
Fluoranthene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	206-44-0	
Fluorene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	357	36.2	1	11/19/14 11:38	11/20/14 12:19	87-68-3	
Hexachlorobenzene	ND	ug/kg	357	46.9	1	11/19/14 11:38	11/20/14 12:19	118-74-1	
Hexachloroethane	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	193-39-5	
Isophorone	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	78-59-1	
1-Methylnaphthalene	ND	ug/kg	357	42.0	1	11/19/14 11:38	11/20/14 12:19	90-12-0	
2-Methylnaphthalene	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	95-48-7	
3&4-Methylphenol	ND	ug/kg	714	179	1	11/19/14 11:38	11/20/14 12:19		
Naphthalene	ND	ug/kg	357	25.5	1	11/19/14 11:38	11/20/14 12:19	91-20-3	
2-Nitroaniline	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	88-74-4	
3-Nitroaniline	ND	ug/kg	357	79.3	1	11/19/14 11:38	11/20/14 12:19	99-09-2	
4-Nitroaniline	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	100-01-6	
Nitrobenzene	ND	ug/kg	357	40.3	1	11/19/14 11:38	11/20/14 12:19	98-95-3	
2-Nitrophenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	88-75-5	
4-Nitrophenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	86-30-6	
Pentachlorophenol	ND	ug/kg	725	179	1	11/19/14 11:38	11/20/14 12:19	87-86-5	
Phenanthrene	ND	ug/kg	357	51.1	1	11/19/14 11:38	11/20/14 12:19	85-01-8	
Phenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	108-95-2	
Pyrene	ND	ug/kg	357	45.0	1	11/19/14 11:38	11/20/14 12:19	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	357	39.0	1	11/19/14 11:38	11/20/14 12:19	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	357	39.6	1	11/19/14 11:38	11/20/14 12:19	95-95-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-11 (4-5)**      **Lab ID: 10288603002**      Collected: 11/12/14 13:30      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	357	179	1	11/19/14 11:38	11/20/14 12:19	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	67 %		30-125		1	11/19/14 11:38	11/20/14 12:19	4165-60-0	
2-Fluorobiphenyl (S)	63 %		46-125		1	11/19/14 11:38	11/20/14 12:19	321-60-8	
Terphenyl-d14 (S)	78 %		64-125		1	11/19/14 11:38	11/20/14 12:19	1718-51-0	
Phenol-d6 (S)	63 %		38-125		1	11/19/14 11:38	11/20/14 12:19	13127-88-3	
2-Fluorophenol (S)	61 %		31-125		1	11/19/14 11:38	11/20/14 12:19	367-12-4	
2,4,6-Tribromophenol (S)	74 %		41-125		1	11/19/14 11:38	11/20/14 12:19	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1060	529	1	11/20/14 17:13	11/23/14 01:10	67-64-1	
Allyl chloride	ND	ug/kg	212	6.9	1	11/20/14 17:13	11/23/14 01:10	107-05-1	
Benzene	ND	ug/kg	21.2	10.6	1	11/20/14 17:13	11/23/14 01:10	71-43-2	
Bromobenzene	ND	ug/kg	52.9	9.2	1	11/20/14 17:13	11/23/14 01:10	108-86-1	
Bromochloromethane	ND	ug/kg	52.9	7.2	1	11/20/14 17:13	11/23/14 01:10	74-97-5	
Bromodichloromethane	ND	ug/kg	52.9	9.4	1	11/20/14 17:13	11/23/14 01:10	75-27-4	
Bromoform	ND	ug/kg	212	106	1	11/20/14 17:13	11/23/14 01:10	75-25-2	
Bromomethane	ND	ug/kg	529	265	1	11/20/14 17:13	11/23/14 01:10	74-83-9	
2-Butanone (MEK)	ND	ug/kg	265	132	1	11/20/14 17:13	11/23/14 01:10	78-93-3	
n-Butylbenzene	ND	ug/kg	52.9	6.4	1	11/20/14 17:13	11/23/14 01:10	104-51-8	
sec-Butylbenzene	ND	ug/kg	52.9	6.2	1	11/20/14 17:13	11/23/14 01:10	135-98-8	
tert-Butylbenzene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	98-06-6	
Carbon tetrachloride	ND	ug/kg	52.9	8.6	1	11/20/14 17:13	11/23/14 01:10	56-23-5	
Chlorobenzene	ND	ug/kg	52.9	8.1	1	11/20/14 17:13	11/23/14 01:10	108-90-7	
Chloroethane	ND	ug/kg	529	13.3	1	11/20/14 17:13	11/23/14 01:10	75-00-3	
Chloroform	ND	ug/kg	52.9	8.1	1	11/20/14 17:13	11/23/14 01:10	67-66-3	
Chloromethane	ND	ug/kg	212	9.7	1	11/20/14 17:13	11/23/14 01:10	74-87-3	
2-Chlorotoluene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	95-49-8	
4-Chlorotoluene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	529	28.1	1	11/20/14 17:13	11/23/14 01:10	96-12-8	
Dibromochloromethane	ND	ug/kg	52.9	11.4	1	11/20/14 17:13	11/23/14 01:10	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	52.9	6.5	1	11/20/14 17:13	11/23/14 01:10	106-93-4	
Dibromomethane	ND	ug/kg	52.9	14.8	1	11/20/14 17:13	11/23/14 01:10	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	212	24.5	1	11/20/14 17:13	11/23/14 01:10	75-71-8	
1,1-Dichloroethane	ND	ug/kg	52.9	7.4	1	11/20/14 17:13	11/23/14 01:10	75-34-3	
1,2-Dichloroethane	ND	ug/kg	52.9	12.5	1	11/20/14 17:13	11/23/14 01:10	107-06-2	
1,1-Dichloroethene	ND	ug/kg	52.9	10.6	1	11/20/14 17:13	11/23/14 01:10	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	52.9	10.8	1	11/20/14 17:13	11/23/14 01:10	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	52.9	10.5	1	11/20/14 17:13	11/23/14 01:10	156-60-5	
Dichlorofluoromethane	ND	ug/kg	529	265	1	11/20/14 17:13	11/23/14 01:10	75-43-4	
1,2-Dichloropropane	ND	ug/kg	52.9	8.5	1	11/20/14 17:13	11/23/14 01:10	78-87-5	
1,3-Dichloropropane	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-11 (4-5)**      **Lab ID: 10288603002**      Collected: 11/12/14 13:30      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	212	7.1	1	11/20/14 17:13	11/23/14 01:10	594-20-7	
1,1-Dichloropropene	ND	ug/kg	52.9	8.7	1	11/20/14 17:13	11/23/14 01:10	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	52.9	6.7	1	11/20/14 17:13	11/23/14 01:10	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	52.9	7.5	1	11/20/14 17:13	11/23/14 01:10	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	212	11.2	1	11/20/14 17:13	11/23/14 01:10	60-29-7	
Ethylbenzene	ND	ug/kg	52.9	6.7	1	11/20/14 17:13	11/23/14 01:10	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	265	132	1	11/20/14 17:13	11/23/14 01:10	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	98-82-8	
p-Isopropyltoluene	ND	ug/kg	52.9	7.7	1	11/20/14 17:13	11/23/14 01:10	99-87-6	
Methylene Chloride	ND	ug/kg	212	106	1	11/20/14 17:13	11/23/14 01:10	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	265	132	1	11/20/14 17:13	11/23/14 01:10	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	1634-04-4	
Naphthalene	ND	ug/kg	212	106	1	11/20/14 17:13	11/23/14 01:10	91-20-3	
n-Propylbenzene	ND	ug/kg	52.9	6.4	1	11/20/14 17:13	11/23/14 01:10	103-65-1	
Styrene	ND	ug/kg	52.9	7.9	1	11/20/14 17:13	11/23/14 01:10	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	52.9	7.3	1	11/20/14 17:13	11/23/14 01:10	79-34-5	
Tetrachloroethene	ND	ug/kg	52.9	19.1	1	11/20/14 17:13	11/23/14 01:10	127-18-4	
Tetrahydrofuran	ND	ug/kg	2120	67.7	1	11/20/14 17:13	11/23/14 01:10	109-99-9	
Toluene	ND	ug/kg	52.9	7.2	1	11/20/14 17:13	11/23/14 01:10	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	52.9	12.6	1	11/20/14 17:13	11/23/14 01:10	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	52.9	9.6	1	11/20/14 17:13	11/23/14 01:10	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	52.9	9.0	1	11/20/14 17:13	11/23/14 01:10	79-00-5	
Trichloroethene	ND	ug/kg	52.9	6.6	1	11/20/14 17:13	11/23/14 01:10	79-01-6	
Trichlorofluoromethane	ND	ug/kg	212	9.4	1	11/20/14 17:13	11/23/14 01:10	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	212	7.0	1	11/20/14 17:13	11/23/14 01:10	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	212	22.1	1	11/20/14 17:13	11/23/14 01:10	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	52.9	26.5	1	11/20/14 17:13	11/23/14 01:10	108-67-8	
Vinyl chloride	ND	ug/kg	21.2	7.9	1	11/20/14 17:13	11/23/14 01:10	75-01-4	
Xylene (Total)	ND	ug/kg	159	20.8	1	11/20/14 17:13	11/23/14 01:10	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	103 %.		74-125		1	11/20/14 17:13	11/23/14 01:10	17060-07-0	
Toluene-d8 (S)	98 %.		75-125		1	11/20/14 17:13	11/23/14 01:10	2037-26-5	
4-Bromofluorobenzene (S)	101 %.		75-125		1	11/20/14 17:13	11/23/14 01:10	460-00-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

Sample: DP-11      Lab ID: 10288603003      Collected: 11/12/14 14:00      Received: 11/12/14 16:49      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>0.027J</b>	mg/L	0.11	0.023	1	11/14/14 11:20	11/15/14 14:35		
<b>Surrogates</b>									
n-Triacontane (S)	87 %.		50-150		1	11/14/14 11:20	11/15/14 14:35	638-68-6	P4
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	100	50.0	1		11/26/14 01:57		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	91 %.		80-125		1		11/26/14 01:57	98-08-8	pH
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3010									
Arsenic	<b>141J</b>	ug/L	200	31.5	10	11/25/14 06:41	11/25/14 17:48	7440-38-2	
Barium	<b>2710</b>	ug/L	100	50.0	10	11/25/14 06:41	11/25/14 17:48	7440-39-3	
Cadmium	<b>4.5J</b>	ug/L	30.0	2.5	10	11/25/14 06:41	11/25/14 17:48	7440-43-9	
Chromium	<b>446</b>	ug/L	100	50.0	10	11/25/14 06:41	11/25/14 17:48	7440-47-3	
Lead	<b>286</b>	ug/L	100	20.1	10	11/25/14 06:41	11/25/14 17:48	7439-92-1	
Selenium	ND	ug/L	200	66.5	10	11/25/14 06:41	11/25/14 17:48	7782-49-2	
Silver	ND	ug/L	100	6.3	10	11/25/14 06:41	11/25/14 17:48	7440-22-4	
<b>7470A Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	ND	ug/L	0.20	0.026	1	11/18/14 20:40	11/19/14 16:15	7439-97-6	
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
Phenol	ND	ug/L	16.7	3.4	1	11/13/14 13:32	11/16/14 20:22	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	16.7	3.1	1	11/13/14 13:32	11/16/14 20:22	111-44-4	
2-Chlorophenol	ND	ug/L	16.7	3.2	1	11/13/14 13:32	11/16/14 20:22	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	16.7	3.3	1	11/13/14 13:32	11/16/14 20:22	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	16.7	3.3	1	11/13/14 13:32	11/16/14 20:22	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	16.7	3.3	1	11/13/14 13:32	11/16/14 20:22	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	16.7	3.3	1	11/13/14 13:32	11/16/14 20:22	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	16.7	3.0	1	11/13/14 13:32	11/16/14 20:22	108-60-1	
3&4-Methylphenol	ND	ug/L	33.3	2.9	1	11/13/14 13:32	11/16/14 20:22		
N-Nitroso-di-n-propylamine	ND	ug/L	16.7	3.1	1	11/13/14 13:32	11/16/14 20:22	621-64-7	
Hexachloroethane	ND	ug/L	16.7	3.4	1	11/13/14 13:32	11/16/14 20:22	67-72-1	
Nitrobenzene	ND	ug/L	16.7	3.2	1	11/13/14 13:32	11/16/14 20:22	98-95-3	
Isophorone	ND	ug/L	16.7	2.6	1	11/13/14 13:32	11/16/14 20:22	78-59-1	
2-Nitrophenol	ND	ug/L	16.7	3.1	1	11/13/14 13:32	11/16/14 20:22	88-75-5	
2,4-Dimethylphenol	ND	ug/L	83.3	12.1	1	11/13/14 13:32	11/16/14 20:22	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	16.7	2.5	1	11/13/14 13:32	11/16/14 20:22	111-91-1	
2,4-Dichlorophenol	ND	ug/L	16.7	2.9	1	11/13/14 13:32	11/16/14 20:22	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	16.7	3.4	1	11/13/14 13:32	11/16/14 20:22	120-82-1	
Naphthalene	ND	ug/L	16.7	2.6	1	11/13/14 13:32	11/16/14 20:22	91-20-3	
4-Chloroaniline	ND	ug/L	83.3	21.7	1	11/13/14 13:32	11/16/14 20:22	106-47-8	
Hexachloro-1,3-butadiene	ND	ug/L	16.7	3.0	1	11/13/14 13:32	11/16/14 20:22	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	16.7	2.6	1	11/13/14 13:32	11/16/14 20:22	59-50-7	
2-Methylnaphthalene	ND	ug/L	16.7	2.4	1	11/13/14 13:32	11/16/14 20:22	91-57-6	
2,4,6-Trichlorophenol	ND	ug/L	16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	88-06-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

Sample: DP-11 Lab ID: 10288603003 Collected: 11/12/14 14:00 Received: 11/12/14 16:49 Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270 Preparation Method: EPA 3520						
2,4,5-Trichlorophenol	ND ug/L		16.7	4.8	1	11/13/14 13:32	11/16/14 20:22	95-95-4	
2-Chloronaphthalene	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	91-58-7	
2-Nitroaniline	ND ug/L		16.7	4.5	1	11/13/14 13:32	11/16/14 20:22	88-74-4	
Dimethylphthalate	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	131-11-3	
Acenaphthylene	ND ug/L		16.7	2.1	1	11/13/14 13:32	11/16/14 20:22	208-96-8	
2,6-Dinitrotoluene	ND ug/L		16.7	3.3	1	11/13/14 13:32	11/16/14 20:22	606-20-2	
3-Nitroaniline	ND ug/L		16.7	5.3	1	11/13/14 13:32	11/16/14 20:22	99-09-2	
Acenaphthene	ND ug/L		16.7	2.7	1	11/13/14 13:32	11/16/14 20:22	83-32-9	
2,4-Dinitrophenol	ND ug/L		16.7	4.6	1	11/13/14 13:32	11/16/14 20:22	51-28-5	
4-Nitrophenol	ND ug/L		16.7	7.6	1	11/13/14 13:32	11/16/14 20:22	100-02-7	
Dibenzofuran	ND ug/L		16.7	2.7	1	11/13/14 13:32	11/16/14 20:22	132-64-9	
2,4-Dinitrotoluene	ND ug/L		16.7	3.5	1	11/13/14 13:32	11/16/14 20:22	121-14-2	
Diethylphthalate	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		16.7	2.4	1	11/13/14 13:32	11/16/14 20:22	7005-72-3	
Fluorene	ND ug/L		16.7	2.2	1	11/13/14 13:32	11/16/14 20:22	86-73-7	
4-Nitroaniline	ND ug/L		16.7	4.6	1	11/13/14 13:32	11/16/14 20:22	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		16.7	5.9	1	11/13/14 13:32	11/16/14 20:22	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		16.7	2.9	1	11/13/14 13:32	11/16/14 20:22	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		16.7	3.4	1	11/13/14 13:32	11/16/14 20:22	101-55-3	
Hexachlorobenzene	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	118-74-1	
Pentachlorophenol	ND ug/L		33.3	3.7	1	11/13/14 13:32	11/16/14 20:22	87-86-5	
Phenanthrene	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	85-01-8	
Anthracene	ND ug/L		16.7	3.8	1	11/13/14 13:32	11/16/14 20:22	120-12-7	
Di-n-butylphthalate	ND ug/L		16.7	2.7	1	11/13/14 13:32	11/16/14 20:22	84-74-2	
Fluoranthene	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	206-44-0	
Pyrene	ND ug/L		16.7	2.9	1	11/13/14 13:32	11/16/14 20:22	129-00-0	
Butylbenzylphthalate	ND ug/L		16.7	3.2	1	11/13/14 13:32	11/16/14 20:22	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		83.3	12.2	1	11/13/14 13:32	11/16/14 20:22	91-94-1	
Benzo(a)anthracene	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	56-55-3	
Chrysene	ND ug/L		16.7	3.5	1	11/13/14 13:32	11/16/14 20:22	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		16.7	6.1	1	11/13/14 13:32	11/16/14 20:22	117-81-7	L3
Di-n-octylphthalate	ND ug/L		16.7	2.8	1	11/13/14 13:32	11/16/14 20:22	117-84-0	
Benzo(b)fluoranthene	ND ug/L		16.7	3.3	1	11/13/14 13:32	11/16/14 20:22	205-99-2	
Benzo(k)fluoranthene	ND ug/L		16.7	3.5	1	11/13/14 13:32	11/16/14 20:22	207-08-9	
Benzo(a)pyrene	ND ug/L		16.7	8.3	1	11/13/14 13:32	11/16/14 20:22	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		16.7	3.0	1	11/13/14 13:32	11/16/14 20:22	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		16.7	3.0	1	11/13/14 13:32	11/16/14 20:22	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		16.7	2.8	1	11/13/14 13:32	11/16/14 20:22	191-24-2	
N-Nitrosodimethylamine	ND ug/L		16.7	5.1	1	11/13/14 13:32	11/16/14 20:22	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		16.7	2.8	1	11/13/14 13:32	11/16/14 20:22	122-66-7	
Carbazole	ND ug/L		16.7	3.5	1	11/13/14 13:32	11/16/14 20:22	86-74-8	
1-Methylnaphthalene	ND ug/L		16.7	2.8	1	11/13/14 13:32	11/16/14 20:22	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	75 %.		60-125		1	11/13/14 13:32	11/16/14 20:22	4165-60-0	
2-Fluorobiphenyl (S)	80 %.		55-125		1	11/13/14 13:32	11/16/14 20:22	321-60-8	
Terphenyl-d14 (S)	77 %.		67-125		1	11/13/14 13:32	11/16/14 20:22	1718-51-0	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-11**      **Lab ID: 10288603003**      Collected: 11/12/14 14:00      Received: 11/12/14 16:49      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
<b>Surrogates</b>									
Phenol-d6 (S)	70 %.		59-125		1	11/13/14 13:32	11/16/14 20:22	13127-88-3	
2-Fluorophenol (S)	70 %.		53-125		1	11/13/14 13:32	11/16/14 20:22	367-12-4	
2,4,6-Tribromophenol (S)	95 %.		66-125		1	11/13/14 13:32	11/16/14 20:22	118-79-6	
<b>8260 VOC</b>			Analytical Method: EPA 8260						
Acetone	ND ug/L		40.0	20.0	2		11/21/14 02:11	67-64-1	
Allyl chloride	ND ug/L		8.0	0.89	2		11/21/14 02:11	107-05-1	
Benzene	<b>1.9J</b> ug/L		2.0	0.30	2		11/21/14 02:11	71-43-2	
Bromobenzene	ND ug/L		2.0	0.26	2		11/21/14 02:11	108-86-1	
Bromochloromethane	ND ug/L		2.0	0.23	2		11/21/14 02:11	74-97-5	
Bromodichloromethane	ND ug/L		2.0	0.40	2		11/21/14 02:11	75-27-4	
Bromoform	ND ug/L		8.0	4.0	2		11/21/14 02:11	75-25-2	
Bromomethane	ND ug/L		8.0	4.0	2		11/21/14 02:11	74-83-9	
2-Butanone (MEK)	ND ug/L		10.0	5.0	2		11/21/14 02:11	78-93-3	
n-Butylbenzene	ND ug/L		2.0	1.0	2		11/21/14 02:11	104-51-8	
sec-Butylbenzene	ND ug/L		2.0	1.0	2		11/21/14 02:11	135-98-8	
tert-Butylbenzene	ND ug/L		2.0	1.0	2		11/21/14 02:11	98-06-6	
Carbon tetrachloride	ND ug/L		2.0	0.32	2		11/21/14 02:11	56-23-5	
Chlorobenzene	ND ug/L		2.0	0.13	2		11/21/14 02:11	108-90-7	
Chloroethane	ND ug/L		8.0	0.48	2		11/21/14 02:11	75-00-3	
Chloroform	ND ug/L		2.0	0.32	2		11/21/14 02:11	67-66-3	
Chloromethane	ND ug/L		8.0	0.68	2		11/21/14 02:11	74-87-3	
2-Chlorotoluene	ND ug/L		2.0	0.28	2		11/21/14 02:11	95-49-8	
4-Chlorotoluene	ND ug/L		2.0	0.17	2		11/21/14 02:11	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		8.0	4.0	2		11/21/14 02:11	96-12-8	
Dibromochloromethane	ND ug/L		2.0	1.0	2		11/21/14 02:11	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		2.0	0.30	2		11/21/14 02:11	106-93-4	
Dibromomethane	ND ug/L		8.0	0.37	2		11/21/14 02:11	74-95-3	
1,2-Dichlorobenzene	ND ug/L		2.0	0.32	2		11/21/14 02:11	95-50-1	
1,3-Dichlorobenzene	ND ug/L		2.0	1.0	2		11/21/14 02:11	541-73-1	
1,4-Dichlorobenzene	ND ug/L		2.0	1.0	2		11/21/14 02:11	106-46-7	
Dichlorodifluoromethane	ND ug/L		2.0	1.0	2		11/21/14 02:11	75-71-8	
1,1-Dichloroethane	ND ug/L		2.0	0.32	2		11/21/14 02:11	75-34-3	
1,2-Dichloroethane	ND ug/L		2.0	0.26	2		11/21/14 02:11	107-06-2	
1,1-Dichloroethene	ND ug/L		2.0	0.40	2		11/21/14 02:11	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		2.0	0.27	2		11/21/14 02:11	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		2.0	0.46	2		11/21/14 02:11	156-60-5	
Dichlorofluoromethane	ND ug/L		8.0	0.40	2		11/21/14 02:11	75-43-4	
1,2-Dichloropropane	ND ug/L		8.0	0.28	2		11/21/14 02:11	78-87-5	
1,3-Dichloropropane	ND ug/L		2.0	1.0	2		11/21/14 02:11	142-28-9	
2,2-Dichloropropane	ND ug/L		8.0	0.35	2		11/21/14 02:11	594-20-7	
1,1-Dichloropropene	ND ug/L		2.0	1.0	2		11/21/14 02:11	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		8.0	0.25	2		11/21/14 02:11	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		8.0	0.37	2		11/21/14 02:11	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		8.0	0.28	2		11/21/14 02:11	60-29-7	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-11**      **Lab ID: 10288603003**      Collected: 11/12/14 14:00      Received: 11/12/14 16:49      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b>									
Analytical Method: EPA 8260									
Ethylbenzene	<b>0.42J</b>	ug/L	2.0	0.33	2		11/21/14 02:11	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	2.0	1.0	2		11/21/14 02:11	98-82-8	
p-Isopropyltoluene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	99-87-6	
Methylene Chloride	ND	ug/L	8.0	4.0	2		11/21/14 02:11	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	10.0	5.0	2		11/21/14 02:11	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	2.0	0.34	2		11/21/14 02:11	1634-04-4	
Naphthalene	ND	ug/L	8.0	4.0	2		11/21/14 02:11	91-20-3	
n-Propylbenzene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	103-65-1	
Styrene	ND	ug/L	2.0	0.13	2		11/21/14 02:11	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	1.0	2		11/21/14 02:11	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	1.0	2		11/21/14 02:11	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	0.31	2		11/21/14 02:11	127-18-4	
Tetrahydrofuran	ND	ug/L	20.0	4.0	2		11/21/14 02:11	109-99-9	
Toluene	<b>1.6J</b>	ug/L	2.0	0.22	2		11/21/14 02:11	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	2.0	0.53	2		11/21/14 02:11	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	0.25	2		11/21/14 02:11	79-00-5	
Trichloroethene	ND	ug/L	0.80	0.18	2		11/21/14 02:11	79-01-6	
Trichlorofluoromethane	ND	ug/L	8.0	0.43	2		11/21/14 02:11	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	8.0	2.4	2		11/21/14 02:11	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	2.0	1.0	2		11/21/14 02:11	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	2.0	1.0	2		11/21/14 02:11	108-67-8	
Vinyl chloride	ND	ug/L	0.80	0.39	2		11/21/14 02:11	75-01-4	
Xylene (Total)	ND	ug/L	6.0	0.81	2		11/21/14 02:11	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	104 %		75-125		2		11/21/14 02:11	17060-07-0	2M
Toluene-d8 (S)	101 %		75-125		2		11/21/14 02:11	2037-26-5	
4-Bromofluorobenzene (S)	95 %		75-125		2		11/21/14 02:11	460-00-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-13 (4-5)**      **Lab ID: 10288603004**      Collected: 11/12/14 15:30      Received: 11/12/14 16:49      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>4.9J</b>	mg/kg	8.5	1.3	1	11/19/14 08:04	11/20/14 16:10		B
<b>Surrogates</b>									
n-Triacontane (S)	98 %		50-150		1	11/19/14 08:04	11/20/14 16:10	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	10.3	5.1	1	11/21/14 09:17	11/25/14 02:44		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	85 %		80-125		1	11/21/14 09:17	11/25/14 02:44	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>2.4</b>	mg/kg	0.77	0.22	1	11/15/14 12:01	11/17/14 13:13	7440-38-2	
Barium	<b>71.8</b>	mg/kg	0.38	0.042	1	11/15/14 12:01	11/17/14 13:13	7440-39-3	
Cadmium	<b>0.098J</b>	mg/kg	0.12	0.013	1	11/15/14 12:01	11/17/14 13:13	7440-43-9	B
Chromium	<b>8.0</b>	mg/kg	0.38	0.050	1	11/15/14 12:01	11/17/14 13:13	7440-47-3	
Lead	<b>6.6</b>	mg/kg	0.77	0.057	1	11/15/14 12:01	11/17/14 13:13	7439-92-1	
Selenium	<b>1.0</b>	mg/kg	0.58	0.26	1	11/15/14 12:01	11/17/14 13:13	7782-49-2	B
Silver	ND	mg/kg	0.38	0.038	1	11/15/14 12:01	11/17/14 13:13	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	ND	mg/kg	0.019	0.0057	1	11/20/14 12:25	11/20/14 17:33	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>6.5</b>	%	0.10	0.10	1		11/24/14 12:58		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	83-32-9	
Acenaphthylene	ND	ug/kg	352	68.8	1	11/19/14 11:38	11/20/14 13:13	208-96-8	
Anthracene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	120-12-7	
Benzo(a)anthracene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	56-55-3	
Benzo(a)pyrene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	352	44.6	1	11/19/14 11:38	11/20/14 13:13	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	352	42.8	1	11/19/14 11:38	11/20/14 13:13	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	101-55-3	
Butylbenzylphthalate	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	85-68-7	
Carbazole	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	59-50-7	
4-Chloroaniline	ND	ug/kg	352	90.1	1	11/19/14 11:38	11/20/14 13:13	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	108-60-1	
2-Chloronaphthalene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	91-58-7	
2-Chlorophenol	ND	ug/kg	352	44.0	1	11/19/14 11:38	11/20/14 13:13	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	7005-72-3	
Chrysene	ND	ug/kg	352	47.3	1	11/19/14 11:38	11/20/14 13:13	218-01-9	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-13 (4-5)**      **Lab ID: 10288603004**      Collected: 11/12/14 15:30      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	53-70-3	
Dibenzofuran	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	352	41.1	1	11/19/14 11:38	11/20/14 13:13	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	352	99.7	1	11/19/14 11:38	11/20/14 13:13	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	120-83-2	
Diethylphthalate	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	352	61.8	1	11/19/14 11:38	11/20/14 13:13	105-67-9	
Dimethylphthalate	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	131-11-3	
Di-n-butylphthalate	ND	ug/kg	352	48.8	1	11/19/14 11:38	11/20/14 13:13	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1810	906	1	11/19/14 11:38	11/20/14 13:13	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	352	68.0	1	11/19/14 11:38	11/20/14 13:13	606-20-2	
Di-n-octylphthalate	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	352	60.2	1	11/19/14 11:38	11/20/14 13:13	117-81-7	
Fluoranthene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	206-44-0	
Fluorene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	352	35.7	1	11/19/14 11:38	11/20/14 13:13	87-68-3	
Hexachlorobenzene	ND	ug/kg	352	46.2	1	11/19/14 11:38	11/20/14 13:13	118-74-1	
Hexachloroethane	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	193-39-5	
Isophorone	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	78-59-1	
1-Methylnaphthalene	ND	ug/kg	352	41.3	1	11/19/14 11:38	11/20/14 13:13	90-12-0	
2-Methylnaphthalene	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	95-48-7	
3&4-Methylphenol	ND	ug/kg	704	176	1	11/19/14 11:38	11/20/14 13:13		
Naphthalene	ND	ug/kg	352	25.1	1	11/19/14 11:38	11/20/14 13:13	91-20-3	
2-Nitroaniline	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	88-74-4	
3-Nitroaniline	ND	ug/kg	352	78.2	1	11/19/14 11:38	11/20/14 13:13	99-09-2	
4-Nitroaniline	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	100-01-6	
Nitrobenzene	ND	ug/kg	352	39.7	1	11/19/14 11:38	11/20/14 13:13	98-95-3	
2-Nitrophenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	88-75-5	
4-Nitrophenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	86-30-6	
Pentachlorophenol	ND	ug/kg	714	176	1	11/19/14 11:38	11/20/14 13:13	87-86-5	
Phenanthrene	ND	ug/kg	352	50.3	1	11/19/14 11:38	11/20/14 13:13	85-01-8	
Phenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	108-95-2	
Pyrene	ND	ug/kg	352	44.4	1	11/19/14 11:38	11/20/14 13:13	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	352	38.4	1	11/19/14 11:38	11/20/14 13:13	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	352	39.0	1	11/19/14 11:38	11/20/14 13:13	95-95-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-13 (4-5)**      **Lab ID: 10288603004**      Collected: 11/12/14 15:30      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	352	176	1	11/19/14 11:38	11/20/14 13:13	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	68 %		30-125		1	11/19/14 11:38	11/20/14 13:13	4165-60-0	
2-Fluorobiphenyl (S)	71 %		46-125		1	11/19/14 11:38	11/20/14 13:13	321-60-8	
Terphenyl-d14 (S)	85 %		64-125		1	11/19/14 11:38	11/20/14 13:13	1718-51-0	
Phenol-d6 (S)	68 %		38-125		1	11/19/14 11:38	11/20/14 13:13	13127-88-3	
2-Fluorophenol (S)	60 %		31-125		1	11/19/14 11:38	11/20/14 13:13	367-12-4	
2,4,6-Tribromophenol (S)	77 %		41-125		1	11/19/14 11:38	11/20/14 13:13	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1030	515	1	11/20/14 17:13	11/23/14 01:44	67-64-1	
Allyl chloride	ND	ug/kg	206	6.8	1	11/20/14 17:13	11/23/14 01:44	107-05-1	
Benzene	ND	ug/kg	20.6	10.3	1	11/20/14 17:13	11/23/14 01:44	71-43-2	
Bromobenzene	ND	ug/kg	51.5	8.9	1	11/20/14 17:13	11/23/14 01:44	108-86-1	
Bromochloromethane	ND	ug/kg	51.5	7.0	1	11/20/14 17:13	11/23/14 01:44	74-97-5	
Bromodichloromethane	ND	ug/kg	51.5	9.2	1	11/20/14 17:13	11/23/14 01:44	75-27-4	
Bromoform	ND	ug/kg	206	103	1	11/20/14 17:13	11/23/14 01:44	75-25-2	
Bromomethane	ND	ug/kg	515	258	1	11/20/14 17:13	11/23/14 01:44	74-83-9	
2-Butanone (MEK)	ND	ug/kg	258	129	1	11/20/14 17:13	11/23/14 01:44	78-93-3	
n-Butylbenzene	ND	ug/kg	51.5	6.3	1	11/20/14 17:13	11/23/14 01:44	104-51-8	
sec-Butylbenzene	ND	ug/kg	51.5	6.1	1	11/20/14 17:13	11/23/14 01:44	135-98-8	
tert-Butylbenzene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	98-06-6	
Carbon tetrachloride	ND	ug/kg	51.5	8.3	1	11/20/14 17:13	11/23/14 01:44	56-23-5	
Chlorobenzene	ND	ug/kg	51.5	7.9	1	11/20/14 17:13	11/23/14 01:44	108-90-7	
Chloroethane	ND	ug/kg	515	13.0	1	11/20/14 17:13	11/23/14 01:44	75-00-3	
Chloroform	ND	ug/kg	51.5	7.9	1	11/20/14 17:13	11/23/14 01:44	67-66-3	
Chloromethane	ND	ug/kg	206	9.4	1	11/20/14 17:13	11/23/14 01:44	74-87-3	
2-Chlorotoluene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	95-49-8	
4-Chlorotoluene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	515	27.3	1	11/20/14 17:13	11/23/14 01:44	96-12-8	
Dibromochloromethane	ND	ug/kg	51.5	11.1	1	11/20/14 17:13	11/23/14 01:44	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	51.5	6.3	1	11/20/14 17:13	11/23/14 01:44	106-93-4	
Dibromomethane	ND	ug/kg	51.5	14.4	1	11/20/14 17:13	11/23/14 01:44	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	206	23.8	1	11/20/14 17:13	11/23/14 01:44	75-71-8	
1,1-Dichloroethane	ND	ug/kg	51.5	7.2	1	11/20/14 17:13	11/23/14 01:44	75-34-3	
1,2-Dichloroethane	ND	ug/kg	51.5	12.2	1	11/20/14 17:13	11/23/14 01:44	107-06-2	
1,1-Dichloroethene	ND	ug/kg	51.5	10.3	1	11/20/14 17:13	11/23/14 01:44	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	51.5	10.5	1	11/20/14 17:13	11/23/14 01:44	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	51.5	10.2	1	11/20/14 17:13	11/23/14 01:44	156-60-5	
Dichlorofluoromethane	ND	ug/kg	515	258	1	11/20/14 17:13	11/23/14 01:44	75-43-4	
1,2-Dichloropropane	ND	ug/kg	51.5	8.3	1	11/20/14 17:13	11/23/14 01:44	78-87-5	
1,3-Dichloropropane	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	142-28-9	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: DP-13 (4-5)**      **Lab ID: 10288603004**      Collected: 11/12/14 15:30      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	206	6.9	1	11/20/14 17:13	11/23/14 01:44	594-20-7	
1,1-Dichloropropene	ND	ug/kg	51.5	8.4	1	11/20/14 17:13	11/23/14 01:44	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	51.5	6.5	1	11/20/14 17:13	11/23/14 01:44	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	51.5	7.3	1	11/20/14 17:13	11/23/14 01:44	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	206	10.9	1	11/20/14 17:13	11/23/14 01:44	60-29-7	
Ethylbenzene	ND	ug/kg	51.5	6.5	1	11/20/14 17:13	11/23/14 01:44	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	258	129	1	11/20/14 17:13	11/23/14 01:44	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	98-82-8	
p-Isopropyltoluene	ND	ug/kg	51.5	7.5	1	11/20/14 17:13	11/23/14 01:44	99-87-6	
Methylene Chloride	ND	ug/kg	206	103	1	11/20/14 17:13	11/23/14 01:44	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	258	129	1	11/20/14 17:13	11/23/14 01:44	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	1634-04-4	
Naphthalene	ND	ug/kg	206	103	1	11/20/14 17:13	11/23/14 01:44	91-20-3	
n-Propylbenzene	ND	ug/kg	51.5	6.2	1	11/20/14 17:13	11/23/14 01:44	103-65-1	
Styrene	ND	ug/kg	51.5	7.7	1	11/20/14 17:13	11/23/14 01:44	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	51.5	7.1	1	11/20/14 17:13	11/23/14 01:44	79-34-5	
Tetrachloroethene	ND	ug/kg	51.5	18.6	1	11/20/14 17:13	11/23/14 01:44	127-18-4	
Tetrahydrofuran	ND	ug/kg	2060	65.9	1	11/20/14 17:13	11/23/14 01:44	109-99-9	
Toluene	ND	ug/kg	51.5	7.0	1	11/20/14 17:13	11/23/14 01:44	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	51.5	12.3	1	11/20/14 17:13	11/23/14 01:44	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	51.5	9.4	1	11/20/14 17:13	11/23/14 01:44	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	51.5	8.7	1	11/20/14 17:13	11/23/14 01:44	79-00-5	
Trichloroethene	ND	ug/kg	51.5	6.4	1	11/20/14 17:13	11/23/14 01:44	79-01-6	
Trichlorofluoromethane	ND	ug/kg	206	9.2	1	11/20/14 17:13	11/23/14 01:44	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	206	6.8	1	11/20/14 17:13	11/23/14 01:44	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	206	21.5	1	11/20/14 17:13	11/23/14 01:44	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	51.5	25.8	1	11/20/14 17:13	11/23/14 01:44	108-67-8	
Vinyl chloride	ND	ug/kg	20.6	7.6	1	11/20/14 17:13	11/23/14 01:44	75-01-4	
Xylene (Total)	ND	ug/kg	155	20.2	1	11/20/14 17:13	11/23/14 01:44	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	99 %.		74-125		1	11/20/14 17:13	11/23/14 01:44	17060-07-0	
Toluene-d8 (S)	101 %.		75-125		1	11/20/14 17:13	11/23/14 01:44	2037-26-5	
4-Bromofluorobenzene (S)	100 %.		75-125		1	11/20/14 17:13	11/23/14 01:44	460-00-4	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

Sample: TB		Lab ID: 10288603005	Collected: 11/12/14 00:00	Received: 11/12/14 16:49	Matrix: Water				
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 VOC</b>		Analytical Method: EPA 8260							
Acetone	ND ug/L		20.0	10.0	1		11/20/14 22:49	67-64-1	
Allyl chloride	ND ug/L		4.0	0.45	1		11/20/14 22:49	107-05-1	
Benzene	ND ug/L		1.0	0.15	1		11/20/14 22:49	71-43-2	
Bromobenzene	ND ug/L		1.0	0.13	1		11/20/14 22:49	108-86-1	
Bromochloromethane	ND ug/L		1.0	0.12	1		11/20/14 22:49	74-97-5	
Bromodichloromethane	ND ug/L		1.0	0.20	1		11/20/14 22:49	75-27-4	
Bromoform	ND ug/L		4.0	2.0	1		11/20/14 22:49	75-25-2	
Bromomethane	ND ug/L		4.0	2.0	1		11/20/14 22:49	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	2.5	1		11/20/14 22:49	78-93-3	
n-Butylbenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	0.16	1		11/20/14 22:49	56-23-5	
Chlorobenzene	ND ug/L		1.0	0.066	1		11/20/14 22:49	108-90-7	
Chloroethane	ND ug/L		4.0	0.24	1		11/20/14 22:49	75-00-3	
Chloroform	ND ug/L		1.0	0.16	1		11/20/14 22:49	67-66-3	
Chloromethane	ND ug/L		4.0	0.34	1		11/20/14 22:49	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	0.14	1		11/20/14 22:49	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	0.083	1		11/20/14 22:49	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	2.0	1		11/20/14 22:49	96-12-8	
Dibromochloromethane	ND ug/L		1.0	0.50	1		11/20/14 22:49	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	0.15	1		11/20/14 22:49	106-93-4	
Dibromomethane	ND ug/L		4.0	0.18	1		11/20/14 22:49	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	0.16	1		11/20/14 22:49	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	0.50	1		11/20/14 22:49	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	0.16	1		11/20/14 22:49	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	0.13	1		11/20/14 22:49	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	0.20	1		11/20/14 22:49	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	0.13	1		11/20/14 22:49	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	0.23	1		11/20/14 22:49	156-60-5	
Dichlorofluoromethane	ND ug/L		4.0	0.20	1		11/20/14 22:49	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	0.14	1		11/20/14 22:49	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	0.50	1		11/20/14 22:49	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	0.17	1		11/20/14 22:49	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	0.50	1		11/20/14 22:49	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	0.13	1		11/20/14 22:49	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	0.18	1		11/20/14 22:49	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	0.14	1		11/20/14 22:49	60-29-7	
Ethylbenzene	ND ug/L		1.0	0.16	1		11/20/14 22:49	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		1.0	0.50	1		11/20/14 22:49	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		1.0	0.50	1		11/20/14 22:49	98-82-8	
p-Isopropyltoluene	ND ug/L		1.0	0.50	1		11/20/14 22:49	99-87-6	
Methylene Chloride	ND ug/L		4.0	2.0	1		11/20/14 22:49	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		5.0	2.5	1		11/20/14 22:49	108-10-1	

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### ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: TB**      **Lab ID: 10288603005**      Collected: 11/12/14 00:00      Received: 11/12/14 16:49      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b> Analytical Method: EPA 8260									
Methyl-tert-butyl ether	ND ug/L		1.0	0.17	1		11/20/14 22:49	1634-04-4	
Naphthalene	ND ug/L		4.0	2.0	1		11/20/14 22:49	91-20-3	
n-Propylbenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	103-65-1	
Styrene	ND ug/L		1.0	0.063	1		11/20/14 22:49	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		1.0	0.50	1		11/20/14 22:49	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		1.0	0.50	1		11/20/14 22:49	79-34-5	
Tetrachloroethene	ND ug/L		1.0	0.16	1		11/20/14 22:49	127-18-4	
Tetrahydrofuran	ND ug/L		10.0	2.0	1		11/20/14 22:49	109-99-9	
Toluene	ND ug/L		1.0	0.11	1		11/20/14 22:49	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	120-82-1	
1,1,1-Trichloroethane	ND ug/L		1.0	0.26	1		11/20/14 22:49	71-55-6	
1,1,2-Trichloroethane	ND ug/L		1.0	0.13	1		11/20/14 22:49	79-00-5	
Trichloroethene	ND ug/L		0.40	0.091	1		11/20/14 22:49	79-01-6	
Trichlorofluoromethane	ND ug/L		4.0	0.22	1		11/20/14 22:49	75-69-4	
1,2,3-Trichloropropane	ND ug/L		4.0	1.2	1		11/20/14 22:49	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		1.0	0.50	1		11/20/14 22:49	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		1.0	0.50	1		11/20/14 22:49	108-67-8	
Vinyl chloride	ND ug/L		0.40	0.20	1		11/20/14 22:49	75-01-4	
Xylene (Total)	ND ug/L		3.0	0.40	1		11/20/14 22:49	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	101 %.		75-125		1		11/20/14 22:49	17060-07-0	
Toluene-d8 (S)	100 %.		75-125		1		11/20/14 22:49	2037-26-5	
4-Bromofluorobenzene (S)	95 %.		75-125		1		11/20/14 22:49	460-00-4	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: TB**      **Lab ID: 10288603006**      Collected: 11/12/14 00:00      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Acetone	ND	ug/kg	1000	500	1	11/20/14 17:13	11/22/14 23:25	67-64-1	
Allyl chloride	ND	ug/kg	200	6.6	1	11/20/14 17:13	11/22/14 23:25	107-05-1	
Benzene	ND	ug/kg	20.0	10.0	1	11/20/14 17:13	11/22/14 23:25	71-43-2	
Bromobenzene	ND	ug/kg	50.0	8.7	1	11/20/14 17:13	11/22/14 23:25	108-86-1	
Bromochloromethane	ND	ug/kg	50.0	6.8	1	11/20/14 17:13	11/22/14 23:25	74-97-5	
Bromodichloromethane	ND	ug/kg	50.0	8.9	1	11/20/14 17:13	11/22/14 23:25	75-27-4	
Bromoform	ND	ug/kg	200	100	1	11/20/14 17:13	11/22/14 23:25	75-25-2	
Bromomethane	ND	ug/kg	500	250	1	11/20/14 17:13	11/22/14 23:25	74-83-9	
2-Butanone (MEK)	ND	ug/kg	250	125	1	11/20/14 17:13	11/22/14 23:25	78-93-3	
n-Butylbenzene	<b>30.7J</b>	ug/kg	50.0	6.1	1	11/20/14 17:13	11/22/14 23:25	104-51-8	B
sec-Butylbenzene	<b>18.1J</b>	ug/kg	50.0	5.9	1	11/20/14 17:13	11/22/14 23:25	135-98-8	B
tert-Butylbenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	98-06-6	
Carbon tetrachloride	ND	ug/kg	50.0	8.1	1	11/20/14 17:13	11/22/14 23:25	56-23-5	
Chlorobenzene	ND	ug/kg	50.0	7.7	1	11/20/14 17:13	11/22/14 23:25	108-90-7	
Chloroethane	ND	ug/kg	500	12.6	1	11/20/14 17:13	11/22/14 23:25	75-00-3	
Chloroform	ND	ug/kg	50.0	7.6	1	11/20/14 17:13	11/22/14 23:25	67-66-3	
Chloromethane	ND	ug/kg	200	9.1	1	11/20/14 17:13	11/22/14 23:25	74-87-3	
2-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	95-49-8	
4-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	500	26.5	1	11/20/14 17:13	11/22/14 23:25	96-12-8	
Dibromochloromethane	ND	ug/kg	50.0	10.8	1	11/20/14 17:13	11/22/14 23:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	50.0	6.2	1	11/20/14 17:13	11/22/14 23:25	106-93-4	
Dibromomethane	ND	ug/kg	50.0	14.0	1	11/20/14 17:13	11/22/14 23:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	200	23.1	1	11/20/14 17:13	11/22/14 23:25	75-71-8	
1,1-Dichloroethane	ND	ug/kg	50.0	7.0	1	11/20/14 17:13	11/22/14 23:25	75-34-3	
1,2-Dichloroethane	ND	ug/kg	50.0	11.8	1	11/20/14 17:13	11/22/14 23:25	107-06-2	
1,1-Dichloroethene	ND	ug/kg	50.0	10	1	11/20/14 17:13	11/22/14 23:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	50.0	10.2	1	11/20/14 17:13	11/22/14 23:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	50.0	9.9	1	11/20/14 17:13	11/22/14 23:25	156-60-5	
Dichlorofluoromethane	ND	ug/kg	500	250	1	11/20/14 17:13	11/22/14 23:25	75-43-4	
1,2-Dichloropropane	ND	ug/kg	50.0	8.0	1	11/20/14 17:13	11/22/14 23:25	78-87-5	
1,3-Dichloropropane	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	142-28-9	
2,2-Dichloropropane	ND	ug/kg	200	6.7	1	11/20/14 17:13	11/22/14 23:25	594-20-7	
1,1-Dichloropropene	ND	ug/kg	50.0	8.2	1	11/20/14 17:13	11/22/14 23:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	50.0	6.3	1	11/20/14 17:13	11/22/14 23:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	50.0	7.0	1	11/20/14 17:13	11/22/14 23:25	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	200	10.6	1	11/20/14 17:13	11/22/14 23:25	60-29-7	
Ethylbenzene	ND	ug/kg	50.0	6.3	1	11/20/14 17:13	11/22/14 23:25	100-41-4	
Hexachloro-1,3-butadiene	<b>126J</b>	ug/kg	250	125	1	11/20/14 17:13	11/22/14 23:25	87-68-3	B
Isopropylbenzene (Cumene)	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	98-82-8	
p-Isopropyltoluene	<b>17.2J</b>	ug/kg	50.0	7.2	1	11/20/14 17:13	11/22/14 23:25	99-87-6	B
Methylene Chloride	ND	ug/kg	200	100	1	11/20/14 17:13	11/22/14 23:25	75-09-2	

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## ANALYTICAL RESULTS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

**Sample: TB**      **Lab ID: 10288603006**      Collected: 11/12/14 00:00      Received: 11/12/14 16:49      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	250	125	1	11/20/14 17:13	11/22/14 23:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	1634-04-4	
Naphthalene	ND	ug/kg	200	100	1	11/20/14 17:13	11/22/14 23:25	91-20-3	
n-Propylbenzene	ND	ug/kg	50.0	6.1	1	11/20/14 17:13	11/22/14 23:25	103-65-1	
Styrene	ND	ug/kg	50.0	7.5	1	11/20/14 17:13	11/22/14 23:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0	6.9	1	11/20/14 17:13	11/22/14 23:25	79-34-5	
Tetrachloroethene	ND	ug/kg	50.0	18.0	1	11/20/14 17:13	11/22/14 23:25	127-18-4	
Tetrahydrofuran	ND	ug/kg	2000	63.9	1	11/20/14 17:13	11/22/14 23:25	109-99-9	
Toluene	ND	ug/kg	50.0	6.8	1	11/20/14 17:13	11/22/14 23:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	50.0	11.9	1	11/20/14 17:13	11/22/14 23:25	87-61-6	
1,2,4-Trichlorobenzene	<b>29.0J</b>	ug/kg	50.0	9.1	1	11/20/14 17:13	11/22/14 23:25	120-82-1	B
1,1,1-Trichloroethane	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	50.0	8.5	1	11/20/14 17:13	11/22/14 23:25	79-00-5	
Trichloroethene	ND	ug/kg	50.0	6.2	1	11/20/14 17:13	11/22/14 23:25	79-01-6	
Trichlorofluoromethane	ND	ug/kg	200	8.9	1	11/20/14 17:13	11/22/14 23:25	75-69-4	
1,2,3-Trichloropropane	ND	ug/kg	200	6.6	1	11/20/14 17:13	11/22/14 23:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	200	20.9	1	11/20/14 17:13	11/22/14 23:25	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/20/14 17:13	11/22/14 23:25	108-67-8	
Vinyl chloride	ND	ug/kg	20.0	7.4	1	11/20/14 17:13	11/22/14 23:25	75-01-4	
Xylene (Total)	ND	ug/kg	150	19.6	1	11/20/14 17:13	11/22/14 23:25	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	101 %.		74-125		1	11/20/14 17:13	11/22/14 23:25	17060-07-0	
Toluene-d8 (S)	99 %.		75-125		1	11/20/14 17:13	11/22/14 23:25	2037-26-5	
4-Bromofluorobenzene (S)	100 %.		75-125		1	11/20/14 17:13	11/22/14 23:25	460-00-4	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch: GCV/12969 Analysis Method: WI MOD GRO  
 QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV  
 Associated Lab Samples: 10288603001, 10288603002, 10288603004

METHOD BLANK: 1850062 Matrix: Solid

Associated Lab Samples: 10288603001, 10288603002, 10288603004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	10.0	11/24/14 12:43	
a,a,a-Trifluorotoluene (S)	%.	99	80-125	11/24/14 12:43	

LABORATORY CONTROL SAMPLE & LCSD: 1850063 1850064

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	50	54.8	50.0	110	100	80-120	9	20	
a,a,a-Trifluorotoluene (S)	%.				100	102	80-125			

MATRIX SPIKE SAMPLE: 1850065

Parameter	Units	10288643003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	ND	52.2	46.3	85	80-120	
a,a,a-Trifluorotoluene (S)	%.				102	80-125	

SAMPLE DUPLICATE: 1850066

Parameter	Units	10288643004 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	50.6	26.4		20	
a,a,a-Trifluorotoluene (S)	%.	93	104	16		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch:	GCV/12968	Analysis Method:	WI MOD GRO
QC Batch Method:	WI MOD GRO	Analysis Description:	WIGRO GCV Water
Associated Lab Samples:	10288603003		

METHOD BLANK: 1850059 Matrix: Water

Associated Lab Samples: 10288603003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	11/25/14 18:09	
a,a,a-Trifluorotoluene (S)	%.	98	80-125	11/25/14 18:09	

LABORATORY CONTROL SAMPLE & LCSD: 1850060 1850061

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	1010	969	101	97	80-120	5	20	
a,a,a-Trifluorotoluene (S)	%.				101	94	80-125			

MATRIX SPIKE SAMPLE: 1853531

Parameter	Units	10288550003 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	ND	1000	1350	133	80-120	M1
a,a,a-Trifluorotoluene (S)	%.				101	80-125	

SAMPLE DUPLICATE: 1853532

Parameter	Units	10288550004 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%.	98	96	2		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch: MERP/12149

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water

Associated Lab Samples: 10288603003

METHOD BLANK: 1843915

Matrix: Water

Associated Lab Samples: 10288603003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	11/19/14 15:51	

LABORATORY CONTROL SAMPLE: 1843916

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.1	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843917 1843918

Parameter	Units	10288440003		1843917		1843918		% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec				
Mercury	ug/L	ND	5	5	5.0	5.0	100	100	75-125	1	20

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

QC Batch: MERP/12157 Analysis Method: EPA 7471B  
QC Batch Method: EPA 7471B Analysis Description: 7471B Mercury Solids  
Associated Lab Samples: 10288603001, 10288603002, 10288603004

METHOD BLANK: 1845176 Matrix: Solid  
Associated Lab Samples: 10288603001, 10288603002, 10288603004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.020	11/20/14 16:39	

LABORATORY CONTROL SAMPLE: 1845177

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.47	0.46	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1845178 1845179

Parameter	Units	10288430001		1845178		1845179		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result				
Mercury	mg/kg	0.012J	.52	.55	0.53	0.54	100	96	75-125	2	20

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

QC Batch: MPRP/50619 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3050 Analysis Description: 6010C Solids  
Associated Lab Samples: 10288603001, 10288603002, 10288603004

METHOD BLANK: 1843672 Matrix: Solid  
Associated Lab Samples: 10288603001, 10288603002, 10288603004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	0.96	11/17/14 12:02	
Barium	mg/kg	ND	0.48	11/17/14 12:02	
Cadmium	mg/kg	0.023J	0.14	11/17/14 12:02	
Chromium	mg/kg	ND	0.48	11/17/14 12:02	
Lead	mg/kg	ND	0.96	11/17/14 12:02	
Selenium	mg/kg	ND	0.72	11/17/14 12:02	
Silver	mg/kg	ND	0.48	11/17/14 12:02	

LABORATORY CONTROL SAMPLE: 1843673

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	48.5	48.1	99	80-120	
Barium	mg/kg	48.5	48.7	100	80-120	
Cadmium	mg/kg	48.5	47.5	98	80-120	
Chromium	mg/kg	48.5	48.7	100	80-120	
Lead	mg/kg	48.5	49.5	102	80-120	
Selenium	mg/kg	48.5	47.1	97	80-120	
Silver	mg/kg	24.3	23.0	95	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1843674 1843675

Parameter	Units	10287974001		1843675		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	mg/kg	ND	55.4	51.6	52.0	50.3	92	96	75-125	3	20
Barium	mg/kg	29.5	55.4	51.6	63.7	63.6	62	66	75-125	0	20 M1
Cadmium	mg/kg	ND	55.4	51.6	53.0	50.7	96	98	75-125	5	20
Chromium	mg/kg	5.1	55.4	51.6	55.1	52.9	90	93	75-125	4	20
Lead	mg/kg	ND	55.4	51.6	52.8	51.1	95	98	75-125	3	20
Selenium	mg/kg	1.4	55.4	51.6	52.0	50.2	91	94	75-125	3	20
Silver	mg/kg	ND	27.7	25.9	24.5	23.4	88	90	75-125	5	20

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch:	MPRP/50836	Analysis Method:	EPA 6010C
QC Batch Method:	EPA 3010	Analysis Description:	6010C Water
Associated Lab Samples:	10288603003		

METHOD BLANK: 1851994 Matrix: Water

Associated Lab Samples: 10288603003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	20.0	11/25/14 16:40	
Barium	ug/L	ND	10.0	11/25/14 16:40	
Cadmium	ug/L	ND	3.0	11/25/14 16:40	
Chromium	ug/L	ND	10.0	11/25/14 16:40	
Lead	ug/L	ND	10.0	11/25/14 16:40	
Selenium	ug/L	ND	20.0	11/25/14 16:40	
Silver	ug/L	ND	10.0	11/25/14 16:40	

LABORATORY CONTROL SAMPLE: 1851995

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	1010	101	80-120	
Barium	ug/L	1000	1100	110	80-120	
Cadmium	ug/L	1000	998	100	80-120	
Chromium	ug/L	1000	996	100	80-120	
Lead	ug/L	1000	1010	101	80-120	
Selenium	ug/L	1000	999	100	80-120	
Silver	ug/L	500	487	97	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1852321 1852322

Parameter	Units	10288440008		1852321		1852322		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Arsenic	ug/L	ND	1000	1000	1070	1030	107	102	75-125	4	20			
Barium	ug/L	155	1000	1000	1250	1200	110	105	75-125	4	20			
Cadmium	ug/L	ND	1000	1000	1030	991	103	99	75-125	4	20			
Chromium	ug/L	ND	1000	1000	1000	972	100	97	75-125	3	20			
Lead	ug/L	ND	1000	1000	1010	977	101	98	75-125	4	20			
Selenium	ug/L	ND	1000	1000	1050	1020	105	101	75-125	3	20			
Silver	ug/L	ND	500	500	512	492	102	98	75-125	4	20			

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

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QC Batch: MPRP/50834                      Analysis Method: ASTM D2974  
 QC Batch Method: ASTM D2974              Analysis Description: Dry Weight/Percent Moisture  
 Associated Lab Samples: 10288603001, 10288603002, 10288603004

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SAMPLE DUPLICATE: 1851771

Parameter	Units	10288546001 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	ND	ND		30	

SAMPLE DUPLICATE: 1851772

Parameter	Units	10288680006 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	8.3	8.5	2	30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch: MSV/29444 Analysis Method: EPA 8260  
 QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5030 Med Level  
 Associated Lab Samples: 10288603001, 10288603002, 10288603004, 10288603006

METHOD BLANK: 1848384 Matrix: Solid  
 Associated Lab Samples: 10288603001, 10288603002, 10288603004, 10288603006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	50.0	11/22/14 23:08	
1,1,1-Trichloroethane	ug/kg	ND	50.0	11/22/14 23:08	
1,1,2,2-Tetrachloroethane	ug/kg	ND	50.0	11/22/14 23:08	
1,1,2-Trichloroethane	ug/kg	ND	50.0	11/22/14 23:08	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	200	11/22/14 23:08	
1,1-Dichloroethane	ug/kg	ND	50.0	11/22/14 23:08	
1,1-Dichloroethene	ug/kg	ND	50.0	11/22/14 23:08	
1,1-Dichloropropene	ug/kg	ND	50.0	11/22/14 23:08	
1,2,3-Trichlorobenzene	ug/kg	84.3	50.0	11/22/14 23:08	P8
1,2,3-Trichloropropane	ug/kg	ND	200	11/22/14 23:08	
1,2,4-Trichlorobenzene	ug/kg	41.3J	50.0	11/22/14 23:08	
1,2,4-Trimethylbenzene	ug/kg	ND	50.0	11/22/14 23:08	
1,2-Dibromo-3-chloropropane	ug/kg	ND	500	11/22/14 23:08	
1,2-Dibromoethane (EDB)	ug/kg	ND	50.0	11/22/14 23:08	
1,2-Dichlorobenzene	ug/kg	ND	50.0	11/22/14 23:08	
1,2-Dichloroethane	ug/kg	ND	50.0	11/22/14 23:08	
1,2-Dichloropropane	ug/kg	ND	50.0	11/22/14 23:08	
1,3,5-Trimethylbenzene	ug/kg	ND	50.0	11/22/14 23:08	
1,3-Dichlorobenzene	ug/kg	ND	50.0	11/22/14 23:08	
1,3-Dichloropropane	ug/kg	ND	50.0	11/22/14 23:08	
1,4-Dichlorobenzene	ug/kg	ND	50.0	11/22/14 23:08	
2,2-Dichloropropane	ug/kg	ND	200	11/22/14 23:08	
2-Butanone (MEK)	ug/kg	ND	250	11/22/14 23:08	
2-Chlorotoluene	ug/kg	ND	50.0	11/22/14 23:08	
4-Chlorotoluene	ug/kg	ND	50.0	11/22/14 23:08	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	250	11/22/14 23:08	
Acetone	ug/kg	ND	1000	11/22/14 23:08	
Allyl chloride	ug/kg	ND	200	11/22/14 23:08	
Benzene	ug/kg	ND	20.0	11/22/14 23:08	
Bromobenzene	ug/kg	ND	50.0	11/22/14 23:08	
Bromochloromethane	ug/kg	ND	50.0	11/22/14 23:08	
Bromodichloromethane	ug/kg	ND	50.0	11/22/14 23:08	
Bromoform	ug/kg	ND	200	11/22/14 23:08	
Bromomethane	ug/kg	ND	500	11/22/14 23:08	
Carbon tetrachloride	ug/kg	ND	50.0	11/22/14 23:08	
Chlorobenzene	ug/kg	ND	50.0	11/22/14 23:08	
Chloroethane	ug/kg	ND	500	11/22/14 23:08	
Chloroform	ug/kg	ND	50.0	11/22/14 23:08	
Chloromethane	ug/kg	ND	200	11/22/14 23:08	
cis-1,2-Dichloroethene	ug/kg	ND	50.0	11/22/14 23:08	
cis-1,3-Dichloropropene	ug/kg	ND	50.0	11/22/14 23:08	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

METHOD BLANK: 1848384

Matrix: Solid

Associated Lab Samples: 10288603001, 10288603002, 10288603004, 10288603006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/kg	ND	50.0	11/22/14 23:08	
Dibromomethane	ug/kg	ND	50.0	11/22/14 23:08	
Dichlorodifluoromethane	ug/kg	ND	200	11/22/14 23:08	
Dichlorofluoromethane	ug/kg	ND	500	11/22/14 23:08	
Diethyl ether (Ethyl ether)	ug/kg	ND	200	11/22/14 23:08	
Ethylbenzene	ug/kg	ND	50.0	11/22/14 23:08	
Hexachloro-1,3-butadiene	ug/kg	132J	250	11/22/14 23:08	
Isopropylbenzene (Cumene)	ug/kg	ND	50.0	11/22/14 23:08	
Methyl-tert-butyl ether	ug/kg	ND	50.0	11/22/14 23:08	
Methylene Chloride	ug/kg	ND	200	11/22/14 23:08	
n-Butylbenzene	ug/kg	39.4J	50.0	11/22/14 23:08	
n-Propylbenzene	ug/kg	ND	50.0	11/22/14 23:08	
Naphthalene	ug/kg	ND	200	11/22/14 23:08	
p-Isopropyltoluene	ug/kg	21.9J	50.0	11/22/14 23:08	
sec-Butylbenzene	ug/kg	27.3J	50.0	11/22/14 23:08	
Styrene	ug/kg	ND	50.0	11/22/14 23:08	
tert-Butylbenzene	ug/kg	ND	50.0	11/22/14 23:08	
Tetrachloroethene	ug/kg	ND	50.0	11/22/14 23:08	
Tetrahydrofuran	ug/kg	ND	2000	11/22/14 23:08	
Toluene	ug/kg	ND	50.0	11/22/14 23:08	
trans-1,2-Dichloroethene	ug/kg	ND	50.0	11/22/14 23:08	
trans-1,3-Dichloropropene	ug/kg	ND	50.0	11/22/14 23:08	
Trichloroethene	ug/kg	ND	50.0	11/22/14 23:08	
Trichlorofluoromethane	ug/kg	ND	200	11/22/14 23:08	
Vinyl chloride	ug/kg	ND	20.0	11/22/14 23:08	
Xylene (Total)	ug/kg	ND	150	11/22/14 23:08	
1,2-Dichloroethane-d4 (S)	%	101	74-125	11/22/14 23:08	
4-Bromofluorobenzene (S)	%	100	75-125	11/22/14 23:08	
Toluene-d8 (S)	%	98	75-125	11/22/14 23:08	

LABORATORY CONTROL SAMPLE: 1848385

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1000	1000	100	68-125	
1,1,1-Trichloroethane	ug/kg	1000	1010	101	62-125	
1,1,2,2-Tetrachloroethane	ug/kg	1000	970	97	61-127	
1,1,2-Trichloroethane	ug/kg	1000	974	97	70-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	1000	1030	103	56-149	
1,1-Dichloroethane	ug/kg	1000	971	97	60-127	
1,1-Dichloroethene	ug/kg	1000	1110	111	63-125	
1,1-Dichloropropene	ug/kg	1000	1040	104	67-125	
1,2,3-Trichlorobenzene	ug/kg	1000	1300	130	63-132	
1,2,3-Trichloropropane	ug/kg	1000	1020	102	67-125	
1,2,4-Trichlorobenzene	ug/kg	1000	1220	122	64-132	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE: 1848385

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	1100	110	64-125	
1,2-Dibromo-3-chloropropane	ug/kg	2500	2590	104	56-132	
1,2-Dibromoethane (EDB)	ug/kg	1000	1020	102	72-125	
1,2-Dichlorobenzene	ug/kg	1000	1010	101	68-125	
1,2-Dichloroethane	ug/kg	1000	957	96	69-125	
1,2-Dichloropropane	ug/kg	1000	1010	101	73-125	
1,3,5-Trimethylbenzene	ug/kg	1000	1080	108	64-125	
1,3-Dichlorobenzene	ug/kg	1000	1000	100	67-125	
1,3-Dichloropropane	ug/kg	1000	1000	100	71-125	
1,4-Dichlorobenzene	ug/kg	1000	1020	102	69-125	
2,2-Dichloropropane	ug/kg	1000	917	92	53-131	
2-Butanone (MEK)	ug/kg	5000	5330	107	52-131	
2-Chlorotoluene	ug/kg	1000	1020	102	66-125	
4-Chlorotoluene	ug/kg	1000	1030	103	52-131	
4-Methyl-2-pentanone (MIBK)	ug/kg	5000	5510	110	64-125	
Acetone	ug/kg	5000	5120	102	42-150	
Allyl chloride	ug/kg	1000	1180	118	58-128	
Benzene	ug/kg	1000	1120	112	71-125	
Bromobenzene	ug/kg	1000	1060	106	69-125	
Bromochloromethane	ug/kg	1000	1100	110	75-125	
Bromodichloromethane	ug/kg	1000	1000	100	69-125	
Bromoform	ug/kg	1000	1090	109	62-125	
Bromomethane	ug/kg	1000	994	99	62-125	
Carbon tetrachloride	ug/kg	1000	1070	107	66-125	
Chlorobenzene	ug/kg	1000	996	100	75-125	
Chloroethane	ug/kg	1000	956	96	61-125	
Chloroform	ug/kg	1000	1030	103	72-125	
Chloromethane	ug/kg	1000	1030	103	59-125	
cis-1,2-Dichloroethene	ug/kg	1000	1070	107	74-125	
cis-1,3-Dichloropropene	ug/kg	1000	996	100	68-125	
Dibromochloromethane	ug/kg	1000	1020	102	65-125	
Dibromomethane	ug/kg	1000	1030	103	72-125	
Dichlorodifluoromethane	ug/kg	1000	782	78	39-125	
Dichlorofluoromethane	ug/kg	1000	937	94	64-127	
Diethyl ether (Ethyl ether)	ug/kg	1000	985	99	66-125	
Ethylbenzene	ug/kg	1000	1020	102	69-125	
Hexachloro-1,3-butadiene	ug/kg	1000	1240	124	53-150	
Isopropylbenzene (Cumene)	ug/kg	1000	1090	109	70-125	
Methyl-tert-butyl ether	ug/kg	1000	1050	105	69-125	
Methylene Chloride	ug/kg	1000	971	97	71-125	
n-Butylbenzene	ug/kg	1000	1120	112	59-133	
n-Propylbenzene	ug/kg	1000	1060	106	64-125	
Naphthalene	ug/kg	1000	1160	116	61-131	
p-Isopropyltoluene	ug/kg	1000	1080	108	63-127	
sec-Butylbenzene	ug/kg	1000	1130	113	64-125	
Styrene	ug/kg	1000	1120	112	74-125	
tert-Butylbenzene	ug/kg	1000	1020	102	66-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE: 1848385

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	1000	1070	107	68-125	
Tetrahydrofuran	ug/kg	10000	10300	103	68-125	
Toluene	ug/kg	1000	1060	106	70-125	
trans-1,2-Dichloroethene	ug/kg	1000	1090	109	68-125	
trans-1,3-Dichloropropene	ug/kg	1000	977	98	70-125	
Trichloroethene	ug/kg	1000	1010	101	71-125	
Trichlorofluoromethane	ug/kg	1000	1030	103	62-132	
Vinyl chloride	ug/kg	1000	881	88	55-125	
Xylene (Total)	ug/kg	3000	3080	103	74-125	
1,2-Dichloroethane-d4 (S)	%			102	74-125	
4-Bromofluorobenzene (S)	%			101	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE SAMPLE: 1848386

Parameter	Units	10288603001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	1050	1080	103	63-140	
1,1,1-Trichloroethane	ug/kg	ND	1050	1080	102	54-149	
1,1,2,2-Tetrachloroethane	ug/kg	ND	1050	1060	101	46-150	
1,1,2-Trichloroethane	ug/kg	ND	1050	1100	105	62-141	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	1050	1030	98	65-150	
1,1-Dichloroethane	ug/kg	ND	1050	1070	102	57-145	
1,1-Dichloroethene	ug/kg	ND	1050	1180	112	58-137	
1,1-Dichloropropene	ug/kg	ND	1050	1120	106	61-141	
1,2,3-Trichlorobenzene	ug/kg	ND	1050	1420	135	62-147	
1,2,3-Trichloropropane	ug/kg	ND	1050	1150	109	65-141	
1,2,4-Trichlorobenzene	ug/kg	ND	1050	1270	121	64-147	
1,2,4-Trimethylbenzene	ug/kg	ND	1050	1230	115	59-144	
1,2-Dibromo-3-chloropropane	ug/kg	ND	2630	2990	114	56-147	
1,2-Dibromoethane (EDB)	ug/kg	ND	1050	1190	113	66-135	
1,2-Dichlorobenzene	ug/kg	ND	1050	1150	109	63-143	
1,2-Dichloroethane	ug/kg	ND	1050	1100	104	57-145	
1,2-Dichloropropane	ug/kg	ND	1050	1110	106	62-139	
1,3,5-Trimethylbenzene	ug/kg	ND	1050	1220	116	60-144	
1,3-Dichlorobenzene	ug/kg	ND	1050	1130	107	61-146	
1,3-Dichloropropane	ug/kg	ND	1050	1120	107	63-138	
1,4-Dichlorobenzene	ug/kg	ND	1050	1140	108	60-145	
2,2-Dichloropropane	ug/kg	ND	1050	1010	96	54-143	
2-Butanone (MEK)	ug/kg	ND	5260	6040	115	45-150	
2-Chlorotoluene	ug/kg	ND	1050	1140	108	62-140	
4-Chlorotoluene	ug/kg	ND	1050	1150	109	60-143	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	5260	6320	120	58-146	
Acetone	ug/kg	ND	5260	5630	107	30-150	
Allyl chloride	ug/kg	ND	1050	1280	121	55-142	
Benzene	ug/kg	ND	1050	1220	116	61-134	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

MATRIX SPIKE SAMPLE:	1848386						
Parameter	Units	10288603001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromobenzene	ug/kg	ND	1050	1170	112	64-143	
Bromochloromethane	ug/kg	ND	1050	1210	115	62-141	
Bromodichloromethane	ug/kg	ND	1050	1120	107	57-146	
Bromoform	ug/kg	ND	1050	1190	113	60-136	
Bromomethane	ug/kg	ND	1050	1180	112	54-141	
Carbon tetrachloride	ug/kg	ND	1050	1150	109	50-150	
Chlorobenzene	ug/kg	ND	1050	1100	104	67-135	
Chloroethane	ug/kg	ND	1050	1050	100	46-150	
Chloroform	ug/kg	ND	1050	1120	107	60-141	
Chloromethane	ug/kg	ND	1050	1130	107	46-133	
cis-1,2-Dichloroethene	ug/kg	ND	1050	1190	113	64-138	
cis-1,3-Dichloropropene	ug/kg	ND	1050	1100	105	64-138	
Dibromochloromethane	ug/kg	ND	1050	1160	110	56-145	
Dibromomethane	ug/kg	ND	1050	1170	111	62-138	
Dichlorodifluoromethane	ug/kg	ND	1050	777	74	30-136	
Dichlorofluoromethane	ug/kg	ND	1050	1010	96	47-150	
Diethyl ether (Ethyl ether)	ug/kg	ND	1050	1070	102	59-137	
Ethylbenzene	ug/kg	12.2J	1050	1120	106	63-135	
Hexachloro-1,3-butadiene	ug/kg	ND	1050	1410	127	65-150	
Isopropylbenzene (Cumene)	ug/kg	ND	1050	1220	116	65-137	
Methyl-tert-butyl ether	ug/kg	ND	1050	1180	112	56-143	
Methylene Chloride	ug/kg	ND	1050	1080	101	62-133	
n-Butylbenzene	ug/kg	10.2J	1050	1230	116	58-148	
n-Propylbenzene	ug/kg	ND	1050	1190	113	60-142	
Naphthalene	ug/kg	ND	1050	1290	123	61-146	
p-Isopropyltoluene	ug/kg	ND	1050	1220	116	61-145	
sec-Butylbenzene	ug/kg	ND	1050	1240	118	57-147	
Styrene	ug/kg	ND	1050	1240	118	67-137	
tert-Butylbenzene	ug/kg	ND	1050	1180	112	57-149	
Tetrachloroethene	ug/kg	ND	1050	1100	104	66-138	
Tetrahydrofuran	ug/kg	ND	10500	11100	106	53-145	
Toluene	ug/kg	10.8J	1050	1150	109	67-132	
trans-1,2-Dichloroethene	ug/kg	ND	1050	1190	113	61-136	
trans-1,3-Dichloropropene	ug/kg	ND	1050	1100	104	60-140	
Trichloroethene	ug/kg	ND	1050	1130	107	58-150	
Trichlorofluoromethane	ug/kg	ND	1050	1030	98	53-150	
Vinyl chloride	ug/kg	ND	1050	925	88	45-139	
Xylene (Total)	ug/kg	ND	3160	3390	107	66-136	
1,2-Dichloroethane-d4 (S)	%.				103	74-125	
4-Bromofluorobenzene (S)	%.				101	75-125	
Toluene-d8 (S)	%.				100	75-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

SAMPLE DUPLICATE: 1848387

Parameter	Units	10288603002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	ND		30	
Allyl chloride	ug/kg	ND	ND		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Dichlorofluoromethane	ug/kg	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

SAMPLE DUPLICATE: 1848387

Parameter	Units	10288603002 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Tetrahydrofuran	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	103	101	1		
4-Bromofluorobenzene (S)	%.	101	101	3		
Toluene-d8 (S)	%.	98	99	3		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch: MSV/29455 Analysis Method: EPA 8260  
QC Batch Method: EPA 8260 Analysis Description: 8260 MSV 465 W  
Associated Lab Samples: 10288603003, 10288603005

METHOD BLANK: 1849398 Matrix: Water

Associated Lab Samples: 10288603003, 10288603005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/20/14 21:51	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/20/14 21:51	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/20/14 21:51	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/20/14 21:51	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/20/14 21:51	
1,1-Dichloroethane	ug/L	ND	1.0	11/20/14 21:51	
1,1-Dichloroethene	ug/L	ND	1.0	11/20/14 21:51	
1,1-Dichloropropene	ug/L	ND	1.0	11/20/14 21:51	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/20/14 21:51	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/20/14 21:51	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/20/14 21:51	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/20/14 21:51	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/20/14 21:51	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/20/14 21:51	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/20/14 21:51	
1,2-Dichloroethane	ug/L	ND	1.0	11/20/14 21:51	
1,2-Dichloropropane	ug/L	ND	4.0	11/20/14 21:51	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/20/14 21:51	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/20/14 21:51	
1,3-Dichloropropane	ug/L	ND	1.0	11/20/14 21:51	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/20/14 21:51	
2,2-Dichloropropane	ug/L	ND	4.0	11/20/14 21:51	
2-Butanone (MEK)	ug/L	ND	5.0	11/20/14 21:51	
2-Chlorotoluene	ug/L	ND	1.0	11/20/14 21:51	
4-Chlorotoluene	ug/L	ND	1.0	11/20/14 21:51	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/20/14 21:51	
Acetone	ug/L	ND	20.0	11/20/14 21:51	
Allyl chloride	ug/L	ND	4.0	11/20/14 21:51	
Benzene	ug/L	ND	1.0	11/20/14 21:51	
Bromobenzene	ug/L	ND	1.0	11/20/14 21:51	
Bromochloromethane	ug/L	ND	1.0	11/20/14 21:51	
Bromodichloromethane	ug/L	ND	1.0	11/20/14 21:51	
Bromoform	ug/L	ND	4.0	11/20/14 21:51	
Bromomethane	ug/L	ND	4.0	11/20/14 21:51	
Carbon tetrachloride	ug/L	ND	1.0	11/20/14 21:51	
Chlorobenzene	ug/L	ND	1.0	11/20/14 21:51	
Chloroethane	ug/L	ND	4.0	11/20/14 21:51	
Chloroform	ug/L	ND	1.0	11/20/14 21:51	
Chloromethane	ug/L	ND	4.0	11/20/14 21:51	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/20/14 21:51	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/20/14 21:51	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

METHOD BLANK: 1849398

Matrix: Water

Associated Lab Samples: 10288603003, 10288603005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/20/14 21:51	
Dibromomethane	ug/L	ND	4.0	11/20/14 21:51	
Dichlorodifluoromethane	ug/L	ND	1.0	11/20/14 21:51	
Dichlorofluoromethane	ug/L	ND	4.0	11/20/14 21:51	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/20/14 21:51	
Ethylbenzene	ug/L	ND	1.0	11/20/14 21:51	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/20/14 21:51	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/20/14 21:51	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/20/14 21:51	
Methylene Chloride	ug/L	ND	4.0	11/20/14 21:51	
n-Butylbenzene	ug/L	ND	1.0	11/20/14 21:51	
n-Propylbenzene	ug/L	ND	1.0	11/20/14 21:51	
Naphthalene	ug/L	ND	4.0	11/20/14 21:51	
p-Isopropyltoluene	ug/L	ND	1.0	11/20/14 21:51	
sec-Butylbenzene	ug/L	ND	1.0	11/20/14 21:51	
Styrene	ug/L	ND	1.0	11/20/14 21:51	
tert-Butylbenzene	ug/L	ND	1.0	11/20/14 21:51	
Tetrachloroethene	ug/L	ND	1.0	11/20/14 21:51	
Tetrahydrofuran	ug/L	ND	10.0	11/20/14 21:51	
Toluene	ug/L	ND	1.0	11/20/14 21:51	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/20/14 21:51	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/20/14 21:51	
Trichloroethene	ug/L	ND	0.40	11/20/14 21:51	
Trichlorofluoromethane	ug/L	ND	4.0	11/20/14 21:51	
Vinyl chloride	ug/L	ND	0.40	11/20/14 21:51	
Xylene (Total)	ug/L	ND	3.0	11/20/14 21:51	
1,2-Dichloroethane-d4 (S)	%	102	75-125	11/20/14 21:51	
4-Bromofluorobenzene (S)	%	97	75-125	11/20/14 21:51	
Toluene-d8 (S)	%	100	75-125	11/20/14 21:51	

LABORATORY CONTROL SAMPLE: 1849399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.7	103	75-125	
1,1,1-Trichloroethane	ug/L	20	19.8	99	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	18.3	91	74-125	
1,1,2-Trichloroethane	ug/L	20	19.9	99	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	21.7	109	56-133	
1,1-Dichloroethane	ug/L	20	17.7	88	75-125	
1,1-Dichloroethene	ug/L	20	19.3	97	70-125	
1,1-Dichloropropene	ug/L	20	19.2	96	73-125	
1,2,3-Trichlorobenzene	ug/L	20	21.6	108	75-125	
1,2,3-Trichloropropane	ug/L	20	19.3	96	75-125	
1,2,4-Trichlorobenzene	ug/L	20	20.7	104	75-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE: 1849399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.0	105	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	49.8	100	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	19.2	96	75-125	
1,2-Dichlorobenzene	ug/L	20	20.6	103	75-125	
1,2-Dichloroethane	ug/L	20	20.0	100	75-125	
1,2-Dichloropropane	ug/L	20	18.9	94	75-125	
1,3,5-Trimethylbenzene	ug/L	20	21.0	105	75-125	
1,3-Dichlorobenzene	ug/L	20	20.6	103	75-125	
1,3-Dichloropropane	ug/L	20	19.2	96	75-125	
1,4-Dichlorobenzene	ug/L	20	20.5	102	75-125	
2,2-Dichloropropane	ug/L	20	19.5	98	66-130	
2-Butanone (MEK)	ug/L	100	77.7	78	64-126	
2-Chlorotoluene	ug/L	20	19.9	99	73-125	
4-Chlorotoluene	ug/L	20	19.4	97	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	90.0	90	71-125	
Acetone	ug/L	100	91.7	92	66-131	
Allyl chloride	ug/L	20	15.3	76	70-129	
Benzene	ug/L	20	16.1	81	75-125	
Bromobenzene	ug/L	20	20.1	100	75-125	
Bromochloromethane	ug/L	20	20.8	104	75-125	
Bromodichloromethane	ug/L	20	20.3	101	75-125	
Bromoform	ug/L	20	21.3	106	70-125	
Bromomethane	ug/L	20	21.1	105	30-150	
Carbon tetrachloride	ug/L	20	20.6	103	68-129	
Chlorobenzene	ug/L	20	19.8	99	75-125	
Chloroethane	ug/L	20	18.5	93	68-133	
Chloroform	ug/L	20	19.5	97	75-125	
Chloromethane	ug/L	20	18.4	92	57-140	
cis-1,2-Dichloroethene	ug/L	20	19.2	96	75-125	
cis-1,3-Dichloropropene	ug/L	20	19.6	98	75-125	
Dibromochloromethane	ug/L	20	23.0	115	75-125	
Dibromomethane	ug/L	20	21.6	108	75-125	
Dichlorodifluoromethane	ug/L	20	19.7	98	50-134	
Dichlorofluoromethane	ug/L	20	20.2	101	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	19.8	99	75-125	
Ethylbenzene	ug/L	20	21.2	106	75-125	
Hexachloro-1,3-butadiene	ug/L	20	20.4	102	74-128	
Isopropylbenzene (Cumene)	ug/L	20	19.9	99	73-125	
Methyl-tert-butyl ether	ug/L	20	18.4	92	75-125	
Methylene Chloride	ug/L	20	18.4	92	75-125	
n-Butylbenzene	ug/L	20	21.6	108	73-125	
n-Propylbenzene	ug/L	20	20.4	102	72-125	
Naphthalene	ug/L	20	19.4	97	74-125	
p-Isopropyltoluene	ug/L	20	21.2	106	74-125	
sec-Butylbenzene	ug/L	20	19.9	99	74-125	
Styrene	ug/L	20	19.6	98	75-125	
tert-Butylbenzene	ug/L	20	19.9	100	74-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE: 1849399

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	21.4	107	71-125	
Tetrahydrofuran	ug/L	200	188	94	70-125	
Toluene	ug/L	20	19.0	95	75-125	
trans-1,2-Dichloroethene	ug/L	20	19.5	98	73-125	
trans-1,3-Dichloropropene	ug/L	20	20.7	104	75-125	
Trichloroethene	ug/L	20	20.0	100	75-125	
Trichlorofluoromethane	ug/L	20	21.5	108	70-128	
Vinyl chloride	ug/L	20	18.1	91	70-130	
Xylene (Total)	ug/L	60	61.5	102	75-125	
1,2-Dichloroethane-d4 (S)	%			104	75-125	
4-Bromofluorobenzene (S)	%			95	75-125	
Toluene-d8 (S)	%			101	75-125	

MATRIX SPIKE SAMPLE: 1850894

Parameter	Units	10288487001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	50	51.8	104	74-131	
1,1,1-Trichloroethane	ug/L	ND	50	53.6	107	73-139	
1,1,2,2-Tetrachloroethane	ug/L	ND	50	44.4	89	72-125	
1,1,2-Trichloroethane	ug/L	ND	50	48.9	98	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	50	58.9	118	68-150	
1,1-Dichloroethane	ug/L	ND	50	44.7	89	73-132	
1,1-Dichloroethene	ug/L	ND	50	51.7	103	71-142	
1,1-Dichloropropene	ug/L	ND	50	51.1	102	73-139	E
1,2,3-Trichlorobenzene	ug/L	ND	50	54.6	109	70-129	
1,2,3-Trichloropropane	ug/L	ND	50	48.9	98	74-125	
1,2,4-Trichlorobenzene	ug/L	ND	50	51.9	104	70-129	
1,2,4-Trimethylbenzene	ug/L	ND	50	52.4	105	72-136	
1,2-Dibromo-3-chloropropane	ug/L	ND	125	130	104	66-127	
1,2-Dibromoethane (EDB)	ug/L	ND	50	48.0	96	75-125	
1,2-Dichlorobenzene	ug/L	ND	50	51.5	103	75-125	
1,2-Dichloroethane	ug/L	ND	50	49.6	99	68-128	
1,2-Dichloropropane	ug/L	ND	50	45.6	91	74-131	
1,3,5-Trimethylbenzene	ug/L	ND	50	52.3	105	75-131	
1,3-Dichlorobenzene	ug/L	ND	50	51.2	102	73-125	
1,3-Dichloropropane	ug/L	ND	50	47.3	95	75-125	
1,4-Dichlorobenzene	ug/L	ND	50	50.3	101	73-125	
2,2-Dichloropropane	ug/L	ND	50	51.3	103	58-150	
2-Butanone (MEK)	ug/L	ND	250	200	80	56-140	
2-Chlorotoluene	ug/L	ND	50	49.5	99	70-130	
4-Chlorotoluene	ug/L	ND	50	48.3	97	73-126	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	250	217	87	69-128	
Acetone	ug/L	ND	250	231	92	57-143	
Allyl chloride	ug/L	ND	50	39.4	79	65-146	
Benzene	ug/L	ND	50	40.5	81	75-129	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

MATRIX SPIKE SAMPLE:	1850894						
Parameter	Units	10288487001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Bromobenzene	ug/L	ND	50	51.0	102	74-125	
Bromochloromethane	ug/L	ND	50	51.4	103	75-126	
Bromodichloromethane	ug/L	ND	50	52.5	105	75-128	
Bromoform	ug/L	ND	50	55.7	111	66-130	
Bromomethane	ug/L	ND	50	66.6	133	30-150	
Carbon tetrachloride	ug/L	ND	50	57.3	115	69-148	
Chlorobenzene	ug/L	ND	50	49.1	98	75-125	
Chloroethane	ug/L	ND	50	49.9	100	71-143	
Chloroform	ug/L	ND	50	49.7	99	75-126	
Chloromethane	ug/L	ND	50	48.0	96	55-150	
cis-1,2-Dichloroethene	ug/L	ND	50	49.8	100	75-130	
cis-1,3-Dichloropropene	ug/L	ND	50	49.3	99	72-129	
Dibromochloromethane	ug/L	ND	50	59.4	119	73-129	
Dibromomethane	ug/L	ND	50	52.7	105	75-125	
Dichlorodifluoromethane	ug/L	ND	50	53.9	108	70-150	
Dichlorofluoromethane	ug/L	ND	50	55.1	110	75-135	
Diethyl ether (Ethyl ether)	ug/L	ND	50	50.0	100	72-126	
Ethylbenzene	ug/L	ND	50	52.4	105	75-128	
Hexachloro-1,3-butadiene	ug/L	ND	50	51.9	104	65-144	
Isopropylbenzene (Cumene)	ug/L	ND	50	50.2	100	75-131	
Methyl-tert-butyl ether	ug/L	ND	50	47.1	94	74-128	
Methylene Chloride	ug/L	ND	50	46.0	92	69-125	
n-Butylbenzene	ug/L	ND	50	55.7	111	70-137	
n-Propylbenzene	ug/L	ND	50	51.0	102	72-131	
Naphthalene	ug/L	ND	50	51.9	104	70-132	
p-Isopropyltoluene	ug/L	ND	50	54.1	108	73-133	
sec-Butylbenzene	ug/L	ND	50	50.9	102	74-133	
Styrene	ug/L	ND	50	49.9	100	75-128	
tert-Butylbenzene	ug/L	ND	50	50.2	100	74-130	
Tetrachloroethene	ug/L	ND	50	54.3	109	68-140	
Tetrahydrofuran	ug/L	ND	500	482	96	65-131	
Toluene	ug/L	ND	50	47.0	94	75-129	
trans-1,2-Dichloroethene	ug/L	ND	50	51.2	102	70-136	
trans-1,3-Dichloropropene	ug/L	ND	50	51.6	103	71-125	
Trichloroethene	ug/L	ND	50	53.3	107	72-135	
Trichlorofluoromethane	ug/L	ND	50	57.1	114	75-150	
Vinyl chloride	ug/L	ND	50	49.7	99	73-150	
Xylene (Total)	ug/L	ND	150	153	102	75-129	
1,2-Dichloroethane-d4 (S)	%				102	75-125	
4-Bromofluorobenzene (S)	%				97	75-125	
Toluene-d8 (S)	%				99	75-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

SAMPLE DUPLICATE: 1850895

Parameter	Units	10288487002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

SAMPLE DUPLICATE: 1850895

Parameter	Units	10288487002 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	103	104	1		
4-Bromofluorobenzene (S)	%.	97	96	1		
Toluene-d8 (S)	%.	101	101	1		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch: OEXT/27330 Analysis Method: EPA 8270  
 QC Batch Method: EPA 3550 Analysis Description: 8270 Solid MSSV  
 Associated Lab Samples: 10288603001, 10288603002, 10288603004

METHOD BLANK: 1848044 Matrix: Solid

Associated Lab Samples: 10288603001, 10288603002, 10288603004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1,2-Dichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1,2-Diphenylhydrazine	ug/kg	ND	330	11/20/14 08:27	
1,3-Dichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1,4-Dichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1-Methylnaphthalene	ug/kg	ND	330	11/20/14 08:27	
2,4,5-Trichlorophenol	ug/kg	ND	330	11/20/14 08:27	
2,4,6-Trichlorophenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dichlorophenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dimethylphenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dinitrophenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dinitrotoluene	ug/kg	ND	330	11/20/14 08:27	
2,6-Dinitrotoluene	ug/kg	ND	330	11/20/14 08:27	
2-Chloronaphthalene	ug/kg	ND	330	11/20/14 08:27	
2-Chlorophenol	ug/kg	ND	330	11/20/14 08:27	
2-Methylnaphthalene	ug/kg	ND	330	11/20/14 08:27	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	11/20/14 08:27	
2-Nitroaniline	ug/kg	ND	330	11/20/14 08:27	
2-Nitrophenol	ug/kg	ND	330	11/20/14 08:27	
3&4-Methylphenol	ug/kg	ND	660	11/20/14 08:27	
3,3'-Dichlorobenzidine	ug/kg	ND	330	11/20/14 08:27	
3-Nitroaniline	ug/kg	ND	330	11/20/14 08:27	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1700	11/20/14 08:27	
4-Bromophenylphenyl ether	ug/kg	ND	330	11/20/14 08:27	
4-Chloro-3-methylphenol	ug/kg	ND	330	11/20/14 08:27	
4-Chloroaniline	ug/kg	ND	330	11/20/14 08:27	
4-Chlorophenylphenyl ether	ug/kg	ND	330	11/20/14 08:27	
4-Nitroaniline	ug/kg	ND	330	11/20/14 08:27	
4-Nitrophenol	ug/kg	ND	330	11/20/14 08:27	
Acenaphthene	ug/kg	ND	330	11/20/14 08:27	
Acenaphthylene	ug/kg	ND	330	11/20/14 08:27	
Anthracene	ug/kg	ND	330	11/20/14 08:27	
Benzo(a)anthracene	ug/kg	ND	330	11/20/14 08:27	
Benzo(a)pyrene	ug/kg	ND	330	11/20/14 08:27	
Benzo(b)fluoranthene	ug/kg	ND	330	11/20/14 08:27	
Benzo(g,h,i)perylene	ug/kg	ND	330	11/20/14 08:27	
Benzo(k)fluoranthene	ug/kg	ND	330	11/20/14 08:27	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	11/20/14 08:27	
bis(2-Chloroethyl) ether	ug/kg	ND	330	11/20/14 08:27	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	11/20/14 08:27	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	11/20/14 08:27	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

METHOD BLANK: 1848044

Matrix: Solid

Associated Lab Samples: 10288603001, 10288603002, 10288603004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	11/20/14 08:27	
Carbazole	ug/kg	ND	330	11/20/14 08:27	
Chrysene	ug/kg	ND	330	11/20/14 08:27	
Di-n-butylphthalate	ug/kg	ND	330	11/20/14 08:27	
Di-n-octylphthalate	ug/kg	ND	330	11/20/14 08:27	
Dibenz(a,h)anthracene	ug/kg	ND	330	11/20/14 08:27	
Dibenzofuran	ug/kg	ND	330	11/20/14 08:27	
Diethylphthalate	ug/kg	ND	330	11/20/14 08:27	
Dimethylphthalate	ug/kg	ND	330	11/20/14 08:27	
Fluoranthene	ug/kg	ND	330	11/20/14 08:27	
Fluorene	ug/kg	ND	330	11/20/14 08:27	
Hexachloro-1,3-butadiene	ug/kg	ND	330	11/20/14 08:27	
Hexachlorobenzene	ug/kg	ND	330	11/20/14 08:27	
Hexachloroethane	ug/kg	ND	330	11/20/14 08:27	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	11/20/14 08:27	
Isophorone	ug/kg	ND	330	11/20/14 08:27	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	11/20/14 08:27	
N-Nitrosodimethylamine	ug/kg	ND	330	11/20/14 08:27	
N-Nitrosodiphenylamine	ug/kg	ND	330	11/20/14 08:27	
Naphthalene	ug/kg	ND	330	11/20/14 08:27	
Nitrobenzene	ug/kg	ND	330	11/20/14 08:27	
Pentachlorophenol	ug/kg	ND	670	11/20/14 08:27	
Phenanthrene	ug/kg	ND	330	11/20/14 08:27	
Phenol	ug/kg	ND	330	11/20/14 08:27	
Pyrene	ug/kg	ND	330	11/20/14 08:27	
2,4,6-Tribromophenol (S)	%	82	41-125	11/20/14 08:27	
2-Fluorobiphenyl (S)	%	76	46-125	11/20/14 08:27	
2-Fluorophenol (S)	%	76	31-125	11/20/14 08:27	
Nitrobenzene-d5 (S)	%	80	30-125	11/20/14 08:27	
Phenol-d6 (S)	%	80	38-125	11/20/14 08:27	
Terphenyl-d14 (S)	%	89	64-125	11/20/14 08:27	

LABORATORY CONTROL SAMPLE: 1848045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1360	82	40-125	
1,2-Dichlorobenzene	ug/kg	1670	1380	83	32-125	
1,2-Diphenylhydrazine	ug/kg	1670	1720	103	63-125	
1,3-Dichlorobenzene	ug/kg	1670	1340	80	31-125	
1,4-Dichlorobenzene	ug/kg	1670	1370	82	30-125	
1-Methylnaphthalene	ug/kg	1670	1440	86	54-125	
2,4,5-Trichlorophenol	ug/kg	1670	1410	85	63-125	
2,4,6-Trichlorophenol	ug/kg	1670	1370	82	62-125	
2,4-Dichlorophenol	ug/kg	1670	1380	83	56-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE: 1848045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dimethylphenol	ug/kg	1670	1480	89	55-125	
2,4-Dinitrophenol	ug/kg	1670	1070	64	30-129	
2,4-Dinitrotoluene	ug/kg	1670	1420	85	61-125	
2,6-Dinitrotoluene	ug/kg	1670	1500	90	63-125	
2-Chloronaphthalene	ug/kg	1670	1410	85	60-125	
2-Chlorophenol	ug/kg	1670	1420	85	37-125	
2-Methylnaphthalene	ug/kg	1670	1420	85	56-125	
2-Methylphenol(o-Cresol)	ug/kg	1670	1510	91	45-125	
2-Nitroaniline	ug/kg	1670	1780	107	63-125	
2-Nitrophenol	ug/kg	1670	1380	83	47-125	
3&4-Methylphenol	ug/kg	1670	1540	92	50-125	
3,3'-Dichlorobenzidine	ug/kg	1670	979	59	49-125	
3-Nitroaniline	ug/kg	1670	1190	71	48-125	
4,6-Dinitro-2-methylphenol	ug/kg	1670	1340J	81	39-125	
4-Bromophenylphenyl ether	ug/kg	1670	1400	84	65-125	
4-Chloro-3-methylphenol	ug/kg	1670	1570	94	63-125	
4-Chloroaniline	ug/kg	1670	810	49	30-125	
4-Chlorophenylphenyl ether	ug/kg	1670	1410	85	66-125	
4-Nitroaniline	ug/kg	1670	1430	86	60-125	
4-Nitrophenol	ug/kg	1670	1730	104	59-125	
Acenaphthene	ug/kg	1670	1410	84	62-125	
Acenaphthylene	ug/kg	1670	1420	85	64-125	
Anthracene	ug/kg	1670	1440	86	66-125	
Benzo(a)anthracene	ug/kg	1670	1480	89	66-125	
Benzo(a)pyrene	ug/kg	1670	1440	86	66-125	
Benzo(b)fluoranthene	ug/kg	1670	1390	83	65-125	
Benzo(g,h,i)perylene	ug/kg	1670	1510	90	67-125	
Benzo(k)fluoranthene	ug/kg	1670	1380	83	66-125	
bis(2-Chloroethoxy)methane	ug/kg	1670	1510	91	51-125	
bis(2-Chloroethyl) ether	ug/kg	1670	1780	107	30-125	
bis(2-Chloroisopropyl) ether	ug/kg	1670	1990	119	30-125	1M
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1580	95	68-125	
Butylbenzylphthalate	ug/kg	1670	1530	92	67-125	
Carbazole	ug/kg	1670	1460	88	63-125	
Chrysene	ug/kg	1670	1430	86	67-125	
Di-n-butylphthalate	ug/kg	1670	1520	91	68-125	
Di-n-octylphthalate	ug/kg	1670	1580	95	65-125	
Dibenz(a,h)anthracene	ug/kg	1670	1500	90	67-125	
Dibenzofuran	ug/kg	1670	1410	85	64-125	
Diethylphthalate	ug/kg	1670	1470	88	65-125	
Dimethylphthalate	ug/kg	1670	1460	88	63-125	
Fluoranthene	ug/kg	1670	1380	83	66-125	
Fluorene	ug/kg	1670	1450	87	64-125	
Hexachloro-1,3-butadiene	ug/kg	1670	1360	82	33-125	
Hexachlorobenzene	ug/kg	1670	1420	85	65-125	
Hexachloroethane	ug/kg	1670	1450	87	30-125	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1510	90	67-125	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE: 1848045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1620	97	56-125	
N-Nitroso-di-n-propylamine	ug/kg	1670	1690	102	45-125	
N-Nitrosodimethylamine	ug/kg	1670	1750	105	30-125	
N-Nitrosodiphenylamine	ug/kg	1670	1480	89	65-125	
Naphthalene	ug/kg	1670	1380	83	44-125	
Nitrobenzene	ug/kg	1670	1590	95	39-125	
Pentachlorophenol	ug/kg	1670	1330	80	45-125	
Phenanthrene	ug/kg	1670	1460	88	66-125	
Phenol	ug/kg	1670	1590	96	44-125	
Pyrene	ug/kg	1670	1470	88	67-125	
2,4,6-Tribromophenol (S)	%			87	41-125	
2-Fluorobiphenyl (S)	%			85	46-125	
2-Fluorophenol (S)	%			85	31-125	
Nitrobenzene-d5 (S)	%			91	30-125	
Phenol-d6 (S)	%			91	38-125	
Terphenyl-d14 (S)	%			88	64-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1848047 1848048

Parameter	Units	10288709001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec					
1,2,4-Trichlorobenzene	ug/kg	ND	3730	3730	2460	2030	66	55	38-125	19	30		
1,2-Dichlorobenzene	ug/kg	ND	3730	3730	2250	1780	61	48	42-125	23	30		
1,2-Diphenylhydrazine	ug/kg	ND	3730	3730	3950	3530	106	95	58-125	11	30		
1,3-Dichlorobenzene	ug/kg	ND	3730	3730	2220	1780	60	48	32-125	22	30		
1,4-Dichlorobenzene	ug/kg	ND	3730	3730	2290	1730	62	46	31-125	28	30		
1-Methylnaphthalene	ug/kg	ND	3730	3730	2890	2540	78	68	56-125	13	30		
2,4,5-Trichlorophenol	ug/kg	ND	3730	3730	3220	2810	86	76	56-125	14	30		
2,4,6-Trichlorophenol	ug/kg	ND	3730	3730	3210	2830	86	76	57-125	13	30		
2,4-Dichlorophenol	ug/kg	ND	3730	3730	3030	2630	82	71	55-125	14	30		
2,4-Dimethylphenol	ug/kg	ND	3730	3730	3240	2820	87	76	55-125	14	30		
2,4-Dinitrophenol	ug/kg	ND	3730	3730	1800	1560	48	42	30-127	14	30		
2,4-Dinitrotoluene	ug/kg	ND	3730	3730	3230	2970	87	80	36-129	9	30		
2,6-Dinitrotoluene	ug/kg	ND	3730	3730	3380	3100	91	83	37-127	9	30		
2-Chloronaphthalene	ug/kg	ND	3730	3730	3140	2790	85	75	56-125	12	30		
2-Chlorophenol	ug/kg	ND	3730	3730	2520	2050	68	55	46-125	21	30		
2-Methylnaphthalene	ug/kg	ND	3730	3730	2920	2530	79	68	54-125	15	30		
2-Methylphenol(o-Cresol)	ug/kg	ND	3730	3730	2950	2580	79	69	53-125	13	30		
2-Nitroaniline	ug/kg	ND	3730	3730	4130	3820	111	103	59-125	8	30		
2-Nitrophenol	ug/kg	ND	3730	3730	2680	2190	72	59	30-125	20	30		
3&4-Methylphenol	ug/kg	ND	3730	3730	3120	2690	84	72	54-125	15	30		
3,3'-Dichlorobenzidine	ug/kg	ND	3730	3730	1720	2200	46	59	30-148	24	30		
3-Nitroaniline	ug/kg	ND	3730	3730	2530	1960	68	53	31-125	25	30		
4,6-Dinitro-2-methylphenol	ug/kg	ND	3730	3730	2840J	2590J	76	70	30-150		30		
4-Bromophenylphenyl ether	ug/kg	ND	3730	3730	3360	2900	90	78	59-125	15	30		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1848047		1848048									
Parameter	Units	10288709001	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits				
4-Chloro-3-methylphenol	ug/kg	ND	3730	3730	3420	2990	92	80	62-125	13	30		
4-Chloroaniline	ug/kg	ND	3730	3730	1380	815	37	22	30-125	51	30	M1,R1	
4-Chlorophenylphenyl ether	ug/kg	ND	3730	3730	3300	2980	89	80	61-125	10	30		
4-Nitroaniline	ug/kg	ND	3730	3730	2560	2350	69	63	53-125	8	30		
4-Nitrophenol	ug/kg	ND	3730	3730	3800	3360	102	90	45-125	12	30		
Acenaphthene	ug/kg	ND	3730	3730	3160	2840	85	76	58-125	11	30		
Acenaphthylene	ug/kg	ND	3730	3730	3210	2870	86	77	59-125	11	30		
Anthracene	ug/kg	ND	3730	3730	3280	2920	88	79	54-125	11	30		
Benzo(a)anthracene	ug/kg	ND	3730	3730	3410	2960	92	80	61-125	14	30		
Benzo(a)pyrene	ug/kg	ND	3730	3730	3400	2930	91	79	41-129	15	30		
Benzo(b)fluoranthene	ug/kg	ND	3730	3730	3450	2930	93	79	43-129	17	30		
Benzo(g,h,i)perylene	ug/kg	ND	3730	3730	3500	3030	94	82	55-125	14	30		
Benzo(k)fluoranthene	ug/kg	ND	3730	3730	3350	2900	90	78	53-125	14	30		
bis(2-Chloroethoxy)methane	ug/kg	ND	3730	3730	2940	2460	79	66	52-125	18	30		
bis(2-Chloroethyl) ether	ug/kg	ND	3730	3730	3310	2450	89	66	30-125	30	30		
bis(2-Chloroisopropyl) ether	ug/kg	ND	3730	3730	3540	2710	95	73	30-127	27	30	1M	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	3730	3730	3700	3180	100	86	67-125	15	30		
Butylbenzylphthalate	ug/kg	ND	3730	3730	3640	3120	98	84	63-125	15	30		
Carbazole	ug/kg	ND	3730	3730	3290	2980	88	80	58-125	10	30		
Chrysene	ug/kg	ND	3730	3730	3380	3010	91	81	39-133	12	30		
Di-n-butylphthalate	ug/kg	ND	3730	3730	3500	3100	94	83	64-125	12	30		
Di-n-octylphthalate	ug/kg	ND	3730	3730	3660	3130	98	84	64-125	15	30		
Dibenz(a,h)anthracene	ug/kg	ND	3730	3730	3490	3060	94	82	58-125	13	30		
Dibenzofuran	ug/kg	ND	3730	3730	3310	2930	89	79	60-125	12	30		
Diethylphthalate	ug/kg	ND	3730	3730	3440	2950	93	79	63-125	15	30		
Dimethylphthalate	ug/kg	ND	3730	3730	3300	3010	89	81	63-125	9	30		
Fluoranthene	ug/kg	ND	3730	3730	3310	2870	89	77	54-125	14	30		
Fluorene	ug/kg	ND	3730	3730	3360	2940	90	79	60-125	13	30		
Hexachloro-1,3-butadiene	ug/kg	ND	3730	3730	2310	1810	62	49	35-125	24	30		
Hexachlorobenzene	ug/kg	ND	3730	3730	3380	2990	91	80	58-125	12	30		
Hexachloroethane	ug/kg	ND	3730	3730	2240	1660	60	45	30-125	30	30		
Indeno(1,2,3-cd)pyrene	ug/kg	ND	3730	3730	3500	3130	94	84	51-125	11	30		
Isophorone	ug/kg	ND	3730	3730	3220	2830	87	76	54-125	13	30		
N-Nitroso-di-n-propylamine	ug/kg	ND	3730	3730	3150	2710	85	73	51-125	15	30		
N-Nitrosodimethylamine	ug/kg	ND	3730	3730	2730	2060	73	55	30-130	28	30		
N-Nitrosodiphenylamine	ug/kg	ND	3730	3730	3310	2950	89	79	61-125	12	30		
Naphthalene	ug/kg	ND	3730	3730	2620	2180	70	59	46-125	18	30		
Nitrobenzene	ug/kg	ND	3730	3730	2890	2380	78	64	41-125	19	30		
Pentachlorophenol	ug/kg	ND	3730	3730	3050	2560	82	69	30-136	17	30		
Phenanthrene	ug/kg	ND	3730	3730	3330	2950	90	79	55-125	12	30		
Phenol	ug/kg	ND	3730	3730	2960	2520	80	68	49-125	16	30		
Pyrene	ug/kg	ND	3730	3730	3400	3020	91	81	43-129	12	30		
2,4,6-Tribromophenol (S)	%						86	79	41-125				
2-Fluorobiphenyl (S)	%						80	71	46-125				
2-Fluorophenol (S)	%						65	51	31-125				
Nitrobenzene-d5 (S)	%						71	60	30-125				

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1848047		1848048									
Parameter	Units	10288709001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Phenol-d6 (S)	%.						75	65	38-125				
Terphenyl-d14 (S)	%.						87	79	64-125				

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

QC Batch: OEXT/27253      Analysis Method: EPA 8270  
QC Batch Method: EPA 3520      Analysis Description: 8270 Water MSSV  
Associated Lab Samples: 10288603003

METHOD BLANK: 1843341      Matrix: Water  
Associated Lab Samples: 10288603003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	10.0	11/16/14 16:57	
1,2-Dichlorobenzene	ug/L	ND	10.0	11/16/14 16:57	
1,2-Diphenylhydrazine	ug/L	ND	10.0	11/16/14 16:57	
1,3-Dichlorobenzene	ug/L	ND	10.0	11/16/14 16:57	
1,4-Dichlorobenzene	ug/L	ND	10.0	11/16/14 16:57	
1-Methylnaphthalene	ug/L	ND	10.0	11/16/14 16:57	
2,4,5-Trichlorophenol	ug/L	ND	10.0	11/16/14 16:57	
2,4,6-Trichlorophenol	ug/L	ND	10.0	11/16/14 16:57	
2,4-Dichlorophenol	ug/L	ND	10.0	11/16/14 16:57	
2,4-Dimethylphenol	ug/L	ND	50.0	11/16/14 16:57	
2,4-Dinitrophenol	ug/L	ND	10.0	11/16/14 16:57	
2,4-Dinitrotoluene	ug/L	ND	10.0	11/16/14 16:57	
2,6-Dinitrotoluene	ug/L	ND	10.0	11/16/14 16:57	
2-Chloronaphthalene	ug/L	ND	10.0	11/16/14 16:57	
2-Chlorophenol	ug/L	ND	10.0	11/16/14 16:57	
2-Methylnaphthalene	ug/L	ND	10.0	11/16/14 16:57	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	11/16/14 16:57	
2-Nitroaniline	ug/L	ND	10.0	11/16/14 16:57	
2-Nitrophenol	ug/L	ND	10.0	11/16/14 16:57	
3&4-Methylphenol	ug/L	ND	20.0	11/16/14 16:57	
3,3'-Dichlorobenzidine	ug/L	ND	50.0	11/16/14 16:57	
3-Nitroaniline	ug/L	ND	10.0	11/16/14 16:57	
4,6-Dinitro-2-methylphenol	ug/L	ND	10.0	11/16/14 16:57	
4-Bromophenylphenyl ether	ug/L	ND	10.0	11/16/14 16:57	
4-Chloro-3-methylphenol	ug/L	ND	10.0	11/16/14 16:57	
4-Chloroaniline	ug/L	ND	50.0	11/16/14 16:57	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	11/16/14 16:57	
4-Nitroaniline	ug/L	ND	10.0	11/16/14 16:57	
4-Nitrophenol	ug/L	ND	10.0	11/16/14 16:57	
Acenaphthene	ug/L	ND	10.0	11/16/14 16:57	
Acenaphthylene	ug/L	ND	10.0	11/16/14 16:57	
Anthracene	ug/L	ND	10.0	11/16/14 16:57	
Benzo(a)anthracene	ug/L	ND	10.0	11/16/14 16:57	
Benzo(a)pyrene	ug/L	ND	10.0	11/16/14 16:57	
Benzo(b)fluoranthene	ug/L	ND	10.0	11/16/14 16:57	
Benzo(g,h,i)perylene	ug/L	ND	10.0	11/16/14 16:57	
Benzo(k)fluoranthene	ug/L	ND	10.0	11/16/14 16:57	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	11/16/14 16:57	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	11/16/14 16:57	
bis(2-Chloroisopropyl) ether	ug/L	ND	10.0	11/16/14 16:57	
bis(2-Ethylhexyl)phthalate	ug/L	ND	10.0	11/16/14 16:57	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

METHOD BLANK: 1843341

Matrix: Water

Associated Lab Samples: 10288603003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/L	ND	10.0	11/16/14 16:57	
Carbazole	ug/L	ND	10.0	11/16/14 16:57	
Chrysene	ug/L	ND	10.0	11/16/14 16:57	
Di-n-butylphthalate	ug/L	ND	10.0	11/16/14 16:57	
Di-n-octylphthalate	ug/L	ND	10.0	11/16/14 16:57	
Dibenz(a,h)anthracene	ug/L	ND	10.0	11/16/14 16:57	
Dibenzofuran	ug/L	ND	10.0	11/16/14 16:57	
Diethylphthalate	ug/L	ND	10.0	11/16/14 16:57	
Dimethylphthalate	ug/L	ND	10.0	11/16/14 16:57	
Fluoranthene	ug/L	ND	10.0	11/16/14 16:57	
Fluorene	ug/L	ND	10.0	11/16/14 16:57	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	11/16/14 16:57	
Hexachlorobenzene	ug/L	ND	10.0	11/16/14 16:57	
Hexachloroethane	ug/L	ND	10.0	11/16/14 16:57	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	11/16/14 16:57	
Isophorone	ug/L	ND	10.0	11/16/14 16:57	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	11/16/14 16:57	
N-Nitrosodimethylamine	ug/L	ND	10.0	11/16/14 16:57	
N-Nitrosodiphenylamine	ug/L	ND	10.0	11/16/14 16:57	
Naphthalene	ug/L	ND	10.0	11/16/14 16:57	
Nitrobenzene	ug/L	ND	10.0	11/16/14 16:57	
Pentachlorophenol	ug/L	ND	20.0	11/16/14 16:57	
Phenanthrene	ug/L	ND	10.0	11/16/14 16:57	
Phenol	ug/L	ND	10.0	11/16/14 16:57	
Pyrene	ug/L	ND	10.0	11/16/14 16:57	
2,4,6-Tribromophenol (S)	%	87	66-125	11/16/14 16:57	
2-Fluorobiphenyl (S)	%	75	55-125	11/16/14 16:57	
2-Fluorophenol (S)	%	65	53-125	11/16/14 16:57	
Nitrobenzene-d5 (S)	%	70	60-125	11/16/14 16:57	
Phenol-d6 (S)	%	66	59-125	11/16/14 16:57	
Terphenyl-d14 (S)	%	89	67-125	11/16/14 16:57	

LABORATORY CONTROL SAMPLE & LCSD: 1843342

1843343

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	45.4	44.0	91	88	60-125	3	20	
1,2-Dichlorobenzene	ug/L	50	41.0	39.9	82	80	59-125	3	20	
1,2-Diphenylhydrazine	ug/L	50	39.1	39.4	78	79	71-125	1	20	
1,3-Dichlorobenzene	ug/L	50	40.9	39.5	82	79	56-125	3	20	
1,4-Dichlorobenzene	ug/L	50	41.0	39.6	82	79	57-125	4	20	
1-Methylnaphthalene	ug/L	50	41.3	40.9	83	82	69-125	1	20	
2,4,5-Trichlorophenol	ug/L	50	42.8	44.2	86	88	75-125	3	20	
2,4,6-Trichlorophenol	ug/L	50	45.1	45.5	90	91	74-125	1	20	
2,4-Dichlorophenol	ug/L	50	43.7	43.1	87	86	68-125	1	20	

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE & LCSD:		1843342	1843343								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
2,4-Dimethylphenol	ug/L	50	36.7J	34.9J	73	70	45-125		20		
2,4-Dinitrophenol	ug/L	50	48.6	47.8	97	96	30-142	2	20	1M	
2,4-Dinitrotoluene	ug/L	50	43.4	43.4	87	87	75-125	0	20		
2,6-Dinitrotoluene	ug/L	50	43.0	43.7	86	87	75-125	2	20		
2-Chloronaphthalene	ug/L	50	43.4	44.0	87	88	72-125	1	20		
2-Chlorophenol	ug/L	50	40.3	39.1	81	78	57-125	3	20		
2-Methylnaphthalene	ug/L	50	42.5	41.4	85	83	70-125	3	20		
2-Methylphenol(o-Cresol)	ug/L	50	38.8	37.0	78	74	61-125	5	20		
2-Nitroaniline	ug/L	50	40.0	39.9	80	80	74-125	0	20		
2-Nitrophenol	ug/L	50	44.3	43.1	89	86	65-125	3	20		
3&4-Methylphenol	ug/L	50	38.9	37.4	78	75	65-125	4	20		
3,3'-Dichlorobenzidine	ug/L	50	49.9J	49.2J	100	98	65-129		20		
3-Nitroaniline	ug/L	50	39.2	42.4	78	85	70-127	8	20		
4,6-Dinitro-2-methylphenol	ug/L	50	49.8	47.7	100	95	45-134	4	20		
4-Bromophenylphenyl ether	ug/L	50	48.1	47.7	96	95	75-125	1	20		
4-Chloro-3-methylphenol	ug/L	50	41.3	40.8	83	82	75-125	1	20		
4-Chloroaniline	ug/L	50	37.5J	40.8J	75	82	45-125		20		
4-Chlorophenylphenyl ether	ug/L	50	44.5	44.9	89	90	75-125	1	20		
4-Nitroaniline	ug/L	50	37.2	37.8	74	76	71-125	2	20		
4-Nitrophenol	ug/L	50	36.3	36.3	73	73	65-126	0	20		
Acenaphthene	ug/L	50	42.6	43.3	85	87	75-125	2	20		
Acenaphthylene	ug/L	50	42.3	43.2	85	86	75-125	2	20		
Anthracene	ug/L	50	43.5	42.9	87	86	75-125	1	20		
Benzo(a)anthracene	ug/L	50	45.0	44.0	90	88	75-125	2	20		
Benzo(a)pyrene	ug/L	50	44.5	43.9	89	88	75-125	1	20		
Benzo(b)fluoranthene	ug/L	50	43.9	43.9	88	88	75-125	0	20		
Benzo(g,h,i)perylene	ug/L	50	44.9	44.7	90	89	75-125	0	20		
Benzo(k)fluoranthene	ug/L	50	46.2	46.0	92	92	75-125	0	20		
bis(2-Chloroethoxy)methane	ug/L	50	41.3	40.2	83	80	66-125	2	20		
bis(2-Chloroethyl) ether	ug/L	50	38.9	37.3	78	75	54-125	4	20		
bis(2-Chloroisopropyl) ether	ug/L	50	39.3	37.4	79	75	51-125	5	20		
bis(2-Ethylhexyl)phthalate	ug/L	50	44.6	68.8	89	138	75-125	43	20	L0,R1	
Butylbenzylphthalate	ug/L	50	44.7	43.1	89	86	75-125	4	20		
Carbazole	ug/L	50	41.5	40.7	83	81	75-125	2	20		
Chrysene	ug/L	50	44.7	43.5	89	87	75-125	3	20		
Di-n-butylphthalate	ug/L	50	43.5	42.9	87	86	75-125	1	20		
Di-n-octylphthalate	ug/L	50	44.6	43.6	89	87	75-125	2	20		
Dibenz(a,h)anthracene	ug/L	50	45.5	45.0	91	90	75-125	1	20		
Dibenzofuran	ug/L	50	43.0	43.4	86	87	75-125	1	20		
Diethylphthalate	ug/L	50	41.6	42.0	83	84	75-125	1	20		
Dimethylphthalate	ug/L	50	44.0	44.0	88	88	75-125	0	20		
Fluoranthene	ug/L	50	43.8	43.5	88	87	75-125	1	20		
Fluorene	ug/L	50	42.7	42.5	85	85	75-125	0	20		
Hexachloro-1,3-butadiene	ug/L	50	46.5	46.0	93	92	56-125	1	20		
Hexachlorobenzene	ug/L	50	49.0	48.1	98	96	75-125	2	20		
Hexachloroethane	ug/L	50	40.9	39.0	82	78	52-125	5	20		
Indeno(1,2,3-cd)pyrene	ug/L	50	45.3	45.2	91	90	75-125	0	20		

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

LABORATORY CONTROL SAMPLE & LCSD:		1843342	1843343							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Isophorone	ug/L	50	40.7	40.7	81	81	71-125	0	20	
N-Nitroso-di-n-propylamine	ug/L	50	38.5	37.2	77	74	65-125	3	20	
N-Nitrosodimethylamine	ug/L	50	28.1	27.7	56	55	54-125	1	20	1M
N-Nitrosodiphenylamine	ug/L	50	43.3	43.0	87	86	75-125	1	20	
Naphthalene	ug/L	50	41.7	40.9	83	82	65-125	2	20	
Nitrobenzene	ug/L	50	41.2	40.3	82	81	61-125	2	20	
Pentachlorophenol	ug/L	50	34.0	31.9	68	64	46-128	6	20	
Phenanthrene	ug/L	50	43.5	42.1	87	84	75-125	3	20	
Phenol	ug/L	50	38.3	36.9	77	74	60-125	4	20	
Pyrene	ug/L	50	46.1	45.5	92	91	75-125	1	20	
2,4,6-Tribromophenol (S)	%				93	92	66-125			
2-Fluorobiphenyl (S)	%				82	83	55-125			
2-Fluorophenol (S)	%				75	72	53-125			
Nitrobenzene-d5 (S)	%				78	76	60-125			
Phenol-d6 (S)	%				73	70	59-125			
Terphenyl-d14 (S)	%				89	88	67-125			

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch: OEXT/27318 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10288603001, 10288603002, 10288603004

METHOD BLANK: 1847413 Matrix: Solid

Associated Lab Samples: 10288603001, 10288603002, 10288603004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	11/20/14 15:21	
n-Triacontane (S)	%.	76	50-150	11/20/14 15:21	

LABORATORY CONTROL SAMPLE & LCSD: 1847414

1847415

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	72.1	78.7	90	98	70-120	9	20	
n-Triacontane (S)	%.				93	97	50-150			

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### QUALITY CONTROL DATA

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

QC Batch:	OEXT/27266	Analysis Method:	WI MOD DRO
QC Batch Method:	WI MOD DRO	Analysis Description:	WIDRO GCS
Associated Lab Samples:	10288603003		

METHOD BLANK: 1844215 Matrix: Water

Associated Lab Samples: 10288603003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	11/15/14 13:25	
n-Triacontane (S)	%.	77	50-150	11/15/14 13:25	

LABORATORY CONTROL SAMPLE & LCSD: 1844216

1844217

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	1.8	90	91	75-115	1	20	
n-Triacontane (S)	%.				90	90	50-150			

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## QUALIFIERS

Project: 1402370-01 MnDOT I35W

Pace Project No.: 10288603

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

### BATCH QUALIFIERS

Batch: MSSV/11428

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1M The associated compound was outside of 20% for the associated continuing calibration but within 40% of the true value.

2M The sample was analyzed at a dilution due to a large amount of sediment in the vials.

B Analyte was detected in the associated method blank.

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

L0 Analyte recovery in the laboratory control sample (LCS) was outside QC limits.

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

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.

P8 Analyte was detected in the method blank. All associated samples had concentrations of at least ten times greater than the blank or were below the reporting limit.

R1 RPD value was outside control limits.

pH Post-analysis pH measurement indicates insufficient VOA sample preservation.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 1402370-01 MnDOT I35W  
Pace Project No.: 10288603

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10288603001	DP-4 (4-5)	WI MOD DRO	OEXT/27318	WI MOD DRO	GCSV/14533
10288603002	DP-11 (4-5)	WI MOD DRO	OEXT/27318	WI MOD DRO	GCSV/14533
10288603004	DP-13 (4-5)	WI MOD DRO	OEXT/27318	WI MOD DRO	GCSV/14533
10288603003	DP-11	WI MOD DRO	OEXT/27266	WI MOD DRO	GCSV/14506
10288603001	DP-4 (4-5)	TPH GRO/PVOC WI ext.	GCV/12969	WI MOD GRO	GCV/12978
10288603002	DP-11 (4-5)	TPH GRO/PVOC WI ext.	GCV/12969	WI MOD GRO	GCV/12978
10288603004	DP-13 (4-5)	TPH GRO/PVOC WI ext.	GCV/12969	WI MOD GRO	GCV/12978
10288603003	DP-11	WI MOD GRO	GCV/12968		
10288603001	DP-4 (4-5)	EPA 3050	MPRP/50619	EPA 6010C	ICP/21748
10288603002	DP-11 (4-5)	EPA 3050	MPRP/50619	EPA 6010C	ICP/21748
10288603004	DP-13 (4-5)	EPA 3050	MPRP/50619	EPA 6010C	ICP/21748
10288603003	DP-11	EPA 3010	MPRP/50836	EPA 6010C	ICP/21848
10288603003	DP-11	EPA 7470A	MERP/12149	EPA 7470A	MERC/14062
10288603001	DP-4 (4-5)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288603002	DP-11 (4-5)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288603004	DP-13 (4-5)	EPA 7471B	MERP/12157	EPA 7471B	MERC/14090
10288603001	DP-4 (4-5)	ASTM D2974	MPRP/50834		
10288603002	DP-11 (4-5)	ASTM D2974	MPRP/50834		
10288603004	DP-13 (4-5)	ASTM D2974	MPRP/50834		
10288603001	DP-4 (4-5)	EPA 3550	OEXT/27330	EPA 8270	MSSV/11458
10288603002	DP-11 (4-5)	EPA 3550	OEXT/27330	EPA 8270	MSSV/11458
10288603004	DP-13 (4-5)	EPA 3550	OEXT/27330	EPA 8270	MSSV/11458
10288603003	DP-11	EPA 3520	OEXT/27253	EPA 8270	MSSV/11428
10288603001	DP-4 (4-5)	EPA 5035/5030B	MSV/29444	EPA 8260	MSV/29457
10288603002	DP-11 (4-5)	EPA 5035/5030B	MSV/29444	EPA 8260	MSV/29457
10288603004	DP-13 (4-5)	EPA 5035/5030B	MSV/29444	EPA 8260	MSV/29457
10288603006	TB	EPA 5035/5030B	MSV/29444	EPA 8260	MSV/29457
10288603003	DP-11	EPA 8260	MSV/29455		
10288603005	TB	EPA 8260	MSV/29455		

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Sample Condition Upon Receipt

Client Name: WSP Project #: \_\_\_\_\_

WO#: **10288603**



Courier:  Fed Ex  UPS  USPS  Client  
 Commercial  Pace  SpeeDee  Other: \_\_\_\_\_

Tracking Number: \_\_\_\_\_

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

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

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

Cooler Temp Read (°C): 1.5 Cooler Temp Corrected (°C): 1.5 Biological Tissue Frozen?  Yes  No  N/A  
 Temp should be above freezing to 6°C Correction Factor: +0.3 Date and Initials of Person Examining Contents: 10/11/14

				Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	5.
Short Hold Time Analysis (<72 hr)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	6.
Rush Turn Around Time Requested?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>WT, SL</u>				
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> HCl
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide) Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Sample # <u>03</u>
	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	Initial when completed: <u>1/4</u> Lot # of added preservative: <u>11140410</u>
Headspace in VOA Vials (>6mm)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	14. <u>1/6 DP-01</u>
Trip Blank Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>090814-3</u>				<u>10/11/14</u>

CLIENT NOTIFICATION/RESOLUTION

Field Data Required?  Yes  No

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_  
 Comments/Resolution: \_\_\_\_\_

Project Manager Review: Karl Xiong Date: Nov. 13, 2014  
 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)

Data File: \\192.168.10.12\chem\10gcs9.i\112014dro.b\112014000071.D

Report Date: 11/21/2014

Sample ID: 10288603001

Client ID:

Instrument: 10gcs9.i

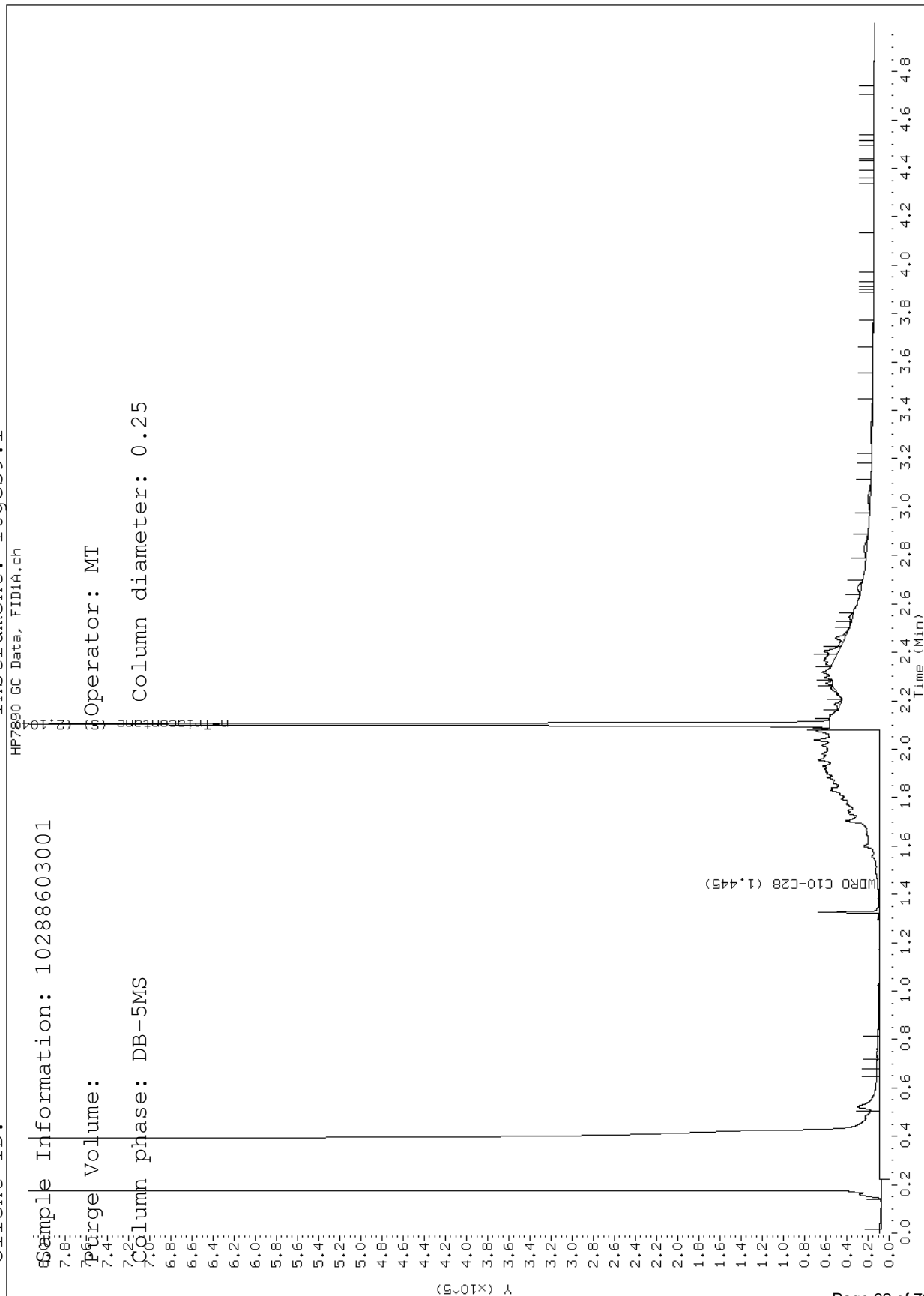
Sample Information: 10288603001

Purge Volume: 7.4

Operator: MT

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcs9.i\112014dro.b\112014000075.D

Report Date: 11/21/2014

Sample ID: 10288603002

Client ID:

Instrument: 10gcs9.i

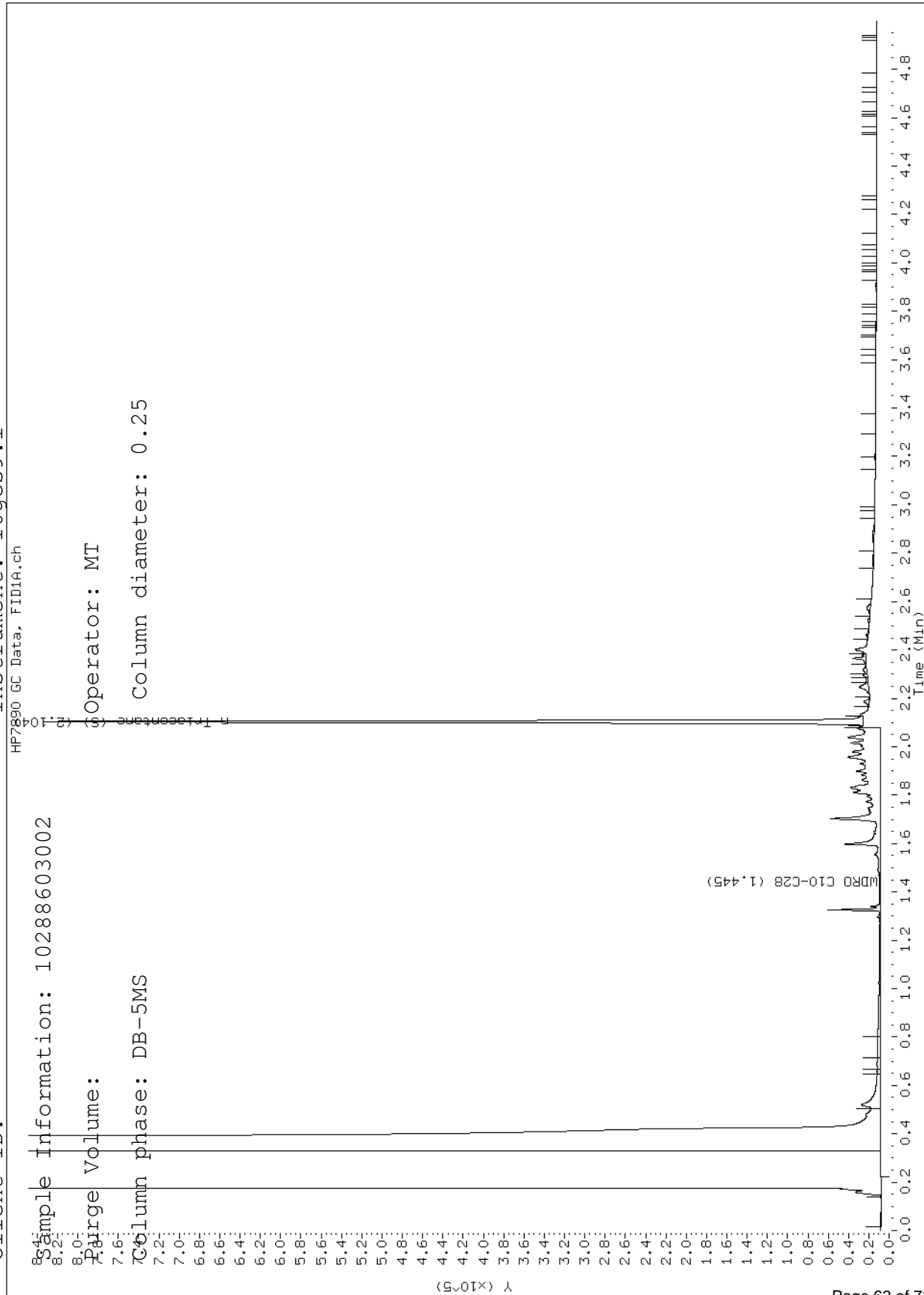
Sample Information: 10288603002

Purge Volume:

Operator: MT

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcs9.i\112014dro.b\112014000070.D

Report Date: 11/21/2014

Sample ID: 10288603004

Client ID:

Instrument: 10gcs9.i

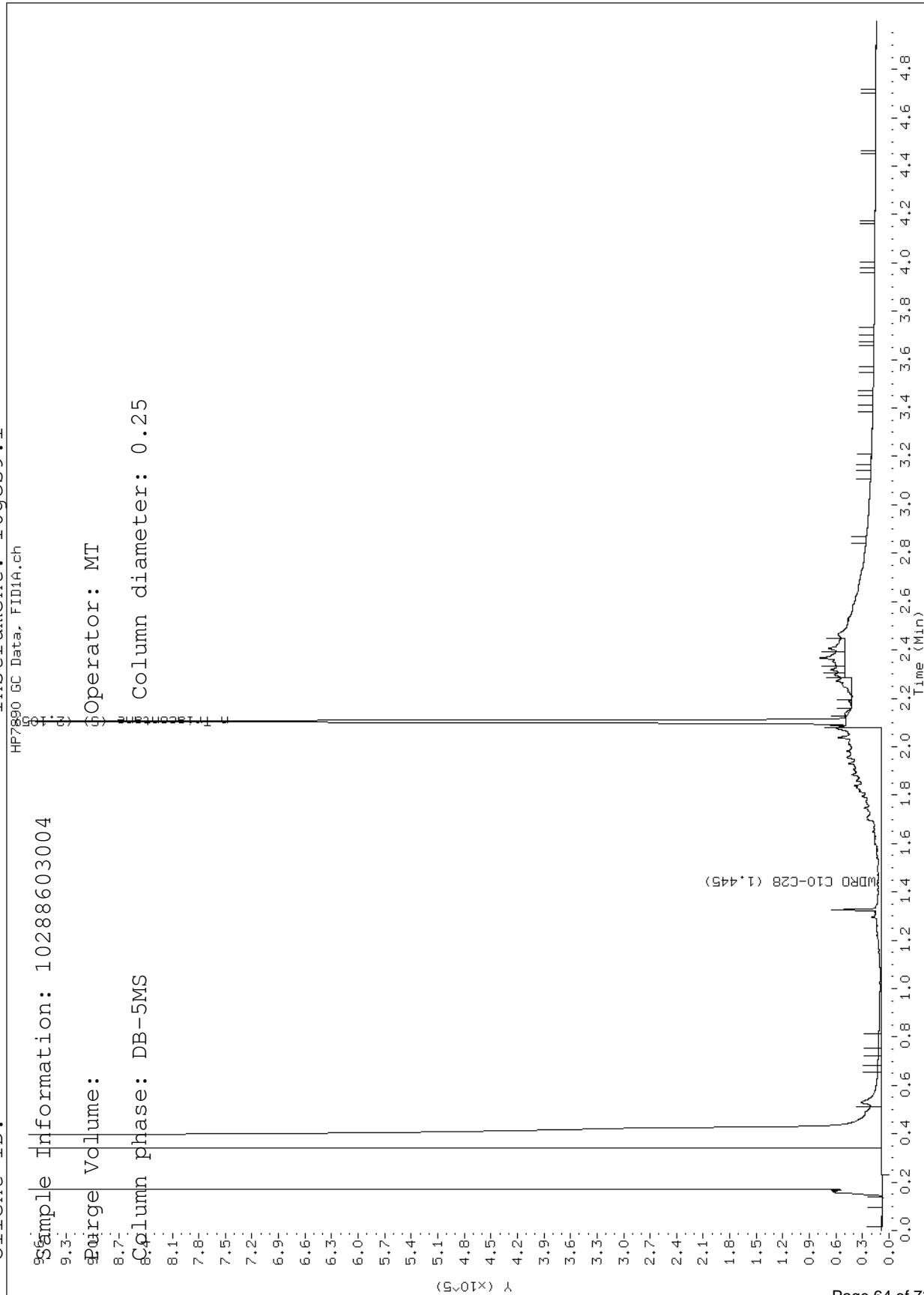
Sample Information: 10288603004

Purge Volume:

Operator: MT

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150023.D

Report Date: 11/16/2014

Sample ID: 10288603003

Client ID:

Instrument: 10gcs4.i

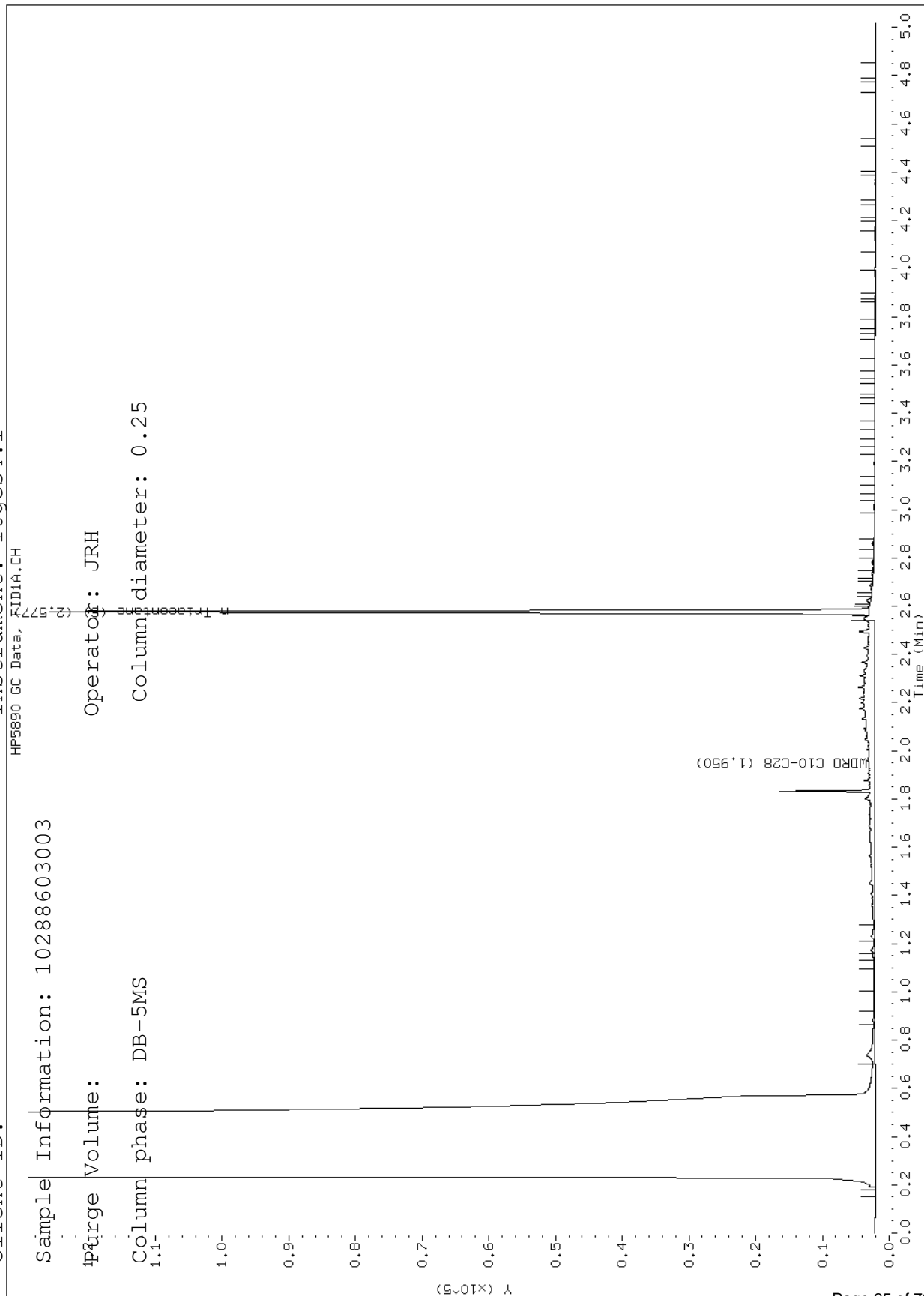
Sample Information: 10288603003

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25





Data File: \\192.168.10.12\chem\10gcv9.i\112414b-1.b\112414039.d

Report Date: 11/25/2014

Sample ID: 10288603001

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

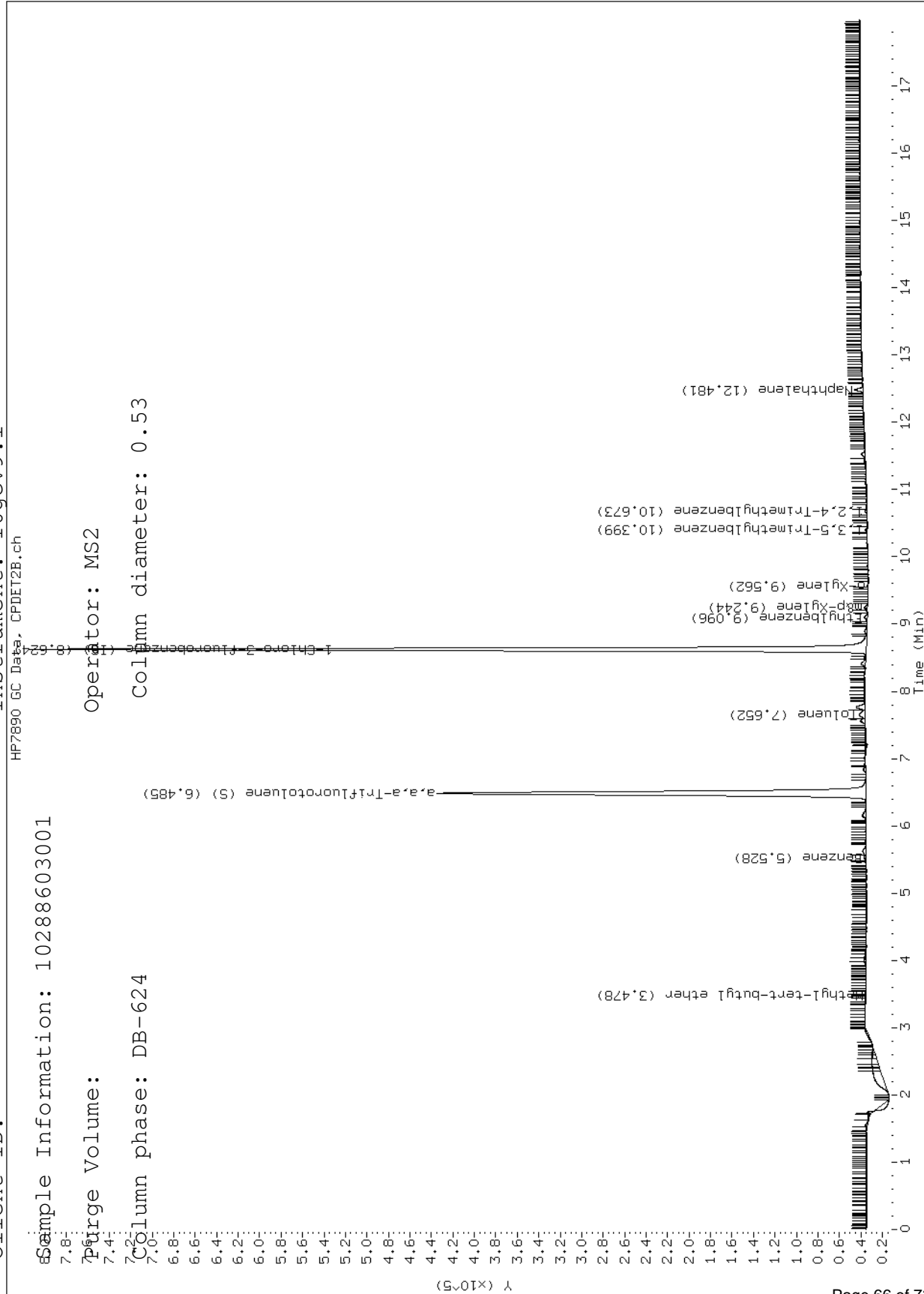
Sample Information: 10288603001

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112414b-2.b\112414039.d

Report Date: 11/25/2014

Sample ID: 10288603001

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

1.9- Sample Information: 10288603001

1.8- Purge Volume:

Operator: MS2

1.7- Column phase: DB-624

Column diameter: 0.53

1.6-

1.5-

1.4-

1.3-

1.2-

1.1-

(8.10X) Y

1.0-

0.9-

0.8-

0.7-

0.6-

0.5-

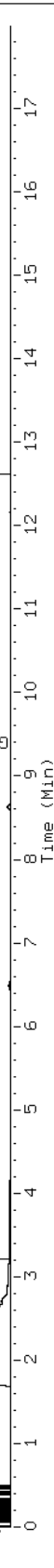
0.4-

0.3-

0.2-

0.1-

0



Gasoline Range Organics (9.400)

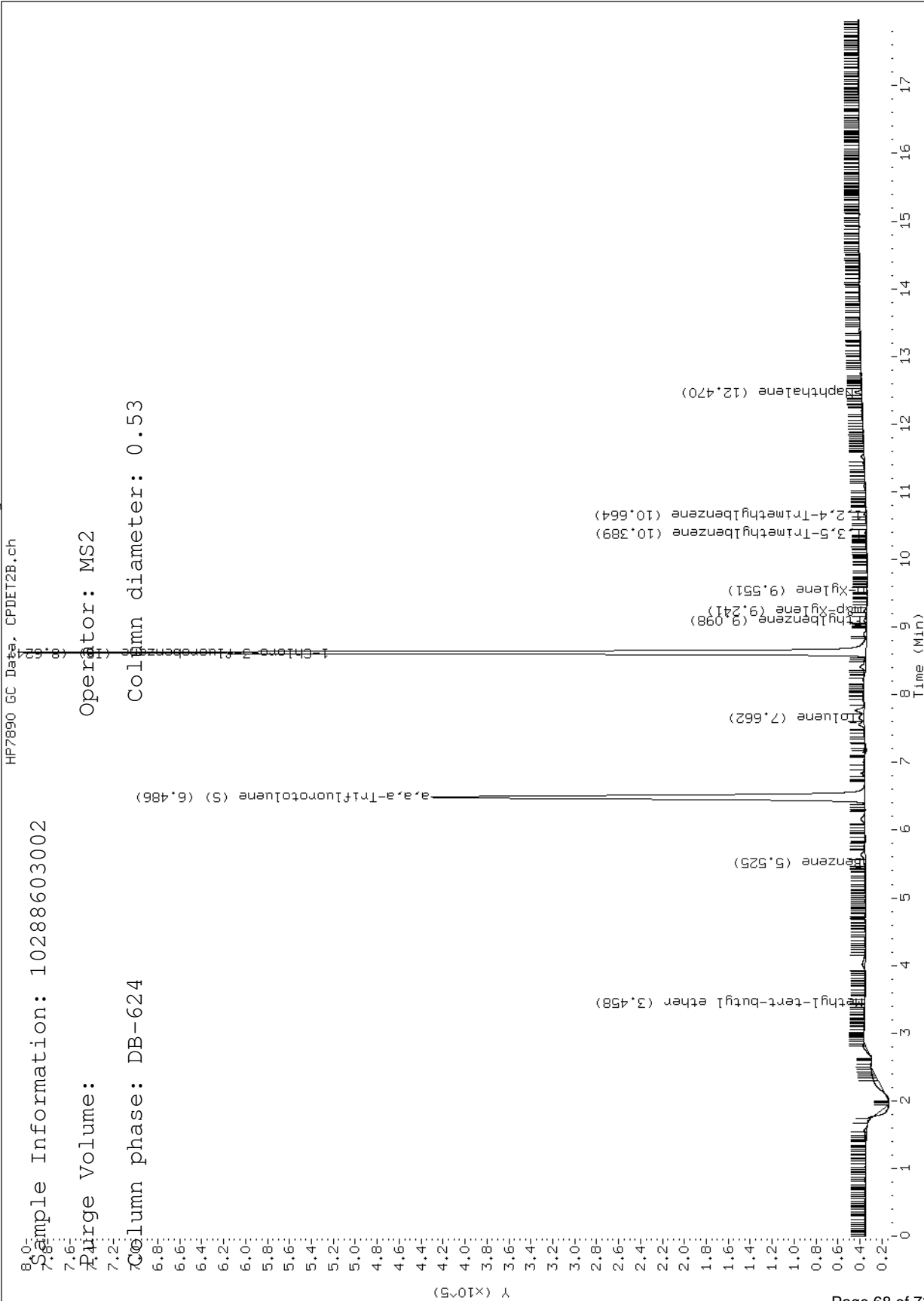
Data File: \\192.168.10.12\chem\10gcv9.i\112414b-1.b\112414040.d

Report Date: 11/25/2014

Sample ID: 10288603002

Client ID:

Instrument: 10gcv9.i



Data File: \\192.168.10.12\chem\10gcv9.i\112414b-2.b\112414040.d

Report Date: 11/25/2014

Sample ID: 10288603002

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

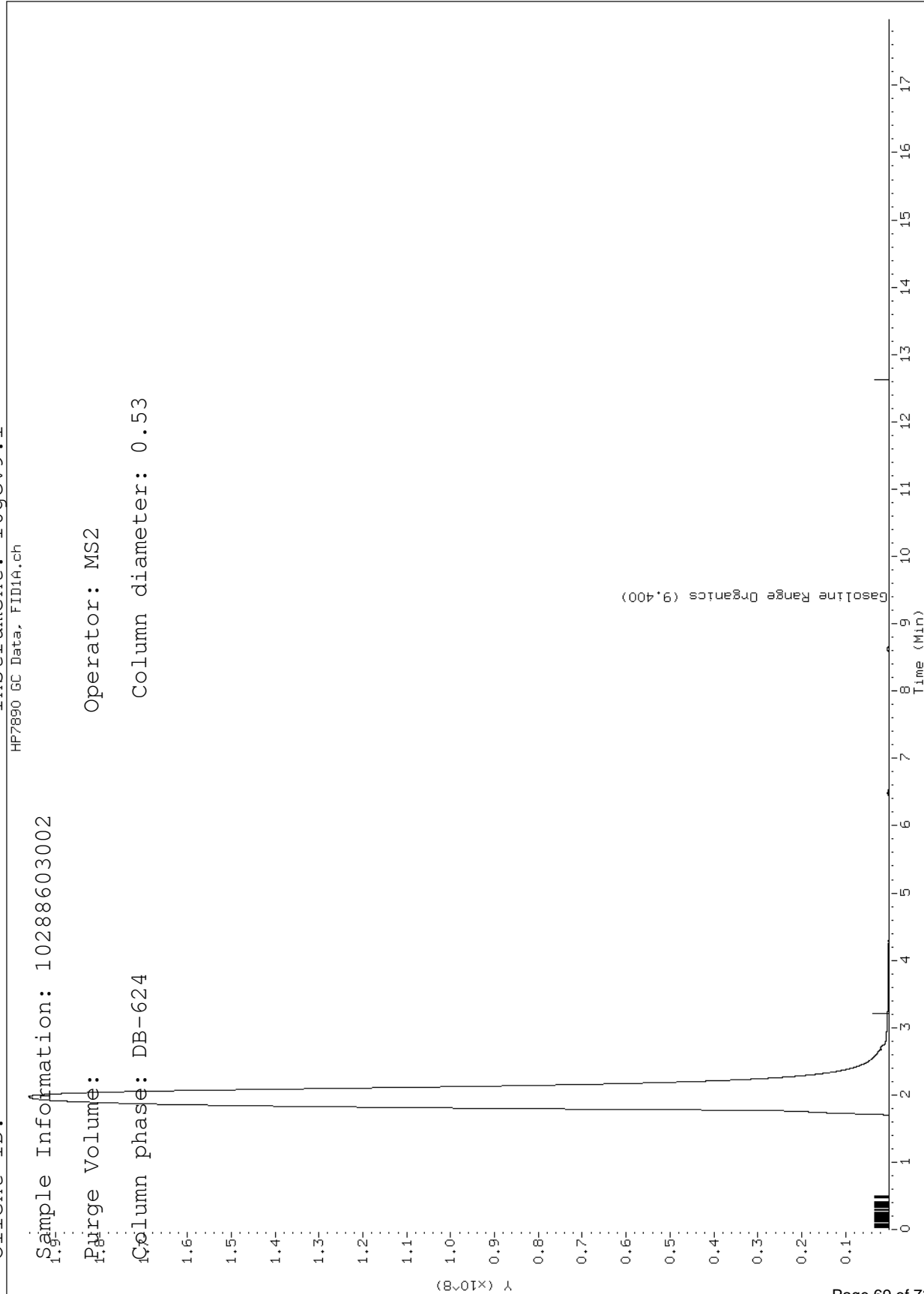
Sample Information: 10288603002

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



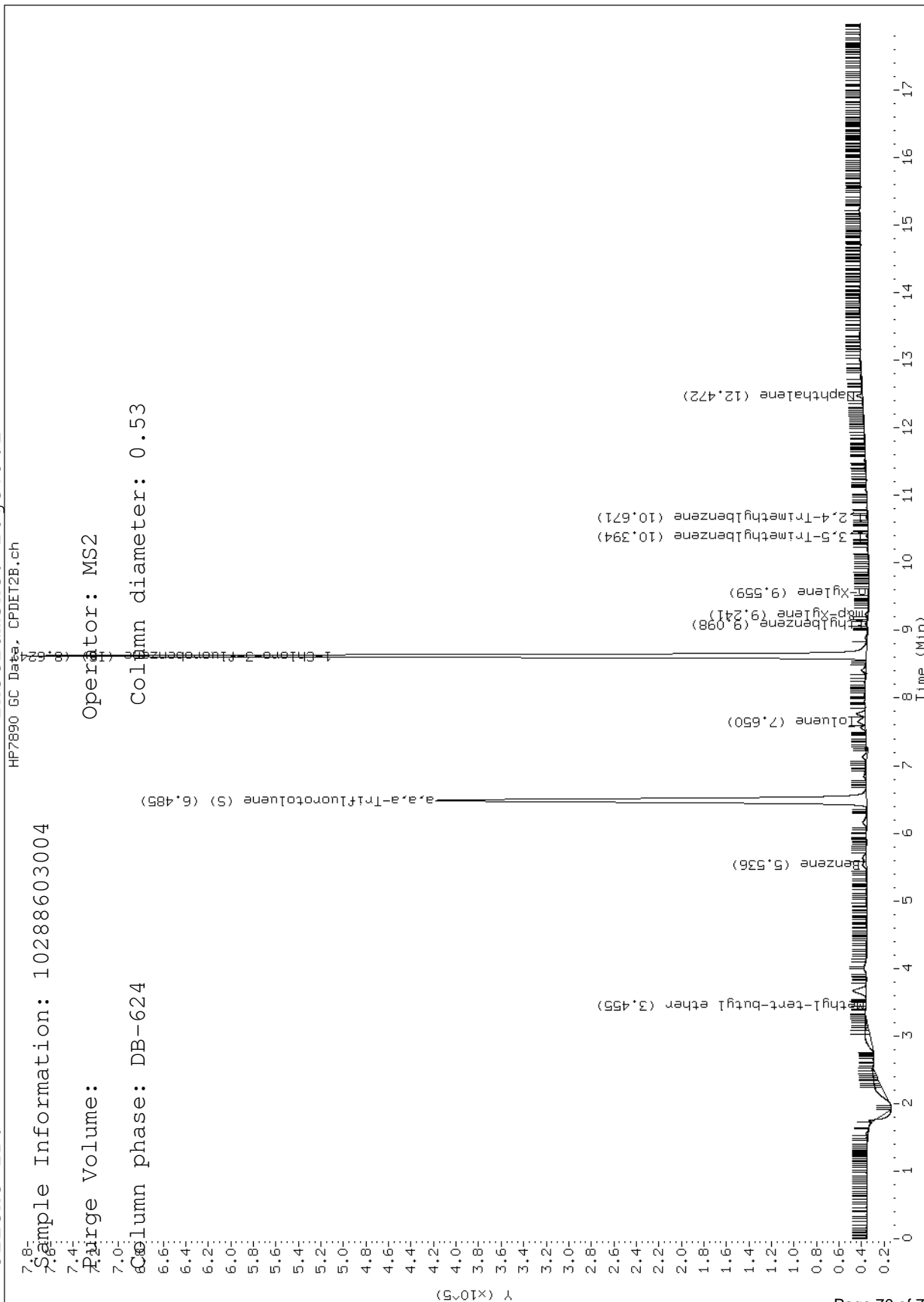
Data File: \\192.168.10.12\chem\10gcv9.i\112414b-1.b\112414041.d

Report Date: 11/25/2014

Sample ID: 10288603004

Client ID:

Instrument: 10gcv9.i



Data File: \\192.168.10.12\chem\10gcv9.i\112414b-2.b\112414041.d

Report Date: 11/25/2014

Sample ID: 10288603004

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

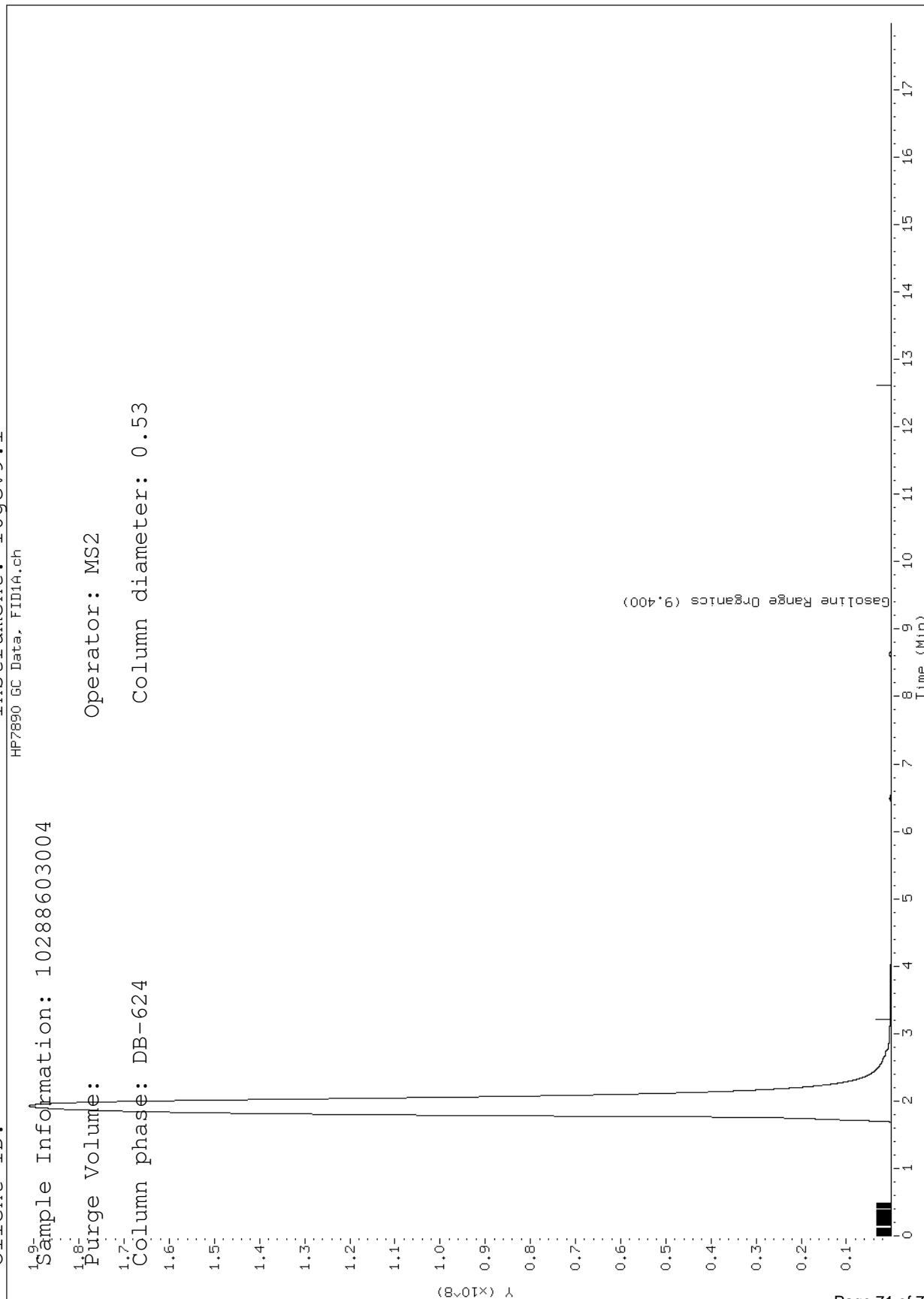
Sample Information: 10288603004

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Gasoline Range Organics (9.400)

Data File: \\192.168.10.12\chem\10gcv9.i\112514b-1.b\112514041.d

Report Date: 11/26/2014

Sample ID: 10288603003

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

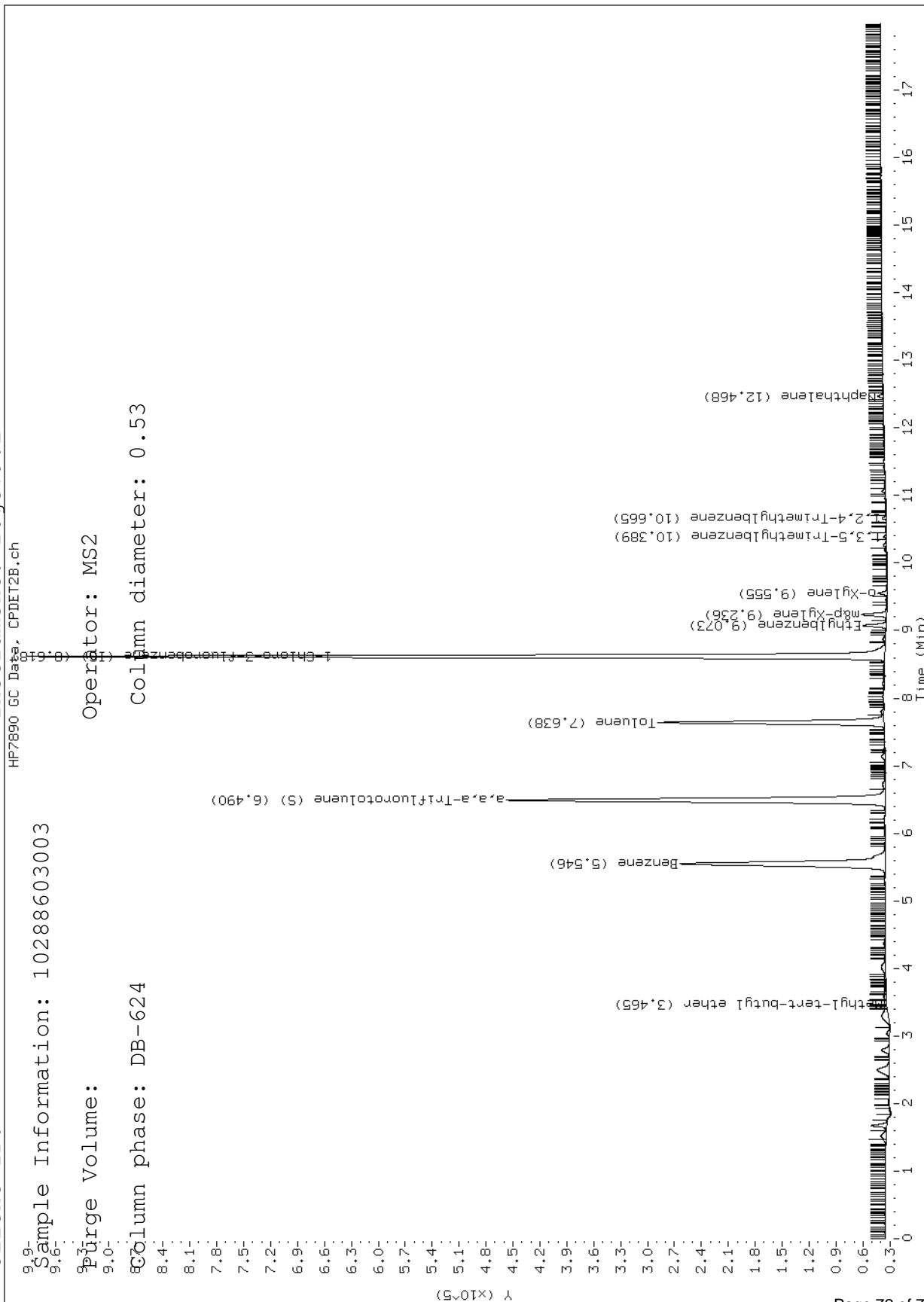
Sample Information: 10288603003

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112514b-2.b\112514041.d

Report Date: 11/26/2014

Sample ID: 10288603003

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

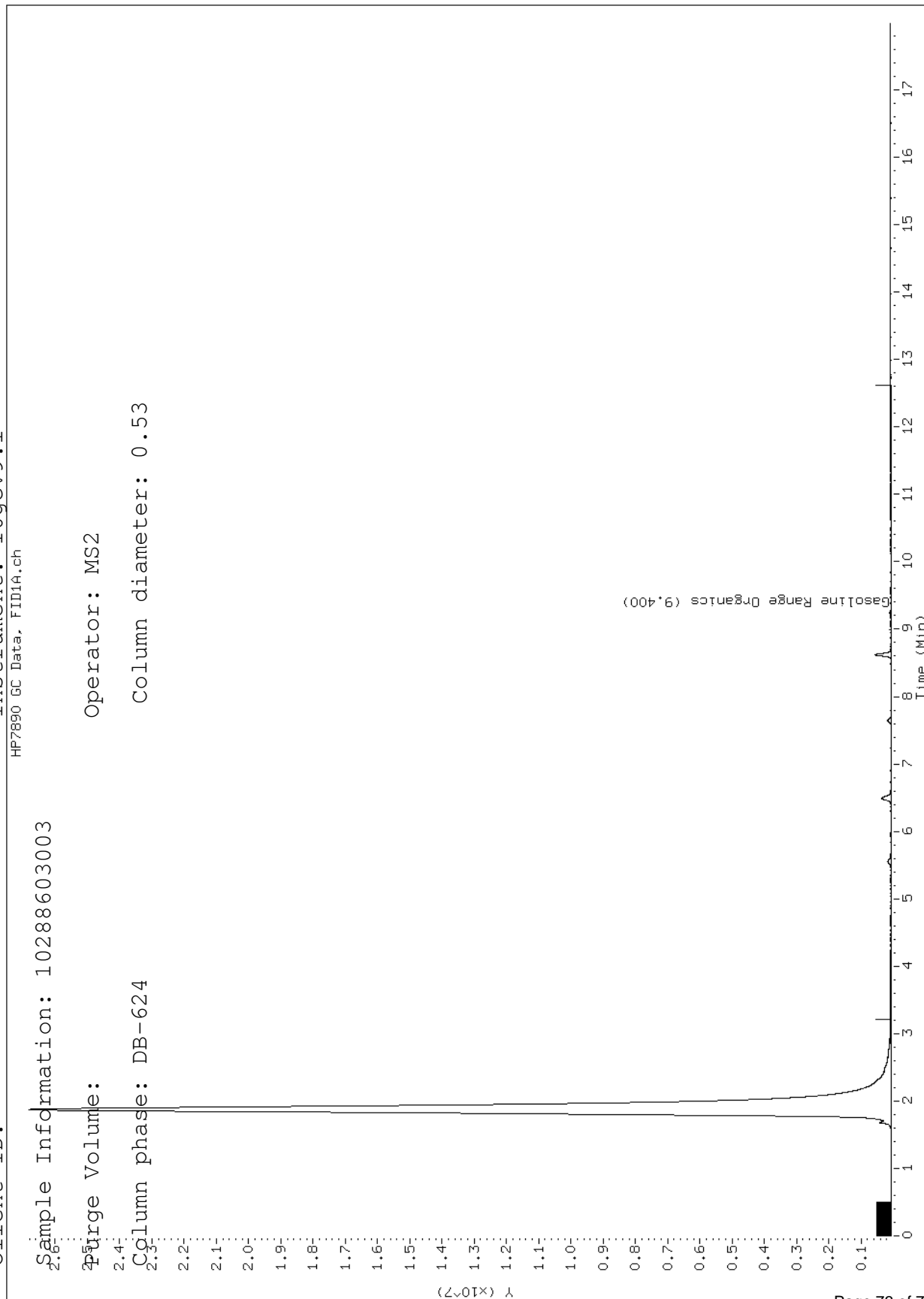
Sample Information: 10288603003

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53





December 02, 2014

Ms. Paula Berger  
WSP Environment and Energy  
123 North Third Street  
Suite 808  
Minneapolis, MN 55401

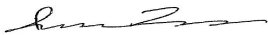
RE: Project: MnDOT I35W  
Pace Project No.: 10288662

Dear Ms. Berger:

Enclosed are the analytical results for sample(s) received by the laboratory on November 13, 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 for  
Kabor Xiong  
kabor.xiong@pacelabs.com  
Project Manager

Enclosures

cc: Ms. Judy Andrews, WSP Environment and Energy



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: MnDOT I35W

Pace Project No.: 10288662

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### Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN\_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

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

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: MnDOT I35W

Pace Project No.: 10288662

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10288662001	DP-6(6-8)	Solid	11/13/14 09:15	11/13/14 17:11
10288662002	DP-6	Water	11/13/14 09:40	11/13/14 17:11
10288662003	DP-7(8-10)	Solid	11/13/14 11:15	11/13/14 17:11
10288662004	DP-7	Water	11/13/14 11:55	11/13/14 17:11
10288662005	DP-12(4-5)	Solid	11/13/14 13:25	11/13/14 17:11
10288662006	DP-5(9-10)	Solid	11/13/14 15:10	11/13/14 17:11
10288662007	TB 111314	Solid	11/13/14 00:00	11/13/14 17:11

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: MnDOT I35W

Pace Project No.: 10288662

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10288662001	DP-6(6-8)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288662002	DP-6	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	SH2	70	PASI-M
10288662003	DP-7(8-10)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288662004	DP-7	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	MS2	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	SH2	70	PASI-M
10288662005	DP-12(4-5)	WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
10288662006	DP-5(9-10)	EPA 8260	LPM	70	PASI-M
		WI MOD DRO	JRH	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: MnDOT I35W

Pace Project No.: 10288662

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288662007	TB 111314	EPA 8260	LPM	70	PASI-M

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-6(6-8)**      **Lab ID: 10288662001**      Collected: 11/13/14 09:15      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>20.2</b>	mg/kg	11.3	1.7	1	11/20/14 16:19	11/21/14 18:33		T6
<b>Surrogates</b>									
n-Triacontane (S)	88 %		50-150		1	11/20/14 16:19	11/21/14 18:33	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	16.9	8.5	1	11/24/14 09:21	11/27/14 04:00		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	77 %		80-125		1	11/24/14 09:21	11/27/14 04:00	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>7.2</b>	mg/kg	1.5	0.44	1	11/20/14 12:22	11/21/14 22:27	7440-38-2	
Barium	<b>1550</b>	mg/kg	7.6	0.84	10	11/20/14 12:22	11/24/14 18:02	7440-39-3	
Cadmium	<b>0.33</b>	mg/kg	0.23	0.026	1	11/20/14 12:22	11/21/14 22:27	7440-43-9	
Chromium	<b>27.0</b>	mg/kg	0.76	0.099	1	11/20/14 12:22	11/21/14 22:27	7440-47-3	
Lead	<b>10.5</b>	mg/kg	1.5	0.11	1	11/20/14 12:22	11/21/14 22:27	7439-92-1	
Selenium	<b>6.3J</b>	mg/kg	11.4	5.2	10	11/20/14 12:22	11/24/14 18:02	7782-49-2	
Silver	ND	mg/kg	0.76	0.076	1	11/20/14 12:22	11/21/14 22:27	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.056</b>	mg/kg	0.029	0.0086	1	11/18/14 21:45	11/20/14 13:42	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>34.2</b>	%	0.10	0.10	1		12/01/14 08:31		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	83-32-9	
Acenaphthylene	ND	ug/kg	502	98.1	1	11/25/14 10:30	11/30/14 14:15	208-96-8	
Anthracene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	120-12-7	
Benzo(a)anthracene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	56-55-3	
Benzo(a)pyrene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	502	63.6	1	11/25/14 10:30	11/30/14 14:15	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	502	61.0	1	11/25/14 10:30	11/30/14 14:15	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	101-55-3	
Butylbenzylphthalate	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	85-68-7	
Carbazole	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	59-50-7	
4-Chloroaniline	ND	ug/kg	502	128	1	11/25/14 10:30	11/30/14 14:15	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	108-60-1	
2-Chloronaphthalene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	91-58-7	
2-Chlorophenol	ND	ug/kg	502	62.7	1	11/25/14 10:30	11/30/14 14:15	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	7005-72-3	
Chrysene	ND	ug/kg	502	67.4	1	11/25/14 10:30	11/30/14 14:15	218-01-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

Sample: DP-6(6-8) Lab ID: 10288662001 Collected: 11/13/14 09:15 Received: 11/13/14 17:11 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	53-70-3	
Dibenzofuran	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	502	58.6	1	11/25/14 10:30	11/30/14 14:15	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	502	142	1	11/25/14 10:30	11/30/14 14:15	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	120-83-2	
Diethylphthalate	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	502	88.2	1	11/25/14 10:30	11/30/14 14:15	105-67-9	
Dimethylphthalate	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	131-11-3	
Di-n-butylphthalate	ND	ug/kg	502	69.6	1	11/25/14 10:30	11/30/14 14:15	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2580	1290	1	11/25/14 10:30	11/30/14 14:15	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	502	97.0	1	11/25/14 10:30	11/30/14 14:15	606-20-2	
Di-n-octylphthalate	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	502	85.8	1	11/25/14 10:30	11/30/14 14:15	117-81-7	
Fluoranthene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	206-44-0	
Fluorene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	502	50.9	1	11/25/14 10:30	11/30/14 14:15	87-68-3	
Hexachlorobenzene	ND	ug/kg	502	65.9	1	11/25/14 10:30	11/30/14 14:15	118-74-1	
Hexachloroethane	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	193-39-5	
Isophorone	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	78-59-1	
1-Methylnaphthalene	ND	ug/kg	502	58.9	1	11/25/14 10:30	11/30/14 14:15	90-12-0	
2-Methylnaphthalene	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	95-48-7	
3&4-Methylphenol	ND	ug/kg	1000	251	1	11/25/14 10:30	11/30/14 14:15		
Naphthalene	ND	ug/kg	502	35.8	1	11/25/14 10:30	11/30/14 14:15	91-20-3	
2-Nitroaniline	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	88-74-4	
3-Nitroaniline	ND	ug/kg	502	111	1	11/25/14 10:30	11/30/14 14:15	99-09-2	
4-Nitroaniline	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	100-01-6	
Nitrobenzene	ND	ug/kg	502	56.6	1	11/25/14 10:30	11/30/14 14:15	98-95-3	
2-Nitrophenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	88-75-5	
4-Nitrophenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	86-30-6	
Pentachlorophenol	ND	ug/kg	1020	251	1	11/25/14 10:30	11/30/14 14:15	87-86-5	
Phenanthrene	ND	ug/kg	502	71.7	1	11/25/14 10:30	11/30/14 14:15	85-01-8	
Phenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	108-95-2	
Pyrene	ND	ug/kg	502	63.3	1	11/25/14 10:30	11/30/14 14:15	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	502	54.8	1	11/25/14 10:30	11/30/14 14:15	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	502	55.6	1	11/25/14 10:30	11/30/14 14:15	95-95-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

**Sample: DP-6(6-8)**      **Lab ID: 10288662001**      Collected: 11/13/14 09:15      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	502	251	1	11/25/14 10:30	11/30/14 14:15	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	43 %		30-125		1	11/25/14 10:30	11/30/14 14:15	4165-60-0	
2-Fluorobiphenyl (S)	59 %		46-125		1	11/25/14 10:30	11/30/14 14:15	321-60-8	
Terphenyl-d14 (S)	65 %		64-125		1	11/25/14 10:30	11/30/14 14:15	1718-51-0	
Phenol-d6 (S)	40 %		38-125		1	11/25/14 10:30	11/30/14 14:15	13127-88-3	
2-Fluorophenol (S)	18 %		31-125		1	11/25/14 10:30	11/30/14 14:15	367-12-4	S5
2,4,6-Tribromophenol (S)	7 %		41-125		1	11/25/14 10:30	11/30/14 14:15	118-79-6	S5
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1510	753	1	11/21/14 18:26	11/23/14 06:46	67-64-1	CL
Allyl chloride	ND	ug/kg	301	9.9	1	11/21/14 18:26	11/23/14 06:46	107-05-1	
Benzene	ND	ug/kg	30.1	15.1	1	11/21/14 18:26	11/23/14 06:46	71-43-2	
Bromobenzene	ND	ug/kg	75.3	13.1	1	11/21/14 18:26	11/23/14 06:46	108-86-1	
Bromochloromethane	ND	ug/kg	75.3	10.3	1	11/21/14 18:26	11/23/14 06:46	74-97-5	
Bromodichloromethane	ND	ug/kg	75.3	13.4	1	11/21/14 18:26	11/23/14 06:46	75-27-4	
Bromoform	ND	ug/kg	301	151	1	11/21/14 18:26	11/23/14 06:46	75-25-2	
Bromomethane	ND	ug/kg	753	377	1	11/21/14 18:26	11/23/14 06:46	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1510	188	1	11/21/14 18:26	11/23/14 06:46	78-93-3	
n-Butylbenzene	ND	ug/kg	75.3	9.1	1	11/21/14 18:26	11/23/14 06:46	104-51-8	
sec-Butylbenzene	ND	ug/kg	75.3	8.9	1	11/21/14 18:26	11/23/14 06:46	135-98-8	
tert-Butylbenzene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	98-06-6	
Carbon tetrachloride	ND	ug/kg	75.3	12.2	1	11/21/14 18:26	11/23/14 06:46	56-23-5	
Chlorobenzene	ND	ug/kg	75.3	11.6	1	11/21/14 18:26	11/23/14 06:46	108-90-7	
Chloroethane	ND	ug/kg	753	19.0	1	11/21/14 18:26	11/23/14 06:46	75-00-3	
Chloroform	ND	ug/kg	75.3	11.5	1	11/21/14 18:26	11/23/14 06:46	67-66-3	
Chloromethane	ND	ug/kg	301	13.7	1	11/21/14 18:26	11/23/14 06:46	74-87-3	
2-Chlorotoluene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	95-49-8	
4-Chlorotoluene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	753	39.9	1	11/21/14 18:26	11/23/14 06:46	96-12-8	
Dibromochloromethane	ND	ug/kg	75.3	16.3	1	11/21/14 18:26	11/23/14 06:46	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	75.3	9.3	1	11/21/14 18:26	11/23/14 06:46	106-93-4	
Dibromomethane	ND	ug/kg	75.3	21.1	1	11/21/14 18:26	11/23/14 06:46	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	301	34.8	1	11/21/14 18:26	11/23/14 06:46	75-71-8	
1,1-Dichloroethane	ND	ug/kg	75.3	10.5	1	11/21/14 18:26	11/23/14 06:46	75-34-3	
1,2-Dichloroethane	ND	ug/kg	75.3	17.8	1	11/21/14 18:26	11/23/14 06:46	107-06-2	
1,1-Dichloroethene	ND	ug/kg	75.3	15.1	1	11/21/14 18:26	11/23/14 06:46	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	75.3	15.4	1	11/21/14 18:26	11/23/14 06:46	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	75.3	14.9	1	11/21/14 18:26	11/23/14 06:46	156-60-5	
Dichlorofluoromethane	ND	ug/kg	753	377	1	11/21/14 18:26	11/23/14 06:46	75-43-4	
1,2-Dichloropropane	ND	ug/kg	75.3	12.1	1	11/21/14 18:26	11/23/14 06:46	78-87-5	
1,3-Dichloropropane	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	142-28-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-6(6-8)**      **Lab ID: 10288662001**      Collected: 11/13/14 09:15      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	301	10.1	1	11/21/14 18:26	11/23/14 06:46	594-20-7	
1,1-Dichloropropene	ND	ug/kg	75.3	12.3	1	11/21/14 18:26	11/23/14 06:46	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	75.3	9.5	1	11/21/14 18:26	11/23/14 06:46	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	75.3	10.6	1	11/21/14 18:26	11/23/14 06:46	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	301	16.0	1	11/21/14 18:26	11/23/14 06:46	60-29-7	L3
Ethylbenzene	ND	ug/kg	75.3	9.5	1	11/21/14 18:26	11/23/14 06:46	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	377	188	1	11/21/14 18:26	11/23/14 06:46	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	98-82-8	
p-Isopropyltoluene	ND	ug/kg	75.3	10.9	1	11/21/14 18:26	11/23/14 06:46	99-87-6	
Methylene Chloride	ND	ug/kg	301	151	1	11/21/14 18:26	11/23/14 06:46	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	377	188	1	11/21/14 18:26	11/23/14 06:46	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	1634-04-4	L3
Naphthalene	ND	ug/kg	301	151	1	11/21/14 18:26	11/23/14 06:46	91-20-3	
n-Propylbenzene	ND	ug/kg	75.3	9.1	1	11/21/14 18:26	11/23/14 06:46	103-65-1	
Styrene	ND	ug/kg	75.3	11.3	1	11/21/14 18:26	11/23/14 06:46	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	75.3	10.3	1	11/21/14 18:26	11/23/14 06:46	79-34-5	
Tetrachloroethene	ND	ug/kg	75.3	27.2	1	11/21/14 18:26	11/23/14 06:46	127-18-4	
Tetrahydrofuran	ND	ug/kg	3010	96.3	1	11/21/14 18:26	11/23/14 06:46	109-99-9	CL,L2
Toluene	ND	ug/kg	75.3	10.2	1	11/21/14 18:26	11/23/14 06:46	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	75.3	17.9	1	11/21/14 18:26	11/23/14 06:46	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	75.3	13.7	1	11/21/14 18:26	11/23/14 06:46	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	75.3	12.7	1	11/21/14 18:26	11/23/14 06:46	79-00-5	
Trichloroethene	ND	ug/kg	75.3	9.4	1	11/21/14 18:26	11/23/14 06:46	79-01-6	
Trichlorofluoromethane	ND	ug/kg	301	13.4	1	11/21/14 18:26	11/23/14 06:46	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	301	10.0	1	11/21/14 18:26	11/23/14 06:46	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	301	31.5	1	11/21/14 18:26	11/23/14 06:46	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	75.3	37.7	1	11/21/14 18:26	11/23/14 06:46	108-67-8	
Vinyl chloride	ND	ug/kg	30.1	11.2	1	11/21/14 18:26	11/23/14 06:46	75-01-4	
Xylene (Total)	ND	ug/kg	226	29.6	1	11/21/14 18:26	11/23/14 06:46	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	92 %		74-125		1	11/21/14 18:26	11/23/14 06:46	17060-07-0	
Toluene-d8 (S)	103 %		75-125		1	11/21/14 18:26	11/23/14 06:46	2037-26-5	
4-Bromofluorobenzene (S)	104 %		75-125		1	11/21/14 18:26	11/23/14 06:46	460-00-4	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

Sample: DP-6      Lab ID: 10288662002      Collected: 11/13/14 09:40      Received: 11/13/14 17:11      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>0.039J</b>	mg/L	0.11	0.023	1	11/14/14 11:20	11/15/14 13:40		
<b>Surrogates</b>									
n-Triacontane (S)	79 %.		50-150		1	11/14/14 11:20	11/15/14 13:40	638-68-6	P4
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	100	50.0	1		11/26/14 06:24		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	88 %.		80-125		1		11/26/14 06:24	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3010									
Arsenic	<b>13.2J</b>	ug/L	20.0	3.2	1	11/21/14 09:52	11/24/14 21:46	7440-38-2	
Barium	<b>904</b>	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 21:46	7440-39-3	
Cadmium	<b>1.3J</b>	ug/L	3.0	0.25	1	11/21/14 09:52	11/24/14 21:46	7440-43-9	
Chromium	<b>31.2</b>	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 21:46	7440-47-3	
Lead	<b>28.3</b>	ug/L	10.0	2.0	1	11/21/14 09:52	11/24/14 21:46	7439-92-1	
Selenium	<b>13.3J</b>	ug/L	20.0	6.6	1	11/21/14 09:52	11/24/14 21:46	7782-49-2	
Silver	ND	ug/L	10.0	0.63	1	11/21/14 09:52	11/24/14 21:46	7440-22-4	
<b>7470A Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	<b>0.027J</b>	ug/L	0.20	0.026	1	11/18/14 20:40	11/21/14 11:21	7439-97-6	
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
Phenol	ND	ug/L	10.3	2.1	1	11/17/14 13:40	11/18/14 19:45	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 19:45	111-44-4	
2-Chlorophenol	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	108-60-1	
3&4-Methylphenol	ND	ug/L	20.5	1.8	1	11/17/14 13:40	11/18/14 19:45		
N-Nitroso-di-n-propylamine	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 19:45	621-64-7	
Hexachloroethane	ND	ug/L	10.3	2.1	1	11/17/14 13:40	11/18/14 19:45	67-72-1	
Nitrobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	98-95-3	
Isophorone	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 19:45	78-59-1	
2-Nitrophenol	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 19:45	88-75-5	
2,4-Dimethylphenol	ND	ug/L	51.3	7.5	1	11/17/14 13:40	11/18/14 19:45	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 19:45	111-91-1	
2,4-Dichlorophenol	ND	ug/L	10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	10.3	2.1	1	11/17/14 13:40	11/18/14 19:45	120-82-1	
Naphthalene	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 19:45	91-20-3	
4-Chloroaniline	ND	ug/L	51.3	13.4	1	11/17/14 13:40	11/18/14 19:45	106-47-8	
Hexachloro-1,3-butadiene	ND	ug/L	10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 19:45	59-50-7	
2-Methylnaphthalene	ND	ug/L	10.3	1.5	1	11/17/14 13:40	11/18/14 19:45	91-57-6	
2,4,6-Trichlorophenol	ND	ug/L	10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	88-06-2	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

**Sample: DP-6**      **Lab ID: 10288662002**      Collected: 11/13/14 09:40      Received: 11/13/14 17:11      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
2,4,5-Trichlorophenol	ND ug/L		10.3	3.0	1	11/17/14 13:40	11/18/14 19:45	95-95-4	
2-Chloronaphthalene	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	91-58-7	
2-Nitroaniline	ND ug/L		10.3	2.8	1	11/17/14 13:40	11/18/14 19:45	88-74-4	
Dimethylphthalate	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	131-11-3	
Acenaphthylene	ND ug/L		10.3	1.3	1	11/17/14 13:40	11/18/14 19:45	208-96-8	
2,6-Dinitrotoluene	ND ug/L		10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	606-20-2	
3-Nitroaniline	ND ug/L		10.3	3.3	1	11/17/14 13:40	11/18/14 19:45	99-09-2	
Acenaphthene	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 19:45	83-32-9	
2,4-Dinitrophenol	ND ug/L		10.3	2.8	1	11/17/14 13:40	11/18/14 19:45	51-28-5	
4-Nitrophenol	ND ug/L		10.3	4.7	1	11/17/14 13:40	11/18/14 19:45	100-02-7	
Dibenzofuran	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 19:45	132-64-9	
2,4-Dinitrotoluene	ND ug/L		10.3	2.2	1	11/17/14 13:40	11/18/14 19:45	121-14-2	
Diethylphthalate	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		10.3	1.5	1	11/17/14 13:40	11/18/14 19:45	7005-72-3	
Fluorene	ND ug/L		10.3	1.4	1	11/17/14 13:40	11/18/14 19:45	86-73-7	
4-Nitroaniline	ND ug/L		10.3	2.8	1	11/17/14 13:40	11/18/14 19:45	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		10.3	3.6	1	11/17/14 13:40	11/18/14 19:45	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		10.3	2.1	1	11/17/14 13:40	11/18/14 19:45	101-55-3	
Hexachlorobenzene	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	118-74-1	
Pentachlorophenol	ND ug/L		20.5	2.3	1	11/17/14 13:40	11/18/14 19:45	87-86-5	
Phenanthrene	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	85-01-8	
Anthracene	ND ug/L		10.3	2.4	1	11/17/14 13:40	11/18/14 19:45	120-12-7	
Di-n-butylphthalate	ND ug/L		10.3	1.6	1	11/17/14 13:40	11/18/14 19:45	84-74-2	
Fluoranthene	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	206-44-0	
Pyrene	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	129-00-0	
Butylbenzylphthalate	ND ug/L		10.3	1.9	1	11/17/14 13:40	11/18/14 19:45	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		51.3	7.5	1	11/17/14 13:40	11/18/14 19:45	91-94-1	
Benzo(a)anthracene	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	56-55-3	
Chrysene	ND ug/L		10.3	2.2	1	11/17/14 13:40	11/18/14 19:45	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		10.3	3.8	1	11/17/14 13:40	11/18/14 19:45	117-81-7	
Di-n-octylphthalate	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 19:45	117-84-0	
Benzo(b)fluoranthene	ND ug/L		10.3	2.0	1	11/17/14 13:40	11/18/14 19:45	205-99-2	
Benzo(k)fluoranthene	ND ug/L		10.3	2.2	1	11/17/14 13:40	11/18/14 19:45	207-08-9	
Benzo(a)pyrene	ND ug/L		10.3	5.1	1	11/17/14 13:40	11/18/14 19:45	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 19:45	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 19:45	191-24-2	
N-Nitrosodimethylamine	ND ug/L		10.3	3.2	1	11/17/14 13:40	11/18/14 19:45	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 19:45	122-66-7	
Carbazole	ND ug/L		10.3	2.1	1	11/17/14 13:40	11/18/14 19:45	86-74-8	
1-Methylnaphthalene	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 19:45	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	82 %.		60-125		1	11/17/14 13:40	11/18/14 19:45	4165-60-0	
2-Fluorobiphenyl (S)	83 %.		55-125		1	11/17/14 13:40	11/18/14 19:45	321-60-8	
Terphenyl-d14 (S)	89 %.		67-125		1	11/17/14 13:40	11/18/14 19:45	1718-51-0	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-6**      **Lab ID: 10288662002**      Collected: 11/13/14 09:40      Received: 11/13/14 17:11      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
<b>Surrogates</b>									
Phenol-d6 (S)	82 %.		59-125		1	11/17/14 13:40	11/18/14 19:45	13127-88-3	
2-Fluorophenol (S)	80 %.		53-125		1	11/17/14 13:40	11/18/14 19:45	367-12-4	
2,4,6-Tribromophenol (S)	90 %.		66-125		1	11/17/14 13:40	11/18/14 19:45	118-79-6	
<b>8260 VOC</b>			Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	10.0	1		11/24/14 05:09	67-64-1	
Allyl chloride	ND ug/L		4.0	0.45	1		11/24/14 05:09	107-05-1	
Benzene	ND ug/L		1.0	0.15	1		11/24/14 05:09	71-43-2	
Bromobenzene	ND ug/L		1.0	0.13	1		11/24/14 05:09	108-86-1	
Bromochloromethane	ND ug/L		1.0	0.27	1		11/24/14 05:09	74-97-5	
Bromodichloromethane	ND ug/L		1.0	0.20	1		11/24/14 05:09	75-27-4	
Bromoform	ND ug/L		4.0	2.0	1		11/24/14 05:09	75-25-2	
Bromomethane	ND ug/L		4.0	2.0	1		11/24/14 05:09	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	2.5	1		11/24/14 05:09	78-93-3	
n-Butylbenzene	ND ug/L		1.0	0.50	1		11/24/14 05:09	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	0.50	1		11/24/14 05:09	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	0.50	1		11/24/14 05:09	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	0.16	1		11/24/14 05:09	56-23-5	
Chlorobenzene	ND ug/L		1.0	0.075	1		11/24/14 05:09	108-90-7	
Chloroethane	ND ug/L		1.0	0.27	1		11/24/14 05:09	75-00-3	L3
Chloroform	ND ug/L		1.0	0.16	1		11/24/14 05:09	67-66-3	
Chloromethane	ND ug/L		4.0	0.34	1		11/24/14 05:09	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	0.14	1		11/24/14 05:09	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	0.10	1		11/24/14 05:09	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	2.0	1		11/24/14 05:09	96-12-8	
Dibromochloromethane	ND ug/L		1.0	0.50	1		11/24/14 05:09	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	0.15	1		11/24/14 05:09	106-93-4	
Dibromomethane	ND ug/L		4.0	0.18	1		11/24/14 05:09	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	0.16	1		11/24/14 05:09	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/24/14 05:09	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/24/14 05:09	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	0.50	1		11/24/14 05:09	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	0.16	1		11/24/14 05:09	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	0.13	1		11/24/14 05:09	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	0.20	1		11/24/14 05:09	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	0.13	1		11/24/14 05:09	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	0.23	1		11/24/14 05:09	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	0.20	1		11/24/14 05:09	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	0.16	1		11/24/14 05:09	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	0.50	1		11/24/14 05:09	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	0.17	1		11/24/14 05:09	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	0.50	1		11/24/14 05:09	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	0.13	1		11/24/14 05:09	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	0.18	1		11/24/14 05:09	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	0.14	1		11/24/14 05:09	60-29-7	

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### ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

**Sample: DP-6**      **Lab ID: 10288662002**      Collected: 11/13/14 09:40      Received: 11/13/14 17:11      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b>									
Analytical Method: EPA 8260									
Ethylbenzene	ND	ug/L	1.0	0.16	1		11/24/14 05:09	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.50	1		11/24/14 05:09	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2.0	1		11/24/14 05:09	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	2.5	1		11/24/14 05:09	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.17	1		11/24/14 05:09	1634-04-4	
Naphthalene	ND	ug/L	4.0	2.0	1		11/24/14 05:09	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	103-65-1	
Styrene	ND	ug/L	1.0	0.069	1		11/24/14 05:09	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.50	1		11/24/14 05:09	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.50	1		11/24/14 05:09	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.16	1		11/24/14 05:09	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	2.0	1		11/24/14 05:09	109-99-9	
Toluene	<b>0.14J</b>	ug/L	1.0	0.11	1		11/24/14 05:09	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.26	1		11/24/14 05:09	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.14	1		11/24/14 05:09	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.11	1		11/24/14 05:09	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.22	1		11/24/14 05:09	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1.2	1		11/24/14 05:09	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.50	1		11/24/14 05:09	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:09	108-67-8	
Vinyl chloride	ND	ug/L	0.40	0.10	1		11/24/14 05:09	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.41	1		11/24/14 05:09	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	101 %		75-125		1		11/24/14 05:09	17060-07-0	
Toluene-d8 (S)	99 %		75-125		1		11/24/14 05:09	2037-26-5	
4-Bromofluorobenzene (S)	105 %		75-125		1		11/24/14 05:09	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-7(8-10)**      **Lab ID: 10288662003**      Collected: 11/13/14 11:15      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	7.9	1.2	1	11/20/14 16:19	11/21/14 19:12		
<b>Surrogates</b>									
n-Triacontane (S)	83 %		50-150		1	11/20/14 16:19	11/21/14 19:12	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	11.3	5.6	1	11/24/14 09:21	11/27/14 03:38		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	78 %		80-125		1	11/24/14 09:21	11/27/14 03:38	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	2.9	mg/kg	0.99	0.29	1	11/20/14 12:22	11/21/14 22:30	7440-38-2	
Barium	47.1	mg/kg	0.49	0.054	1	11/20/14 12:22	11/21/14 22:30	7440-39-3	
Cadmium	0.11J	mg/kg	0.15	0.017	1	11/20/14 12:22	11/21/14 22:30	7440-43-9	
Chromium	7.0	mg/kg	0.49	0.064	1	11/20/14 12:22	11/21/14 22:30	7440-47-3	
Lead	3.1	mg/kg	0.99	0.073	1	11/20/14 12:22	11/21/14 22:30	7439-92-1	
Selenium	ND	mg/kg	0.74	0.34	1	11/20/14 12:22	11/21/14 22:30	7782-49-2	
Silver	ND	mg/kg	0.49	0.049	1	11/20/14 12:22	11/21/14 22:30	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	0.0087J	mg/kg	0.019	0.0058	1	11/18/14 21:45	11/20/14 13:44	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	11.3	%	0.10	0.10	1		12/01/14 08:32		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	83-32-9	
Acenaphthylene	ND	ug/kg	372	72.7	1	11/19/14 11:38	11/20/14 16:07	208-96-8	
Anthracene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	120-12-7	
Benzo(a)anthracene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	56-55-3	
Benzo(a)pyrene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	372	47.1	1	11/19/14 11:38	11/20/14 16:07	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	372	45.2	1	11/19/14 11:38	11/20/14 16:07	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	101-55-3	
Butylbenzylphthalate	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	85-68-7	
Carbazole	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	59-50-7	
4-Chloroaniline	ND	ug/kg	372	95.2	1	11/19/14 11:38	11/20/14 16:07	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	108-60-1	
2-Chloronaphthalene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	91-58-7	
2-Chlorophenol	ND	ug/kg	372	46.5	1	11/19/14 11:38	11/20/14 16:07	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	7005-72-3	
Chrysene	ND	ug/kg	372	50.0	1	11/19/14 11:38	11/20/14 16:07	218-01-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-7(8-10)**      **Lab ID: 10288662003**      Collected: 11/13/14 11:15      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	53-70-3	
Dibenzofuran	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	372	43.4	1	11/19/14 11:38	11/20/14 16:07	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	372	105	1	11/19/14 11:38	11/20/14 16:07	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	120-83-2	
Diethylphthalate	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	372	65.4	1	11/19/14 11:38	11/20/14 16:07	105-67-9	
Dimethylphthalate	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	131-11-3	
Di-n-butylphthalate	ND	ug/kg	372	51.6	1	11/19/14 11:38	11/20/14 16:07	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1920	958	1	11/19/14 11:38	11/20/14 16:07	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	372	71.9	1	11/19/14 11:38	11/20/14 16:07	606-20-2	
Di-n-octylphthalate	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	372	63.6	1	11/19/14 11:38	11/20/14 16:07	117-81-7	
Fluoranthene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	206-44-0	
Fluorene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	372	37.7	1	11/19/14 11:38	11/20/14 16:07	87-68-3	
Hexachlorobenzene	ND	ug/kg	372	48.9	1	11/19/14 11:38	11/20/14 16:07	118-74-1	
Hexachloroethane	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	193-39-5	
Isophorone	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	78-59-1	
1-Methylnaphthalene	ND	ug/kg	372	43.7	1	11/19/14 11:38	11/20/14 16:07	90-12-0	
2-Methylnaphthalene	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	95-48-7	
3&4-Methylphenol	ND	ug/kg	744	186	1	11/19/14 11:38	11/20/14 16:07		
Naphthalene	ND	ug/kg	372	26.5	1	11/19/14 11:38	11/20/14 16:07	91-20-3	
2-Nitroaniline	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	88-74-4	
3-Nitroaniline	ND	ug/kg	372	82.6	1	11/19/14 11:38	11/20/14 16:07	99-09-2	
4-Nitroaniline	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	100-01-6	
Nitrobenzene	ND	ug/kg	372	41.9	1	11/19/14 11:38	11/20/14 16:07	98-95-3	
2-Nitrophenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	88-75-5	
4-Nitrophenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	86-30-6	
Pentachlorophenol	ND	ug/kg	755	186	1	11/19/14 11:38	11/20/14 16:07	87-86-5	
Phenanthrene	ND	ug/kg	372	53.2	1	11/19/14 11:38	11/20/14 16:07	85-01-8	
Phenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	108-95-2	
Pyrene	ND	ug/kg	372	46.9	1	11/19/14 11:38	11/20/14 16:07	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	372	40.6	1	11/19/14 11:38	11/20/14 16:07	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	372	41.2	1	11/19/14 11:38	11/20/14 16:07	95-95-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

**Sample: DP-7(8-10)**      **Lab ID: 10288662003**      Collected: 11/13/14 11:15      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>			Analytical Method: EPA 8270 Preparation Method: EPA 3550						
2,4,6-Trichlorophenol	ND	ug/kg	372	186	1	11/19/14 11:38	11/20/14 16:07	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	80 %		30-125		1	11/19/14 11:38	11/20/14 16:07	4165-60-0	
2-Fluorobiphenyl (S)	71 %		46-125		1	11/19/14 11:38	11/20/14 16:07	321-60-8	
Terphenyl-d14 (S)	92 %		64-125		1	11/19/14 11:38	11/20/14 16:07	1718-51-0	
Phenol-d6 (S)	77 %		38-125		1	11/19/14 11:38	11/20/14 16:07	13127-88-3	
2-Fluorophenol (S)	70 %		31-125		1	11/19/14 11:38	11/20/14 16:07	367-12-4	
2,4,6-Tribromophenol (S)	76 %		41-125		1	11/19/14 11:38	11/20/14 16:07	118-79-6	
<b>8260 MSV 5030 Med Level</b>			Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B						
Acetone	ND	ug/kg	1170	584	1	11/21/14 18:26	11/23/14 07:02	67-64-1	CL
Allyl chloride	ND	ug/kg	234	7.7	1	11/21/14 18:26	11/23/14 07:02	107-05-1	
Benzene	ND	ug/kg	23.4	11.7	1	11/21/14 18:26	11/23/14 07:02	71-43-2	
Bromobenzene	ND	ug/kg	58.4	10.1	1	11/21/14 18:26	11/23/14 07:02	108-86-1	
Bromochloromethane	ND	ug/kg	58.4	8.0	1	11/21/14 18:26	11/23/14 07:02	74-97-5	
Bromodichloromethane	ND	ug/kg	58.4	10.4	1	11/21/14 18:26	11/23/14 07:02	75-27-4	
Bromoform	ND	ug/kg	234	117	1	11/21/14 18:26	11/23/14 07:02	75-25-2	
Bromomethane	ND	ug/kg	584	292	1	11/21/14 18:26	11/23/14 07:02	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1170	146	1	11/21/14 18:26	11/23/14 07:02	78-93-3	
n-Butylbenzene	ND	ug/kg	58.4	7.1	1	11/21/14 18:26	11/23/14 07:02	104-51-8	
sec-Butylbenzene	ND	ug/kg	58.4	6.9	1	11/21/14 18:26	11/23/14 07:02	135-98-8	
tert-Butylbenzene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	98-06-6	
Carbon tetrachloride	ND	ug/kg	58.4	9.4	1	11/21/14 18:26	11/23/14 07:02	56-23-5	
Chlorobenzene	ND	ug/kg	58.4	9.0	1	11/21/14 18:26	11/23/14 07:02	108-90-7	
Chloroethane	ND	ug/kg	584	14.7	1	11/21/14 18:26	11/23/14 07:02	75-00-3	
Chloroform	ND	ug/kg	58.4	8.9	1	11/21/14 18:26	11/23/14 07:02	67-66-3	
Chloromethane	ND	ug/kg	234	10.7	1	11/21/14 18:26	11/23/14 07:02	74-87-3	
2-Chlorotoluene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	95-49-8	
4-Chlorotoluene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	584	31.0	1	11/21/14 18:26	11/23/14 07:02	96-12-8	
Dibromochloromethane	ND	ug/kg	58.4	12.6	1	11/21/14 18:26	11/23/14 07:02	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	58.4	7.2	1	11/21/14 18:26	11/23/14 07:02	106-93-4	
Dibromomethane	ND	ug/kg	58.4	16.4	1	11/21/14 18:26	11/23/14 07:02	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	234	27.0	1	11/21/14 18:26	11/23/14 07:02	75-71-8	
1,1-Dichloroethane	ND	ug/kg	58.4	8.2	1	11/21/14 18:26	11/23/14 07:02	75-34-3	
1,2-Dichloroethane	ND	ug/kg	58.4	13.8	1	11/21/14 18:26	11/23/14 07:02	107-06-2	
1,1-Dichloroethene	ND	ug/kg	58.4	11.7	1	11/21/14 18:26	11/23/14 07:02	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	58.4	11.9	1	11/21/14 18:26	11/23/14 07:02	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	58.4	11.6	1	11/21/14 18:26	11/23/14 07:02	156-60-5	
Dichlorofluoromethane	ND	ug/kg	584	292	1	11/21/14 18:26	11/23/14 07:02	75-43-4	
1,2-Dichloropropane	ND	ug/kg	58.4	9.4	1	11/21/14 18:26	11/23/14 07:02	78-87-5	
1,3-Dichloropropane	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	142-28-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-7(8-10)**      **Lab ID: 10288662003**      Collected: 11/13/14 11:15      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	234	7.8	1	11/21/14 18:26	11/23/14 07:02	594-20-7	
1,1-Dichloropropene	ND	ug/kg	58.4	9.5	1	11/21/14 18:26	11/23/14 07:02	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	58.4	7.3	1	11/21/14 18:26	11/23/14 07:02	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	58.4	8.2	1	11/21/14 18:26	11/23/14 07:02	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	234	12.4	1	11/21/14 18:26	11/23/14 07:02	60-29-7	L3
Ethylbenzene	ND	ug/kg	58.4	7.3	1	11/21/14 18:26	11/23/14 07:02	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	292	146	1	11/21/14 18:26	11/23/14 07:02	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	98-82-8	
p-Isopropyltoluene	ND	ug/kg	58.4	8.5	1	11/21/14 18:26	11/23/14 07:02	99-87-6	
Methylene Chloride	ND	ug/kg	234	117	1	11/21/14 18:26	11/23/14 07:02	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	292	146	1	11/21/14 18:26	11/23/14 07:02	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	1634-04-4	L3
Naphthalene	ND	ug/kg	234	117	1	11/21/14 18:26	11/23/14 07:02	91-20-3	
n-Propylbenzene	ND	ug/kg	58.4	7.1	1	11/21/14 18:26	11/23/14 07:02	103-65-1	
Styrene	ND	ug/kg	58.4	8.7	1	11/21/14 18:26	11/23/14 07:02	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	58.4	8.0	1	11/21/14 18:26	11/23/14 07:02	79-34-5	
Tetrachloroethene	ND	ug/kg	58.4	21.1	1	11/21/14 18:26	11/23/14 07:02	127-18-4	
Tetrahydrofuran	ND	ug/kg	2340	74.7	1	11/21/14 18:26	11/23/14 07:02	109-99-9	CL,L2
Toluene	ND	ug/kg	58.4	7.9	1	11/21/14 18:26	11/23/14 07:02	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	58.4	13.9	1	11/21/14 18:26	11/23/14 07:02	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	58.4	10.6	1	11/21/14 18:26	11/23/14 07:02	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	58.4	9.9	1	11/21/14 18:26	11/23/14 07:02	79-00-5	
Trichloroethene	ND	ug/kg	58.4	7.3	1	11/21/14 18:26	11/23/14 07:02	79-01-6	
Trichlorofluoromethane	ND	ug/kg	234	10.4	1	11/21/14 18:26	11/23/14 07:02	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	234	7.8	1	11/21/14 18:26	11/23/14 07:02	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	234	24.4	1	11/21/14 18:26	11/23/14 07:02	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	58.4	29.2	1	11/21/14 18:26	11/23/14 07:02	108-67-8	
Vinyl chloride	ND	ug/kg	23.4	8.7	1	11/21/14 18:26	11/23/14 07:02	75-01-4	
Xylene (Total)	ND	ug/kg	175	22.9	1	11/21/14 18:26	11/23/14 07:02	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	96 %.		74-125		1	11/21/14 18:26	11/23/14 07:02	17060-07-0	
Toluene-d8 (S)	105 %.		75-125		1	11/21/14 18:26	11/23/14 07:02	2037-26-5	
4-Bromofluorobenzene (S)	105 %.		75-125		1	11/21/14 18:26	11/23/14 07:02	460-00-4	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

Sample: DP-7      Lab ID: 10288662004      Collected: 11/13/14 11:55      Received: 11/13/14 17:11      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>0.036J</b>	mg/L	0.11	0.023	1	11/14/14 11:20	11/15/14 15:13		
<b>Surrogates</b>									
n-Triacontane (S)	88 %.		50-150		1	11/14/14 11:20	11/15/14 15:13	638-68-6	P4
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	100	50.0	1		11/26/14 06:47		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	89 %.		80-125		1		11/26/14 06:47	98-08-8	pH
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3010									
Arsenic	<b>3.2J</b>	ug/L	20.0	3.2	1	11/21/14 09:52	11/24/14 21:49	7440-38-2	
Barium	<b>1300</b>	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 21:49	7440-39-3	
Cadmium	<b>1.9J</b>	ug/L	3.0	0.25	1	11/21/14 09:52	11/24/14 21:49	7440-43-9	
Chromium	<b>16.6</b>	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 21:49	7440-47-3	
Lead	<b>11.4</b>	ug/L	10.0	2.0	1	11/21/14 09:52	11/24/14 21:49	7439-92-1	
Selenium	<b>12.8J</b>	ug/L	20.0	6.6	1	11/21/14 09:52	11/24/14 21:49	7782-49-2	
Silver	ND	ug/L	10.0	0.63	1	11/21/14 09:52	11/24/14 21:49	7440-22-4	
<b>7470A Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	<b>0.042J</b>	ug/L	0.20	0.026	1	11/18/14 20:40	11/21/14 11:33	7439-97-6	
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
Phenol	ND	ug/L	10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 20:12	111-44-4	
2-Chlorophenol	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 20:12	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 20:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 20:12	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 20:12	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 20:12	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	10.3	1.8	1	11/17/14 13:40	11/18/14 20:12	108-60-1	
3&4-Methylphenol	ND	ug/L	20.6	1.8	1	11/17/14 13:40	11/18/14 20:12		
N-Nitroso-di-n-propylamine	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 20:12	621-64-7	
Hexachloroethane	ND	ug/L	10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	67-72-1	
Nitrobenzene	ND	ug/L	10.3	2.0	1	11/17/14 13:40	11/18/14 20:12	98-95-3	
Isophorone	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 20:12	78-59-1	
2-Nitrophenol	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 20:12	88-75-5	
2,4-Dimethylphenol	ND	ug/L	51.5	7.5	1	11/17/14 13:40	11/18/14 20:12	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 20:12	111-91-1	
2,4-Dichlorophenol	ND	ug/L	10.3	1.8	1	11/17/14 13:40	11/18/14 20:12	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	120-82-1	
Naphthalene	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 20:12	91-20-3	
4-Chloroaniline	ND	ug/L	51.5	13.4	1	11/17/14 13:40	11/18/14 20:12	106-47-8	
Hexachloro-1,3-butadiene	ND	ug/L	10.3	1.9	1	11/17/14 13:40	11/18/14 20:12	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	10.3	1.6	1	11/17/14 13:40	11/18/14 20:12	59-50-7	
2-Methylnaphthalene	ND	ug/L	10.3	1.5	1	11/17/14 13:40	11/18/14 20:12	91-57-6	
2,4,6-Trichlorophenol	ND	ug/L	10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	88-06-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

**Sample: DP-7**      **Lab ID: 10288662004**      Collected: 11/13/14 11:55      Received: 11/13/14 17:11      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
2,4,5-Trichlorophenol	ND ug/L		10.3	3.0	1	11/17/14 13:40	11/18/14 20:12	95-95-4	
2-Chloronaphthalene	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	91-58-7	
2-Nitroaniline	ND ug/L		10.3	2.8	1	11/17/14 13:40	11/18/14 20:12	88-74-4	
Dimethylphthalate	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	131-11-3	
Acenaphthylene	ND ug/L		10.3	1.3	1	11/17/14 13:40	11/18/14 20:12	208-96-8	
2,6-Dinitrotoluene	ND ug/L		10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	606-20-2	
3-Nitroaniline	ND ug/L		10.3	3.3	1	11/17/14 13:40	11/18/14 20:12	99-09-2	
Acenaphthene	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 20:12	83-32-9	
2,4-Dinitrophenol	ND ug/L		10.3	2.8	1	11/17/14 13:40	11/18/14 20:12	51-28-5	
4-Nitrophenol	ND ug/L		10.3	4.7	1	11/17/14 13:40	11/18/14 20:12	100-02-7	
Dibenzofuran	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 20:12	132-64-9	
2,4-Dinitrotoluene	ND ug/L		10.3	2.2	1	11/17/14 13:40	11/18/14 20:12	121-14-2	
Diethylphthalate	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		10.3	1.5	1	11/17/14 13:40	11/18/14 20:12	7005-72-3	
Fluorene	ND ug/L		10.3	1.4	1	11/17/14 13:40	11/18/14 20:12	86-73-7	
4-Nitroaniline	ND ug/L		10.3	2.8	1	11/17/14 13:40	11/18/14 20:12	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		10.3	3.6	1	11/17/14 13:40	11/18/14 20:12	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 20:12	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	101-55-3	
Hexachlorobenzene	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	118-74-1	
Pentachlorophenol	ND ug/L		20.6	2.3	1	11/17/14 13:40	11/18/14 20:12	87-86-5	
Phenanthrene	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	85-01-8	
Anthracene	ND ug/L		10.3	2.4	1	11/17/14 13:40	11/18/14 20:12	120-12-7	
Di-n-butylphthalate	ND ug/L		10.3	1.6	1	11/17/14 13:40	11/18/14 20:12	84-74-2	
Fluoranthene	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	206-44-0	
Pyrene	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 20:12	129-00-0	
Butylbenzylphthalate	ND ug/L		10.3	1.9	1	11/17/14 13:40	11/18/14 20:12	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		51.5	7.5	1	11/17/14 13:40	11/18/14 20:12	91-94-1	
Benzo(a)anthracene	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	56-55-3	
Chrysene	ND ug/L		10.3	2.2	1	11/17/14 13:40	11/18/14 20:12	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		10.3	3.8	1	11/17/14 13:40	11/18/14 20:12	117-81-7	
Di-n-octylphthalate	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 20:12	117-84-0	
Benzo(b)fluoranthene	ND ug/L		10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	205-99-2	
Benzo(k)fluoranthene	ND ug/L		10.3	2.2	1	11/17/14 13:40	11/18/14 20:12	207-08-9	
Benzo(a)pyrene	ND ug/L		10.3	5.2	1	11/17/14 13:40	11/18/14 20:12	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		10.3	1.8	1	11/17/14 13:40	11/18/14 20:12	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		10.3	1.9	1	11/17/14 13:40	11/18/14 20:12	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 20:12	191-24-2	
N-Nitrosodimethylamine	ND ug/L		10.3	3.2	1	11/17/14 13:40	11/18/14 20:12	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 20:12	122-66-7	
Carbazole	ND ug/L		10.3	2.1	1	11/17/14 13:40	11/18/14 20:12	86-74-8	
1-Methylnaphthalene	ND ug/L		10.3	1.7	1	11/17/14 13:40	11/18/14 20:12	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	82 %.		60-125		1	11/17/14 13:40	11/18/14 20:12	4165-60-0	
2-Fluorobiphenyl (S)	86 %.		55-125		1	11/17/14 13:40	11/18/14 20:12	321-60-8	
Terphenyl-d14 (S)	91 %.		67-125		1	11/17/14 13:40	11/18/14 20:12	1718-51-0	

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### ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

**Sample: DP-7**      **Lab ID: 10288662004**      Collected: 11/13/14 11:55      Received: 11/13/14 17:11      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
<b>Surrogates</b>									
Phenol-d6 (S)	82 %.		59-125		1	11/17/14 13:40	11/18/14 20:12	13127-88-3	
2-Fluorophenol (S)	81 %.		53-125		1	11/17/14 13:40	11/18/14 20:12	367-12-4	
2,4,6-Tribromophenol (S)	94 %.		66-125		1	11/17/14 13:40	11/18/14 20:12	118-79-6	
<b>8260 VOC</b>			Analytical Method: EPA 8260						
Acetone	ND ug/L		20.0	10.0	1		11/24/14 05:24	67-64-1	
Allyl chloride	ND ug/L		4.0	0.45	1		11/24/14 05:24	107-05-1	
Benzene	ND ug/L		1.0	0.15	1		11/24/14 05:24	71-43-2	
Bromobenzene	ND ug/L		1.0	0.13	1		11/24/14 05:24	108-86-1	
Bromochloromethane	ND ug/L		1.0	0.27	1		11/24/14 05:24	74-97-5	
Bromodichloromethane	ND ug/L		1.0	0.20	1		11/24/14 05:24	75-27-4	
Bromoform	ND ug/L		4.0	2.0	1		11/24/14 05:24	75-25-2	
Bromomethane	ND ug/L		4.0	2.0	1		11/24/14 05:24	74-83-9	
2-Butanone (MEK)	ND ug/L		5.0	2.5	1		11/24/14 05:24	78-93-3	
n-Butylbenzene	ND ug/L		1.0	0.50	1		11/24/14 05:24	104-51-8	
sec-Butylbenzene	ND ug/L		1.0	0.50	1		11/24/14 05:24	135-98-8	
tert-Butylbenzene	ND ug/L		1.0	0.50	1		11/24/14 05:24	98-06-6	
Carbon tetrachloride	ND ug/L		1.0	0.16	1		11/24/14 05:24	56-23-5	
Chlorobenzene	ND ug/L		1.0	0.075	1		11/24/14 05:24	108-90-7	
Chloroethane	ND ug/L		1.0	0.27	1		11/24/14 05:24	75-00-3	L3
Chloroform	ND ug/L		1.0	0.16	1		11/24/14 05:24	67-66-3	
Chloromethane	ND ug/L		4.0	0.34	1		11/24/14 05:24	74-87-3	
2-Chlorotoluene	ND ug/L		1.0	0.14	1		11/24/14 05:24	95-49-8	
4-Chlorotoluene	ND ug/L		1.0	0.10	1		11/24/14 05:24	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		4.0	2.0	1		11/24/14 05:24	96-12-8	
Dibromochloromethane	ND ug/L		1.0	0.50	1		11/24/14 05:24	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		1.0	0.15	1		11/24/14 05:24	106-93-4	
Dibromomethane	ND ug/L		4.0	0.18	1		11/24/14 05:24	74-95-3	
1,2-Dichlorobenzene	ND ug/L		1.0	0.16	1		11/24/14 05:24	95-50-1	
1,3-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/24/14 05:24	541-73-1	
1,4-Dichlorobenzene	ND ug/L		1.0	0.50	1		11/24/14 05:24	106-46-7	
Dichlorodifluoromethane	ND ug/L		1.0	0.50	1		11/24/14 05:24	75-71-8	
1,1-Dichloroethane	ND ug/L		1.0	0.16	1		11/24/14 05:24	75-34-3	
1,2-Dichloroethane	ND ug/L		1.0	0.13	1		11/24/14 05:24	107-06-2	
1,1-Dichloroethene	ND ug/L		1.0	0.20	1		11/24/14 05:24	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		1.0	0.13	1		11/24/14 05:24	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		1.0	0.23	1		11/24/14 05:24	156-60-5	
Dichlorofluoromethane	ND ug/L		1.0	0.20	1		11/24/14 05:24	75-43-4	
1,2-Dichloropropane	ND ug/L		4.0	0.16	1		11/24/14 05:24	78-87-5	
1,3-Dichloropropane	ND ug/L		1.0	0.50	1		11/24/14 05:24	142-28-9	
2,2-Dichloropropane	ND ug/L		4.0	0.17	1		11/24/14 05:24	594-20-7	
1,1-Dichloropropene	ND ug/L		1.0	0.50	1		11/24/14 05:24	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		4.0	0.13	1		11/24/14 05:24	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		4.0	0.18	1		11/24/14 05:24	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		4.0	0.14	1		11/24/14 05:24	60-29-7	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-7**      **Lab ID: 10288662004**      Collected: 11/13/14 11:55      Received: 11/13/14 17:11      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b>									
Analytical Method: EPA 8260									
Ethylbenzene	<b>0.28J</b>	ug/L	1.0	0.16	1		11/24/14 05:24	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/L	1.0	0.50	1		11/24/14 05:24	98-82-8	
p-Isopropyltoluene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	99-87-6	
Methylene Chloride	ND	ug/L	4.0	2.0	1		11/24/14 05:24	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/L	5.0	2.5	1		11/24/14 05:24	108-10-1	
Methyl-tert-butyl ether	ND	ug/L	1.0	0.17	1		11/24/14 05:24	1634-04-4	
Naphthalene	ND	ug/L	4.0	2.0	1		11/24/14 05:24	91-20-3	
n-Propylbenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	103-65-1	
Styrene	ND	ug/L	1.0	0.069	1		11/24/14 05:24	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	1.0	0.50	1		11/24/14 05:24	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	1.0	0.50	1		11/24/14 05:24	79-34-5	
Tetrachloroethene	ND	ug/L	1.0	0.16	1		11/24/14 05:24	127-18-4	
Tetrahydrofuran	ND	ug/L	10.0	2.0	1		11/24/14 05:24	109-99-9	
Toluene	<b>0.23J</b>	ug/L	1.0	0.11	1		11/24/14 05:24	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	1.0	0.26	1		11/24/14 05:24	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	1.0	0.14	1		11/24/14 05:24	79-00-5	
Trichloroethene	ND	ug/L	0.40	0.11	1		11/24/14 05:24	79-01-6	
Trichlorofluoromethane	ND	ug/L	1.0	0.22	1		11/24/14 05:24	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	4.0	1.2	1		11/24/14 05:24	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	1.0	0.50	1		11/24/14 05:24	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	1.0	0.50	1		11/24/14 05:24	108-67-8	
Vinyl chloride	ND	ug/L	0.40	0.10	1		11/24/14 05:24	75-01-4	
Xylene (Total)	ND	ug/L	3.0	0.41	1		11/24/14 05:24	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	102 %		75-125		1		11/24/14 05:24	17060-07-0	
Toluene-d8 (S)	100 %		75-125		1		11/24/14 05:24	2037-26-5	
4-Bromofluorobenzene (S)	106 %		75-125		1		11/24/14 05:24	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-12(4-5)**      **Lab ID: 10288662005**      Collected: 11/13/14 13:25      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	5.4	0.80	1	11/20/14 16:19	11/21/14 19:04		
<b>Surrogates</b>									
n-Triacontane (S)	82 %		50-150		1	11/20/14 16:19	11/21/14 19:04	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	10.3	5.1	1	11/22/14 09:02	11/27/14 11:23		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	70 %		80-125		1	11/22/14 09:02	11/27/14 11:23	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	2.5	mg/kg	1.0	0.30	1	11/20/14 12:22	11/21/14 22:33	7440-38-2	
Barium	61.4	mg/kg	0.52	0.057	1	11/20/14 12:22	11/21/14 22:33	7440-39-3	
Cadmium	0.062J	mg/kg	0.15	0.018	1	11/20/14 12:22	11/21/14 22:33	7440-43-9	
Chromium	5.7	mg/kg	0.52	0.067	1	11/20/14 12:22	11/21/14 22:33	7440-47-3	
Lead	2.2	mg/kg	1.0	0.076	1	11/20/14 12:22	11/21/14 22:33	7439-92-1	
Selenium	0.50J	mg/kg	0.77	0.35	1	11/20/14 12:22	11/21/14 22:33	7782-49-2	
Silver	ND	mg/kg	0.52	0.052	1	11/20/14 12:22	11/21/14 22:33	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	ND	mg/kg	0.021	0.0062	1	11/18/14 21:45	11/20/14 13:46	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	3.9	%	0.10	0.10	1		12/01/14 08:32		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	83-32-9	
Acenaphthylene	ND	ug/kg	343	67.1	1	11/19/14 11:38	11/20/14 16:36	208-96-8	
Anthracene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	120-12-7	
Benzo(a)anthracene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	56-55-3	
Benzo(a)pyrene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	343	43.5	1	11/19/14 11:38	11/20/14 16:36	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	343	41.8	1	11/19/14 11:38	11/20/14 16:36	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	101-55-3	
Butylbenzylphthalate	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	85-68-7	
Carbazole	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	59-50-7	
4-Chloroaniline	ND	ug/kg	343	87.9	1	11/19/14 11:38	11/20/14 16:36	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	108-60-1	
2-Chloronaphthalene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	91-58-7	
2-Chlorophenol	ND	ug/kg	343	42.9	1	11/19/14 11:38	11/20/14 16:36	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	7005-72-3	
Chrysene	ND	ug/kg	343	46.1	1	11/19/14 11:38	11/20/14 16:36	218-01-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

Sample: DP-12(4-5) Lab ID: 10288662005 Collected: 11/13/14 13:25 Received: 11/13/14 17:11 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270 Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	53-70-3	
Dibenzofuran	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	343	40.1	1	11/19/14 11:38	11/20/14 16:36	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	343	97.3	1	11/19/14 11:38	11/20/14 16:36	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	120-83-2	
Diethylphthalate	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	343	60.4	1	11/19/14 11:38	11/20/14 16:36	105-67-9	
Dimethylphthalate	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	131-11-3	
Di-n-butylphthalate	ND	ug/kg	343	47.6	1	11/19/14 11:38	11/20/14 16:36	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1770	885	1	11/19/14 11:38	11/20/14 16:36	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	343	66.4	1	11/19/14 11:38	11/20/14 16:36	606-20-2	
Di-n-octylphthalate	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	343	58.7	1	11/19/14 11:38	11/20/14 16:36	117-81-7	
Fluoranthene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	206-44-0	
Fluorene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	343	34.8	1	11/19/14 11:38	11/20/14 16:36	87-68-3	
Hexachlorobenzene	ND	ug/kg	343	45.1	1	11/19/14 11:38	11/20/14 16:36	118-74-1	
Hexachloroethane	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	193-39-5	
Isophorone	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	78-59-1	
1-Methylnaphthalene	ND	ug/kg	343	40.3	1	11/19/14 11:38	11/20/14 16:36	90-12-0	
2-Methylnaphthalene	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	95-48-7	
3&4-Methylphenol	ND	ug/kg	687	172	1	11/19/14 11:38	11/20/14 16:36		
Naphthalene	ND	ug/kg	343	24.5	1	11/19/14 11:38	11/20/14 16:36	91-20-3	
2-Nitroaniline	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	88-74-4	
3-Nitroaniline	ND	ug/kg	343	76.3	1	11/19/14 11:38	11/20/14 16:36	99-09-2	
4-Nitroaniline	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	100-01-6	
Nitrobenzene	ND	ug/kg	343	38.7	1	11/19/14 11:38	11/20/14 16:36	98-95-3	
2-Nitrophenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	88-75-5	
4-Nitrophenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	86-30-6	
Pentachlorophenol	ND	ug/kg	697	172	1	11/19/14 11:38	11/20/14 16:36	87-86-5	
Phenanthrene	ND	ug/kg	343	49.1	1	11/19/14 11:38	11/20/14 16:36	85-01-8	
Phenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	108-95-2	
Pyrene	ND	ug/kg	343	43.3	1	11/19/14 11:38	11/20/14 16:36	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	343	37.5	1	11/19/14 11:38	11/20/14 16:36	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	343	38.1	1	11/19/14 11:38	11/20/14 16:36	95-95-4	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-12(4-5)**      **Lab ID: 10288662005**      Collected: 11/13/14 13:25      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	343	172	1	11/19/14 11:38	11/20/14 16:36	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	73 %		30-125		1	11/19/14 11:38	11/20/14 16:36	4165-60-0	
2-Fluorobiphenyl (S)	67 %		46-125		1	11/19/14 11:38	11/20/14 16:36	321-60-8	
Terphenyl-d14 (S)	88 %		64-125		1	11/19/14 11:38	11/20/14 16:36	1718-51-0	
Phenol-d6 (S)	70 %		38-125		1	11/19/14 11:38	11/20/14 16:36	13127-88-3	
2-Fluorophenol (S)	65 %		31-125		1	11/19/14 11:38	11/20/14 16:36	367-12-4	
2,4,6-Tribromophenol (S)	73 %		41-125		1	11/19/14 11:38	11/20/14 16:36	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1010	504	1	11/21/14 18:26	11/23/14 05:56	67-64-1	CL
Allyl chloride	ND	ug/kg	202	6.6	1	11/21/14 18:26	11/23/14 05:56	107-05-1	
Benzene	ND	ug/kg	20.2	10.1	1	11/21/14 18:26	11/23/14 05:56	71-43-2	
Bromobenzene	ND	ug/kg	50.4	8.7	1	11/21/14 18:26	11/23/14 05:56	108-86-1	
Bromochloromethane	ND	ug/kg	50.4	6.9	1	11/21/14 18:26	11/23/14 05:56	74-97-5	
Bromodichloromethane	ND	ug/kg	50.4	9.0	1	11/21/14 18:26	11/23/14 05:56	75-27-4	
Bromoform	ND	ug/kg	202	101	1	11/21/14 18:26	11/23/14 05:56	75-25-2	
Bromomethane	ND	ug/kg	504	252	1	11/21/14 18:26	11/23/14 05:56	74-83-9	L3,M0
2-Butanone (MEK)	ND	ug/kg	1010	126	1	11/21/14 18:26	11/23/14 05:56	78-93-3	
n-Butylbenzene	ND	ug/kg	50.4	6.1	1	11/21/14 18:26	11/23/14 05:56	104-51-8	
sec-Butylbenzene	ND	ug/kg	50.4	5.9	1	11/21/14 18:26	11/23/14 05:56	135-98-8	
tert-Butylbenzene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	98-06-6	
Carbon tetrachloride	ND	ug/kg	50.4	8.1	1	11/21/14 18:26	11/23/14 05:56	56-23-5	
Chlorobenzene	ND	ug/kg	50.4	7.8	1	11/21/14 18:26	11/23/14 05:56	108-90-7	
Chloroethane	ND	ug/kg	504	12.7	1	11/21/14 18:26	11/23/14 05:56	75-00-3	
Chloroform	ND	ug/kg	50.4	7.7	1	11/21/14 18:26	11/23/14 05:56	67-66-3	
Chloromethane	ND	ug/kg	202	9.2	1	11/21/14 18:26	11/23/14 05:56	74-87-3	
2-Chlorotoluene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	95-49-8	
4-Chlorotoluene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	504	26.7	1	11/21/14 18:26	11/23/14 05:56	96-12-8	
Dibromochloromethane	ND	ug/kg	50.4	10.9	1	11/21/14 18:26	11/23/14 05:56	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	50.4	6.2	1	11/21/14 18:26	11/23/14 05:56	106-93-4	
Dibromomethane	ND	ug/kg	50.4	14.1	1	11/21/14 18:26	11/23/14 05:56	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	202	23.3	1	11/21/14 18:26	11/23/14 05:56	75-71-8	
1,1-Dichloroethane	ND	ug/kg	50.4	7.0	1	11/21/14 18:26	11/23/14 05:56	75-34-3	
1,2-Dichloroethane	ND	ug/kg	50.4	11.9	1	11/21/14 18:26	11/23/14 05:56	107-06-2	
1,1-Dichloroethene	ND	ug/kg	50.4	10.1	1	11/21/14 18:26	11/23/14 05:56	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	50.4	10.3	1	11/21/14 18:26	11/23/14 05:56	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	50.4	10.0	1	11/21/14 18:26	11/23/14 05:56	156-60-5	
Dichlorofluoromethane	ND	ug/kg	504	252	1	11/21/14 18:26	11/23/14 05:56	75-43-4	
1,2-Dichloropropane	ND	ug/kg	50.4	8.1	1	11/21/14 18:26	11/23/14 05:56	78-87-5	
1,3-Dichloropropane	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	142-28-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-12(4-5)**      **Lab ID: 10288662005**      Collected: 11/13/14 13:25      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	202	6.7	1	11/21/14 18:26	11/23/14 05:56	594-20-7	
1,1-Dichloropropene	ND	ug/kg	50.4	8.2	1	11/21/14 18:26	11/23/14 05:56	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	50.4	6.3	1	11/21/14 18:26	11/23/14 05:56	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	50.4	7.1	1	11/21/14 18:26	11/23/14 05:56	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	202	10.7	1	11/21/14 18:26	11/23/14 05:56	60-29-7	L3,M0
Ethylbenzene	ND	ug/kg	50.4	6.3	1	11/21/14 18:26	11/23/14 05:56	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	252	126	1	11/21/14 18:26	11/23/14 05:56	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	98-82-8	
p-Isopropyltoluene	ND	ug/kg	50.4	7.3	1	11/21/14 18:26	11/23/14 05:56	99-87-6	
Methylene Chloride	ND	ug/kg	202	101	1	11/21/14 18:26	11/23/14 05:56	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	252	126	1	11/21/14 18:26	11/23/14 05:56	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	1634-04-4	L3
Naphthalene	ND	ug/kg	202	101	1	11/21/14 18:26	11/23/14 05:56	91-20-3	
n-Propylbenzene	ND	ug/kg	50.4	6.1	1	11/21/14 18:26	11/23/14 05:56	103-65-1	
Styrene	ND	ug/kg	50.4	7.5	1	11/21/14 18:26	11/23/14 05:56	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.4	6.9	1	11/21/14 18:26	11/23/14 05:56	79-34-5	
Tetrachloroethene	ND	ug/kg	50.4	18.2	1	11/21/14 18:26	11/23/14 05:56	127-18-4	
Tetrahydrofuran	ND	ug/kg	2020	64.4	1	11/21/14 18:26	11/23/14 05:56	109-99-9	CL,L2
Toluene	ND	ug/kg	50.4	6.9	1	11/21/14 18:26	11/23/14 05:56	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	50.4	12.0	1	11/21/14 18:26	11/23/14 05:56	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	50.4	9.2	1	11/21/14 18:26	11/23/14 05:56	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	50.4	8.5	1	11/21/14 18:26	11/23/14 05:56	79-00-5	
Trichloroethene	ND	ug/kg	50.4	6.3	1	11/21/14 18:26	11/23/14 05:56	79-01-6	
Trichlorofluoromethane	ND	ug/kg	202	9.0	1	11/21/14 18:26	11/23/14 05:56	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	202	6.7	1	11/21/14 18:26	11/23/14 05:56	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	202	21.1	1	11/21/14 18:26	11/23/14 05:56	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	50.4	25.2	1	11/21/14 18:26	11/23/14 05:56	108-67-8	
Vinyl chloride	ND	ug/kg	20.2	7.5	1	11/21/14 18:26	11/23/14 05:56	75-01-4	
Xylene (Total)	ND	ug/kg	151	19.8	1	11/21/14 18:26	11/23/14 05:56	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	99 %.		74-125		1	11/21/14 18:26	11/23/14 05:56	17060-07-0	
Toluene-d8 (S)	103 %.		75-125		1	11/21/14 18:26	11/23/14 05:56	2037-26-5	
4-Bromofluorobenzene (S)	106 %.		75-125		1	11/21/14 18:26	11/23/14 05:56	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-5(9-10)**      **Lab ID: 10288662006**      Collected: 11/13/14 15:10      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	5.3	0.79	1	11/20/14 16:19	11/21/14 20:14		
<b>Surrogates</b>									
n-Triacontane (S)	86 %		50-150		1	11/20/14 16:19	11/21/14 20:14	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	<b>5.7J</b>	mg/kg	11.3	5.7	1	11/22/14 09:02	11/27/14 11:45		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	72 %		80-125		1	11/22/14 09:02	11/27/14 11:45	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>2.7</b>	mg/kg	1.1	0.32	1	11/20/14 12:22	11/21/14 22:36	7440-38-2	
Barium	<b>45.1</b>	mg/kg	0.55	0.061	1	11/20/14 12:22	11/21/14 22:36	7440-39-3	
Cadmium	<b>0.10J</b>	mg/kg	0.17	0.019	1	11/20/14 12:22	11/21/14 22:36	7440-43-9	
Chromium	<b>10.7</b>	mg/kg	0.55	0.072	1	11/20/14 12:22	11/21/14 22:36	7440-47-3	
Lead	<b>3.0</b>	mg/kg	1.1	0.082	1	11/20/14 12:22	11/21/14 22:36	7439-92-1	
Selenium	<b>0.42J</b>	mg/kg	0.83	0.38	1	11/20/14 12:22	11/21/14 22:36	7782-49-2	
Silver	ND	mg/kg	0.55	0.055	1	11/20/14 12:22	11/21/14 22:36	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.010J</b>	mg/kg	0.021	0.0062	1	11/18/14 21:45	11/20/14 13:48	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>9.8</b>	%	0.10	0.10	1		12/01/14 08:32		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	83-32-9	
Acenaphthylene	ND	ug/kg	366	71.5	1	11/19/14 11:38	11/20/14 17:05	208-96-8	
Anthracene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	120-12-7	
Benzo(a)anthracene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	56-55-3	
Benzo(a)pyrene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	366	46.4	1	11/19/14 11:38	11/20/14 17:05	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	366	44.5	1	11/19/14 11:38	11/20/14 17:05	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	101-55-3	
Butylbenzylphthalate	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	85-68-7	
Carbazole	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	59-50-7	
4-Chloroaniline	ND	ug/kg	366	93.6	1	11/19/14 11:38	11/20/14 17:05	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	108-60-1	
2-Chloronaphthalene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	91-58-7	
2-Chlorophenol	ND	ug/kg	366	45.7	1	11/19/14 11:38	11/20/14 17:05	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	7005-72-3	
Chrysene	ND	ug/kg	366	49.1	1	11/19/14 11:38	11/20/14 17:05	218-01-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288662

Sample: DP-5(9-10) Lab ID: 10288662006 Collected: 11/13/14 15:10 Received: 11/13/14 17:11 Matrix: Solid

Results reported on a "dry-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	53-70-3	
Dibenzofuran	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	366	42.7	1	11/19/14 11:38	11/20/14 17:05	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	366	104	1	11/19/14 11:38	11/20/14 17:05	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	120-83-2	
Diethylphthalate	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	366	64.3	1	11/19/14 11:38	11/20/14 17:05	105-67-9	
Dimethylphthalate	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	131-11-3	
Di-n-butylphthalate	ND	ug/kg	366	50.7	1	11/19/14 11:38	11/20/14 17:05	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1880	942	1	11/19/14 11:38	11/20/14 17:05	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	366	70.7	1	11/19/14 11:38	11/20/14 17:05	606-20-2	
Di-n-octylphthalate	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	366	62.5	1	11/19/14 11:38	11/20/14 17:05	117-81-7	
Fluoranthene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	206-44-0	
Fluorene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	366	37.1	1	11/19/14 11:38	11/20/14 17:05	87-68-3	
Hexachlorobenzene	ND	ug/kg	366	48.1	1	11/19/14 11:38	11/20/14 17:05	118-74-1	
Hexachloroethane	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	193-39-5	
Isophorone	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	78-59-1	
1-Methylnaphthalene	ND	ug/kg	366	43.0	1	11/19/14 11:38	11/20/14 17:05	90-12-0	
2-Methylnaphthalene	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	95-48-7	
3&4-Methylphenol	ND	ug/kg	731	183	1	11/19/14 11:38	11/20/14 17:05		
Naphthalene	ND	ug/kg	366	26.1	1	11/19/14 11:38	11/20/14 17:05	91-20-3	
2-Nitroaniline	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	88-74-4	
3-Nitroaniline	ND	ug/kg	366	81.2	1	11/19/14 11:38	11/20/14 17:05	99-09-2	
4-Nitroaniline	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	100-01-6	
Nitrobenzene	ND	ug/kg	366	41.2	1	11/19/14 11:38	11/20/14 17:05	98-95-3	
2-Nitrophenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	88-75-5	
4-Nitrophenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	86-30-6	
Pentachlorophenol	ND	ug/kg	743	183	1	11/19/14 11:38	11/20/14 17:05	87-86-5	
Phenanthrene	ND	ug/kg	366	52.3	1	11/19/14 11:38	11/20/14 17:05	85-01-8	
Phenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	108-95-2	
Pyrene	ND	ug/kg	366	46.1	1	11/19/14 11:38	11/20/14 17:05	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	366	40.0	1	11/19/14 11:38	11/20/14 17:05	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	366	40.6	1	11/19/14 11:38	11/20/14 17:05	95-95-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-5(9-10)**      **Lab ID: 10288662006**      Collected: 11/13/14 15:10      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>			Analytical Method: EPA 8270 Preparation Method: EPA 3550						
2,4,6-Trichlorophenol	ND	ug/kg	366	183	1	11/19/14 11:38	11/20/14 17:05	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	73 %		30-125		1	11/19/14 11:38	11/20/14 17:05	4165-60-0	
2-Fluorobiphenyl (S)	71 %		46-125		1	11/19/14 11:38	11/20/14 17:05	321-60-8	
Terphenyl-d14 (S)	88 %		64-125		1	11/19/14 11:38	11/20/14 17:05	1718-51-0	
Phenol-d6 (S)	71 %		38-125		1	11/19/14 11:38	11/20/14 17:05	13127-88-3	
2-Fluorophenol (S)	67 %		31-125		1	11/19/14 11:38	11/20/14 17:05	367-12-4	
2,4,6-Tribromophenol (S)	78 %		41-125		1	11/19/14 11:38	11/20/14 17:05	118-79-6	
<b>8260 MSV 5030 Med Level</b>			Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B						
Acetone	ND	ug/kg	1070	537	1	11/21/14 18:26	11/23/14 06:12	67-64-1	CL
Allyl chloride	ND	ug/kg	215	7.0	1	11/21/14 18:26	11/23/14 06:12	107-05-1	
Benzene	ND	ug/kg	21.5	10.7	1	11/21/14 18:26	11/23/14 06:12	71-43-2	
Bromobenzene	ND	ug/kg	53.7	9.3	1	11/21/14 18:26	11/23/14 06:12	108-86-1	
Bromochloromethane	ND	ug/kg	53.7	7.3	1	11/21/14 18:26	11/23/14 06:12	74-97-5	
Bromodichloromethane	ND	ug/kg	53.7	9.6	1	11/21/14 18:26	11/23/14 06:12	75-27-4	
Bromoform	ND	ug/kg	215	107	1	11/21/14 18:26	11/23/14 06:12	75-25-2	
Bromomethane	ND	ug/kg	537	268	1	11/21/14 18:26	11/23/14 06:12	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1070	134	1	11/21/14 18:26	11/23/14 06:12	78-93-3	
n-Butylbenzene	ND	ug/kg	53.7	6.5	1	11/21/14 18:26	11/23/14 06:12	104-51-8	
sec-Butylbenzene	ND	ug/kg	53.7	6.3	1	11/21/14 18:26	11/23/14 06:12	135-98-8	
tert-Butylbenzene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	98-06-6	
Carbon tetrachloride	ND	ug/kg	53.7	8.7	1	11/21/14 18:26	11/23/14 06:12	56-23-5	
Chlorobenzene	ND	ug/kg	53.7	8.3	1	11/21/14 18:26	11/23/14 06:12	108-90-7	
Chloroethane	ND	ug/kg	537	13.5	1	11/21/14 18:26	11/23/14 06:12	75-00-3	
Chloroform	ND	ug/kg	53.7	8.2	1	11/21/14 18:26	11/23/14 06:12	67-66-3	
Chloromethane	ND	ug/kg	215	9.8	1	11/21/14 18:26	11/23/14 06:12	74-87-3	
2-Chlorotoluene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	95-49-8	
4-Chlorotoluene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	537	28.5	1	11/21/14 18:26	11/23/14 06:12	96-12-8	
Dibromochloromethane	ND	ug/kg	53.7	11.6	1	11/21/14 18:26	11/23/14 06:12	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	53.7	6.6	1	11/21/14 18:26	11/23/14 06:12	106-93-4	
Dibromomethane	ND	ug/kg	53.7	15.0	1	11/21/14 18:26	11/23/14 06:12	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	215	24.8	1	11/21/14 18:26	11/23/14 06:12	75-71-8	
1,1-Dichloroethane	ND	ug/kg	53.7	7.5	1	11/21/14 18:26	11/23/14 06:12	75-34-3	
1,2-Dichloroethane	ND	ug/kg	53.7	12.7	1	11/21/14 18:26	11/23/14 06:12	107-06-2	
1,1-Dichloroethene	ND	ug/kg	53.7	10.7	1	11/21/14 18:26	11/23/14 06:12	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	53.7	11.0	1	11/21/14 18:26	11/23/14 06:12	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	53.7	10.7	1	11/21/14 18:26	11/23/14 06:12	156-60-5	
Dichlorofluoromethane	ND	ug/kg	537	268	1	11/21/14 18:26	11/23/14 06:12	75-43-4	
1,2-Dichloropropane	ND	ug/kg	53.7	8.6	1	11/21/14 18:26	11/23/14 06:12	78-87-5	
1,3-Dichloropropane	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	142-28-9	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: DP-5(9-10)**      **Lab ID: 10288662006**      Collected: 11/13/14 15:10      Received: 11/13/14 17:11      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	215	7.2	1	11/21/14 18:26	11/23/14 06:12	594-20-7	
1,1-Dichloropropene	ND	ug/kg	53.7	8.8	1	11/21/14 18:26	11/23/14 06:12	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	53.7	6.7	1	11/21/14 18:26	11/23/14 06:12	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	53.7	7.6	1	11/21/14 18:26	11/23/14 06:12	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	215	11.4	1	11/21/14 18:26	11/23/14 06:12	60-29-7	L3
Ethylbenzene	ND	ug/kg	53.7	6.7	1	11/21/14 18:26	11/23/14 06:12	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	268	134	1	11/21/14 18:26	11/23/14 06:12	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	98-82-8	
p-Isopropyltoluene	ND	ug/kg	53.7	7.8	1	11/21/14 18:26	11/23/14 06:12	99-87-6	
Methylene Chloride	ND	ug/kg	215	107	1	11/21/14 18:26	11/23/14 06:12	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	268	134	1	11/21/14 18:26	11/23/14 06:12	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	1634-04-4	L3
Naphthalene	ND	ug/kg	215	107	1	11/21/14 18:26	11/23/14 06:12	91-20-3	
n-Propylbenzene	ND	ug/kg	53.7	6.5	1	11/21/14 18:26	11/23/14 06:12	103-65-1	
Styrene	ND	ug/kg	53.7	8.0	1	11/21/14 18:26	11/23/14 06:12	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	53.7	7.4	1	11/21/14 18:26	11/23/14 06:12	79-34-5	
Tetrachloroethene	ND	ug/kg	53.7	19.4	1	11/21/14 18:26	11/23/14 06:12	127-18-4	
Tetrahydrofuran	ND	ug/kg	2150	68.6	1	11/21/14 18:26	11/23/14 06:12	109-99-9	CL,L2
Toluene	ND	ug/kg	53.7	7.3	1	11/21/14 18:26	11/23/14 06:12	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	53.7	12.8	1	11/21/14 18:26	11/23/14 06:12	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	53.7	9.8	1	11/21/14 18:26	11/23/14 06:12	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	53.7	9.1	1	11/21/14 18:26	11/23/14 06:12	79-00-5	
Trichloroethene	ND	ug/kg	53.7	6.7	1	11/21/14 18:26	11/23/14 06:12	79-01-6	
Trichlorofluoromethane	ND	ug/kg	215	9.6	1	11/21/14 18:26	11/23/14 06:12	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	215	7.1	1	11/21/14 18:26	11/23/14 06:12	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	215	22.4	1	11/21/14 18:26	11/23/14 06:12	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	53.7	26.8	1	11/21/14 18:26	11/23/14 06:12	108-67-8	
Vinyl chloride	ND	ug/kg	21.5	8.0	1	11/21/14 18:26	11/23/14 06:12	75-01-4	
Xylene (Total)	ND	ug/kg	161	21.1	1	11/21/14 18:26	11/23/14 06:12	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	95 %		74-125		1	11/21/14 18:26	11/23/14 06:12	17060-07-0	
Toluene-d8 (S)	105 %		75-125		1	11/21/14 18:26	11/23/14 06:12	2037-26-5	
4-Bromofluorobenzene (S)	107 %		75-125		1	11/21/14 18:26	11/23/14 06:12	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

Sample: TB 111314 Lab ID: 10288662007 Collected: 11/13/14 00:00 Received: 11/13/14 17:11 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Acetone	ND	ug/kg	1000	500	1	11/21/14 18:26	11/23/14 05:39	67-64-1	CL
Allyl chloride	ND	ug/kg	200	6.6	1	11/21/14 18:26	11/23/14 05:39	107-05-1	
Benzene	ND	ug/kg	20.0	10.0	1	11/21/14 18:26	11/23/14 05:39	71-43-2	
Bromobenzene	ND	ug/kg	50.0	8.7	1	11/21/14 18:26	11/23/14 05:39	108-86-1	
Bromochloromethane	ND	ug/kg	50.0	6.8	1	11/21/14 18:26	11/23/14 05:39	74-97-5	
Bromodichloromethane	ND	ug/kg	50.0	8.9	1	11/21/14 18:26	11/23/14 05:39	75-27-4	
Bromoform	ND	ug/kg	200	100	1	11/21/14 18:26	11/23/14 05:39	75-25-2	
Bromomethane	ND	ug/kg	500	250	1	11/21/14 18:26	11/23/14 05:39	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1000	125	1	11/21/14 18:26	11/23/14 05:39	78-93-3	
n-Butylbenzene	ND	ug/kg	50.0	6.1	1	11/21/14 18:26	11/23/14 05:39	104-51-8	
sec-Butylbenzene	ND	ug/kg	50.0	5.9	1	11/21/14 18:26	11/23/14 05:39	135-98-8	
tert-Butylbenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	98-06-6	
Carbon tetrachloride	ND	ug/kg	50.0	8.1	1	11/21/14 18:26	11/23/14 05:39	56-23-5	
Chlorobenzene	ND	ug/kg	50.0	7.7	1	11/21/14 18:26	11/23/14 05:39	108-90-7	
Chloroethane	ND	ug/kg	500	12.6	1	11/21/14 18:26	11/23/14 05:39	75-00-3	
Chloroform	ND	ug/kg	50.0	7.6	1	11/21/14 18:26	11/23/14 05:39	67-66-3	
Chloromethane	ND	ug/kg	200	9.1	1	11/21/14 18:26	11/23/14 05:39	74-87-3	
2-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	95-49-8	
4-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	500	26.5	1	11/21/14 18:26	11/23/14 05:39	96-12-8	
Dibromochloromethane	ND	ug/kg	50.0	10.8	1	11/21/14 18:26	11/23/14 05:39	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	50.0	6.2	1	11/21/14 18:26	11/23/14 05:39	106-93-4	
Dibromomethane	ND	ug/kg	50.0	14.0	1	11/21/14 18:26	11/23/14 05:39	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	200	23.1	1	11/21/14 18:26	11/23/14 05:39	75-71-8	
1,1-Dichloroethane	ND	ug/kg	50.0	7.0	1	11/21/14 18:26	11/23/14 05:39	75-34-3	
1,2-Dichloroethane	ND	ug/kg	50.0	11.8	1	11/21/14 18:26	11/23/14 05:39	107-06-2	
1,1-Dichloroethene	ND	ug/kg	50.0	10	1	11/21/14 18:26	11/23/14 05:39	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	50.0	10.2	1	11/21/14 18:26	11/23/14 05:39	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	50.0	9.9	1	11/21/14 18:26	11/23/14 05:39	156-60-5	
Dichlorofluoromethane	ND	ug/kg	500	250	1	11/21/14 18:26	11/23/14 05:39	75-43-4	
1,2-Dichloropropane	ND	ug/kg	50.0	8.0	1	11/21/14 18:26	11/23/14 05:39	78-87-5	
1,3-Dichloropropane	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	142-28-9	
2,2-Dichloropropane	ND	ug/kg	200	6.7	1	11/21/14 18:26	11/23/14 05:39	594-20-7	
1,1-Dichloropropene	ND	ug/kg	50.0	8.2	1	11/21/14 18:26	11/23/14 05:39	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	50.0	6.3	1	11/21/14 18:26	11/23/14 05:39	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	50.0	7.0	1	11/21/14 18:26	11/23/14 05:39	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	200	10.6	1	11/21/14 18:26	11/23/14 05:39	60-29-7	L3
Ethylbenzene	ND	ug/kg	50.0	6.3	1	11/21/14 18:26	11/23/14 05:39	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	250	125	1	11/21/14 18:26	11/23/14 05:39	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	98-82-8	
p-Isopropyltoluene	ND	ug/kg	50.0	7.2	1	11/21/14 18:26	11/23/14 05:39	99-87-6	
Methylene Chloride	ND	ug/kg	200	100	1	11/21/14 18:26	11/23/14 05:39	75-09-2	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288662

**Sample: TB 111314**      **Lab ID: 10288662007**      Collected: 11/13/14 00:00      Received: 11/13/14 17:11      Matrix: Solid

*Results reported on a "wet-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	250	125	1	11/21/14 18:26	11/23/14 05:39	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	1634-04-4	L3
Naphthalene	ND	ug/kg	200	100	1	11/21/14 18:26	11/23/14 05:39	91-20-3	
n-Propylbenzene	ND	ug/kg	50.0	6.1	1	11/21/14 18:26	11/23/14 05:39	103-65-1	
Styrene	ND	ug/kg	50.0	7.5	1	11/21/14 18:26	11/23/14 05:39	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0	6.9	1	11/21/14 18:26	11/23/14 05:39	79-34-5	
Tetrachloroethene	ND	ug/kg	50.0	18.0	1	11/21/14 18:26	11/23/14 05:39	127-18-4	
Tetrahydrofuran	ND	ug/kg	2000	63.9	1	11/21/14 18:26	11/23/14 05:39	109-99-9	CL,L2
Toluene	ND	ug/kg	50.0	6.8	1	11/21/14 18:26	11/23/14 05:39	108-88-3	
1,2,3-Trichlorobenzene	<b>16.2J</b>	ug/kg	50.0	11.9	1	11/21/14 18:26	11/23/14 05:39	87-61-6	B
1,2,4-Trichlorobenzene	ND	ug/kg	50.0	9.1	1	11/21/14 18:26	11/23/14 05:39	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	50.0	8.5	1	11/21/14 18:26	11/23/14 05:39	79-00-5	
Trichloroethene	ND	ug/kg	50.0	6.2	1	11/21/14 18:26	11/23/14 05:39	79-01-6	
Trichlorofluoromethane	ND	ug/kg	200	8.9	1	11/21/14 18:26	11/23/14 05:39	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	200	6.6	1	11/21/14 18:26	11/23/14 05:39	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	200	20.9	1	11/21/14 18:26	11/23/14 05:39	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:26	11/23/14 05:39	108-67-8	
Vinyl chloride	ND	ug/kg	20.0	7.4	1	11/21/14 18:26	11/23/14 05:39	75-01-4	
Xylene (Total)	ND	ug/kg	150	19.6	1	11/21/14 18:26	11/23/14 05:39	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	95 %		74-125		1	11/21/14 18:26	11/23/14 05:39	17060-07-0	
Toluene-d8 (S)	104 %		75-125		1	11/21/14 18:26	11/23/14 05:39	2037-26-5	
4-Bromofluorobenzene (S)	103 %		75-125		1	11/21/14 18:26	11/23/14 05:39	460-00-4	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: GCV/12975 Analysis Method: WI MOD GRO  
 QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV  
 Associated Lab Samples: 10288662001, 10288662003

METHOD BLANK: 1851094 Matrix: Solid

Associated Lab Samples: 10288662001, 10288662003

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	10.0	11/25/14 20:03	
a,a,a-Trifluorotoluene (S)	%.	103	80-125	11/25/14 20:03	

LABORATORY CONTROL SAMPLE & LCSD: 1851095 1851096

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	50	53.6	49.0	107	98	80-120	9	20	
a,a,a-Trifluorotoluene (S)	%.				101	80	80-125			CL

MATRIX SPIKE SAMPLE: 1851097

Parameter	Units	10288707009 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	ND	52.9	86.2	133	80-120	M0
a,a,a-Trifluorotoluene (S)	%.				104	80-125	

SAMPLE DUPLICATE: 1851098

Parameter	Units	10288707010 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%.	101	101	3		

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: GCV/12976 Analysis Method: WI MOD GRO  
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV  
Associated Lab Samples: 10288662005, 10288662006

METHOD BLANK: 1851099 Matrix: Solid

Associated Lab Samples: 10288662005, 10288662006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	10.0	11/27/14 09:32	
a,a,a-Trifluorotoluene (S)	%.	98	80-125	12/01/14 20:44	

LABORATORY CONTROL SAMPLE & LCSD: 1851100

1851101

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	50	48.6	52.5	97	105	80-120	8	20	
a,a,a-Trifluorotoluene (S)	%.				97	98	80-125			

MATRIX SPIKE SAMPLE: 1851102

Parameter	Units	10288823001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	mg/kg	ND	55.6	48.0	77	80-120	M0
a,a,a-Trifluorotoluene (S)	%.				97	80-125	

SAMPLE DUPLICATE: 1851103

Parameter	Units	10288823003 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	ND	ND		20	
a,a,a-Trifluorotoluene (S)	%.	71	72	6	S0	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch:	GCV/12979	Analysis Method:	WI MOD GRO
QC Batch Method:	WI MOD GRO	Analysis Description:	WIGRO GCV Water
Associated Lab Samples:	10288662002, 10288662004		

METHOD BLANK: 1851109 Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	11/26/14 03:26	
a,a,a-Trifluorotoluene (S)	%.	93	80-125	11/26/14 03:26	

LABORATORY CONTROL SAMPLE & LCSD: 1851110

1851111

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	969	974	97	97	80-120	0	20	
a,a,a-Trifluorotoluene (S)	%.				94	90	80-125			

MATRIX SPIKE SAMPLE: 1853543

Parameter	Units	10288597012 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
Gasoline Range Organics	ug/L	ND	1000	1260	124	80-120	M1
a,a,a-Trifluorotoluene (S)	%.				94	80-125	

SAMPLE DUPLICATE: 1853544

Parameter	Units	10288597018 Result	Dup Result	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	3460	2680	25	20	D6
a,a,a-Trifluorotoluene (S)	%.	137	143	4		1M,S0

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: MERP/12171

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water

Associated Lab Samples: 10288662002, 10288662004

METHOD BLANK: 1846366

Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	11/21/14 11:13	

LABORATORY CONTROL SAMPLE: 1846367

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	99	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1846368 1846369

Parameter	Units	10288662002		1846368		1846369		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result				
Mercury	ug/L	0.027J	5	5	5.3	5.2	106	103	75-125	3	20

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

QC Batch: MERP/12158 Analysis Method: EPA 7471B  
QC Batch Method: EPA 7471B Analysis Description: 7471B Mercury Solids  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

METHOD BLANK: 1845180 Matrix: Solid  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.017	11/20/14 12:53	

LABORATORY CONTROL SAMPLE: 1845181

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.48	0.49	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1845182 1845183

Parameter	Units	10288643001		1845182		1845183		% Rec Limits	RPD	Max RPD	Qual
		MS Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec				
Mercury	mg/kg	0.024	.55	.54	0.69	0.54	119	96	75-125	24	20 R1

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

QC Batch: MPRP/50660 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3050 Analysis Description: 6010C Solids  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

METHOD BLANK: 1845172 Matrix: Solid  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	1.0	11/21/14 21:25	
Barium	mg/kg	ND	0.50	11/21/14 21:25	
Cadmium	mg/kg	ND	0.15	11/21/14 21:25	
Chromium	mg/kg	ND	0.50	11/21/14 21:25	
Lead	mg/kg	ND	1.0	11/21/14 21:25	
Selenium	mg/kg	ND	0.75	11/21/14 21:25	
Silver	mg/kg	ND	0.50	11/21/14 21:25	

LABORATORY CONTROL SAMPLE: 1845173

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	48.1	43.3	90	80-120	
Barium	mg/kg	48.1	49.5	103	80-120	
Cadmium	mg/kg	48.1	43.3	90	80-120	
Chromium	mg/kg	48.1	44.5	92	80-120	
Lead	mg/kg	48.1	44.1	92	80-120	
Selenium	mg/kg	48.1	41.9	87	80-120	
Silver	mg/kg	24	21.1	88	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1845174 1845175

Parameter	Units	10288707001		1845175		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	mg/kg	3.3	52.6	51.6	48.1	47.3	85	85	75-125	2	20
Barium	mg/kg	40.2	52.6	51.6	106	102	125	120	75-125	3	20
Cadmium	mg/kg	ND	52.6	51.6	44.7	44.0	85	85	75-125	2	20
Chromium	mg/kg	5.9	52.6	51.6	50.6	48.6	85	83	75-125	4	20
Lead	mg/kg	6.4	52.6	51.6	47.1	45.6	77	76	75-125	3	20
Selenium	mg/kg	ND	52.6	51.6	43.9	43.7	83	84	75-125	1	20
Silver	mg/kg	ND	26.3	25.8	22.4	22.2	85	86	75-125	1	20

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

QC Batch: MPRP/50743 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3010 Analysis Description: 6010C Water  
Associated Lab Samples: 10288662002, 10288662004

METHOD BLANK: 1847298 Matrix: Water  
Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	20.0	11/24/14 21:16	
Barium	ug/L	ND	10.0	11/24/14 21:16	
Cadmium	ug/L	ND	3.0	11/24/14 21:16	
Chromium	ug/L	ND	10.0	11/24/14 21:16	
Lead	ug/L	ND	10.0	11/24/14 21:16	
Selenium	ug/L	ND	20.0	11/24/14 21:16	
Silver	ug/L	ND	10.0	11/24/14 21:16	

LABORATORY CONTROL SAMPLE: 1847299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	997	100	80-120	
Barium	ug/L	1000	1050	105	80-120	
Cadmium	ug/L	1000	1020	102	80-120	
Chromium	ug/L	1000	999	100	80-120	
Lead	ug/L	1000	985	99	80-120	
Selenium	ug/L	1000	1020	102	80-120	
Silver	ug/L	500	503	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1847300 1847301

Parameter	Units	10288823004		1847301		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	ug/L	ND	1000	1000	1020	1030	102	103	75-125	1	20
Barium	ug/L	122	1000	1000	1180	1190	106	107	75-125	1	20
Cadmium	ug/L	ND	1000	1000	1020	1040	102	104	75-125	1	20
Chromium	ug/L	ND	1000	1000	991	998	99	99	75-125	1	20
Lead	ug/L	ND	1000	1000	961	967	96	96	75-125	1	20
Selenium	ug/L	ND	1000	1000	1020	1040	102	103	75-125	1	20
Silver	ug/L	ND	500	500	518	521	104	104	75-125	1	20

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: MPRP/50923

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

SAMPLE DUPLICATE: 1854911

Parameter	Units	10287191003 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	75.1	75.7	1	30	

SAMPLE DUPLICATE: 1854912

Parameter	Units	10288902007 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	3.5	3.3	5	30	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

QC Batch: MSV/29460 Analysis Method: EPA 8260  
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5030 Med Level  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006, 10288662007

METHOD BLANK: 1849747 Matrix: Solid  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006, 10288662007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	50.0	11/23/14 05:22	
1,1,1-Trichloroethane	ug/kg	ND	50.0	11/23/14 05:22	
1,1,2,2-Tetrachloroethane	ug/kg	ND	50.0	11/23/14 05:22	
1,1,2-Trichloroethane	ug/kg	ND	50.0	11/23/14 05:22	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	200	11/23/14 05:22	
1,1-Dichloroethane	ug/kg	ND	50.0	11/23/14 05:22	
1,1-Dichloroethene	ug/kg	ND	50.0	11/23/14 05:22	
1,1-Dichloropropene	ug/kg	ND	50.0	11/23/14 05:22	
1,2,3-Trichlorobenzene	ug/kg	21.1J	50.0	11/23/14 05:22	
1,2,3-Trichloropropane	ug/kg	ND	200	11/23/14 05:22	
1,2,4-Trichlorobenzene	ug/kg	ND	50.0	11/23/14 05:22	
1,2,4-Trimethylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
1,2-Dibromo-3-chloropropane	ug/kg	ND	500	11/23/14 05:22	
1,2-Dibromoethane (EDB)	ug/kg	ND	50.0	11/23/14 05:22	
1,2-Dichlorobenzene	ug/kg	ND	50.0	11/23/14 05:22	
1,2-Dichloroethane	ug/kg	ND	50.0	11/23/14 05:22	
1,2-Dichloropropane	ug/kg	ND	50.0	11/23/14 05:22	
1,3,5-Trimethylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
1,3-Dichlorobenzene	ug/kg	ND	50.0	11/23/14 05:22	
1,3-Dichloropropane	ug/kg	ND	50.0	11/23/14 05:22	
1,4-Dichlorobenzene	ug/kg	ND	50.0	11/23/14 05:22	
2,2-Dichloropropane	ug/kg	ND	200	11/23/14 05:22	
2-Butanone (MEK)	ug/kg	ND	1000	11/23/14 05:22	
2-Chlorotoluene	ug/kg	ND	50.0	11/23/14 05:22	
4-Chlorotoluene	ug/kg	ND	50.0	11/23/14 05:22	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	250	11/23/14 05:22	
Acetone	ug/kg	ND	1000	11/23/14 05:22	
Allyl chloride	ug/kg	ND	200	11/23/14 05:22	
Benzene	ug/kg	ND	20.0	11/23/14 05:22	
Bromobenzene	ug/kg	ND	50.0	11/23/14 05:22	
Bromochloromethane	ug/kg	ND	50.0	11/23/14 05:22	
Bromodichloromethane	ug/kg	ND	50.0	11/23/14 05:22	
Bromoform	ug/kg	ND	200	11/23/14 05:22	
Bromomethane	ug/kg	ND	500	11/23/14 05:22	
Carbon tetrachloride	ug/kg	ND	50.0	11/23/14 05:22	
Chlorobenzene	ug/kg	ND	50.0	11/23/14 05:22	
Chloroethane	ug/kg	ND	500	11/23/14 05:22	
Chloroform	ug/kg	ND	50.0	11/23/14 05:22	
Chloromethane	ug/kg	ND	200	11/23/14 05:22	
cis-1,2-Dichloroethene	ug/kg	ND	50.0	11/23/14 05:22	
cis-1,3-Dichloropropene	ug/kg	ND	50.0	11/23/14 05:22	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

METHOD BLANK: 1849747 Matrix: Solid  
Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006, 10288662007

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/kg	ND	50.0	11/23/14 05:22	
Dibromomethane	ug/kg	ND	50.0	11/23/14 05:22	
Dichlorodifluoromethane	ug/kg	ND	200	11/23/14 05:22	
Dichlorofluoromethane	ug/kg	ND	500	11/23/14 05:22	
Diethyl ether (Ethyl ether)	ug/kg	ND	200	11/23/14 05:22	
Ethylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
Hexachloro-1,3-butadiene	ug/kg	ND	250	11/23/14 05:22	
Isopropylbenzene (Cumene)	ug/kg	ND	50.0	11/23/14 05:22	
Methyl-tert-butyl ether	ug/kg	ND	50.0	11/23/14 05:22	
Methylene Chloride	ug/kg	ND	200	11/23/14 05:22	
n-Butylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
n-Propylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
Naphthalene	ug/kg	ND	200	11/23/14 05:22	
p-Isopropyltoluene	ug/kg	ND	50.0	11/23/14 05:22	
sec-Butylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
Styrene	ug/kg	ND	50.0	11/23/14 05:22	
tert-Butylbenzene	ug/kg	ND	50.0	11/23/14 05:22	
Tetrachloroethane	ug/kg	ND	50.0	11/23/14 05:22	
Tetrahydrofuran	ug/kg	ND	2000	11/23/14 05:22	
Toluene	ug/kg	ND	50.0	11/23/14 05:22	
trans-1,2-Dichloroethane	ug/kg	ND	50.0	11/23/14 05:22	
trans-1,3-Dichloropropene	ug/kg	ND	50.0	11/23/14 05:22	
Trichloroethene	ug/kg	ND	50.0	11/23/14 05:22	
Trichlorofluoromethane	ug/kg	ND	200	11/23/14 05:22	
Vinyl chloride	ug/kg	ND	20.0	11/23/14 05:22	
Xylene (Total)	ug/kg	ND	150	11/23/14 05:22	
1,2-Dichloroethane-d4 (S)	%	96	74-125	11/23/14 05:22	
4-Bromofluorobenzene (S)	%	102	75-125	11/23/14 05:22	
Toluene-d8 (S)	%	101	75-125	11/23/14 05:22	

LABORATORY CONTROL SAMPLE: 1849748

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1000	1110	111	68-125	
1,1,1-Trichloroethane	ug/kg	1000	1110	111	62-125	
1,1,2,2-Tetrachloroethane	ug/kg	1000	1180	118	61-127	
1,1,2-Trichloroethane	ug/kg	1000	1130	113	70-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	1000	1080	108	56-149	
1,1-Dichloroethane	ug/kg	1000	1180	118	60-127	
1,1-Dichloroethene	ug/kg	1000	1030	103	63-125	
1,1-Dichloropropene	ug/kg	1000	1190	119	67-125	
1,2,3-Trichlorobenzene	ug/kg	1000	962	96	63-132	
1,2,3-Trichloropropane	ug/kg	1000	981	98	67-125	
1,2,4-Trichlorobenzene	ug/kg	1000	1130	113	64-132	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1849748

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	1090	109	64-125	
1,2-Dibromo-3-chloropropane	ug/kg	2500	3100	124	56-132	
1,2-Dibromoethane (EDB)	ug/kg	1000	1110	111	72-125	
1,2-Dichlorobenzene	ug/kg	1000	1060	106	68-125	
1,2-Dichloroethane	ug/kg	1000	1150	115	69-125	
1,2-Dichloropropane	ug/kg	1000	1100	110	73-125	
1,3,5-Trimethylbenzene	ug/kg	1000	1060	106	64-125	
1,3-Dichlorobenzene	ug/kg	1000	1050	105	67-125	
1,3-Dichloropropane	ug/kg	1000	1130	113	71-125	
1,4-Dichlorobenzene	ug/kg	1000	1030	103	69-125	
2,2-Dichloropropane	ug/kg	1000	1130	113	53-131	
2-Butanone (MEK)	ug/kg	5000	4840	97	52-131	
2-Chlorotoluene	ug/kg	1000	1080	108	66-125	
4-Chlorotoluene	ug/kg	1000	1070	107	52-131	
4-Methyl-2-pentanone (MIBK)	ug/kg	5000	5400	108	64-125	
Acetone	ug/kg	5000	2440	49	42-150	CL
Allyl chloride	ug/kg	1000	1070	107	58-128	
Benzene	ug/kg	1000	1240	124	71-125	
Bromobenzene	ug/kg	1000	1120	112	69-125	
Bromochloromethane	ug/kg	1000	1030	103	75-125	
Bromodichloromethane	ug/kg	1000	1090	109	69-125	
Bromoform	ug/kg	1000	1160	116	62-125	
Bromomethane	ug/kg	1000	1500	150	62-125	L0,SS
Carbon tetrachloride	ug/kg	1000	1160	116	66-125	
Chlorobenzene	ug/kg	1000	1080	108	75-125	
Chloroethane	ug/kg	1000	867	87	61-125	
Chloroform	ug/kg	1000	1130	113	72-125	
Chloromethane	ug/kg	1000	937	94	59-125	
cis-1,2-Dichloroethene	ug/kg	1000	1180	118	74-125	
cis-1,3-Dichloropropene	ug/kg	1000	1040	104	68-125	
Dibromochloromethane	ug/kg	1000	1180	118	65-125	
Dibromomethane	ug/kg	1000	1150	115	72-125	
Dichlorodifluoromethane	ug/kg	1000	1140	114	39-125	
Dichlorofluoromethane	ug/kg	1000	1100	110	64-127	
Diethyl ether (Ethyl ether)	ug/kg	1000	1450	145	66-125	L0
Ethylbenzene	ug/kg	1000	1070	107	69-125	
Hexachloro-1,3-butadiene	ug/kg	1000	1070	107	53-150	
Isopropylbenzene (Cumene)	ug/kg	1000	978	98	70-125	
Methyl-tert-butyl ether	ug/kg	1000	1260	126	69-125	L0
Methylene Chloride	ug/kg	1000	1180	118	71-125	
n-Butylbenzene	ug/kg	1000	935	94	59-133	
n-Propylbenzene	ug/kg	1000	1060	106	64-125	
Naphthalene	ug/kg	1000	1050	105	61-131	
p-Isopropyltoluene	ug/kg	1000	998	100	63-127	
sec-Butylbenzene	ug/kg	1000	996	100	64-125	
Styrene	ug/kg	1000	1170	117	74-125	
tert-Butylbenzene	ug/kg	1000	1060	106	66-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1849748

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	1000	1040	104	68-125	
Tetrahydrofuran	ug/kg	10000	5900	59	68-125	CL,L0
Toluene	ug/kg	1000	1210	121	70-125	
trans-1,2-Dichloroethene	ug/kg	1000	1140	114	68-125	
trans-1,3-Dichloropropene	ug/kg	1000	1020	102	70-125	
Trichloroethene	ug/kg	1000	1040	104	71-125	
Trichlorofluoromethane	ug/kg	1000	1420	142	62-132	CH,L0
Vinyl chloride	ug/kg	1000	853	85	55-125	
Xylene (Total)	ug/kg	3000	3150	105	74-125	
1,2-Dichloroethane-d4 (S)	%			96	74-125	
4-Bromofluorobenzene (S)	%			102	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE SAMPLE: 1849749

Parameter	Units	10288662005 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	1050	1160	110	63-140	
1,1,1-Trichloroethane	ug/kg	ND	1050	1130	107	54-149	
1,1,2,2-Tetrachloroethane	ug/kg	ND	1050	1310	124	46-150	
1,1,2-Trichloroethane	ug/kg	ND	1050	1230	117	62-141	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	1050	1130	107	65-150	
1,1-Dichloroethane	ug/kg	ND	1050	1220	116	57-145	
1,1-Dichloroethene	ug/kg	ND	1050	1120	106	58-137	
1,1-Dichloropropene	ug/kg	ND	1050	1280	122	61-141	
1,2,3-Trichlorobenzene	ug/kg	ND	1050	1120	106	62-147	
1,2,3-Trichloropropane	ug/kg	ND	1050	1130	107	65-141	
1,2,4-Trichlorobenzene	ug/kg	ND	1050	1320	125	64-147	
1,2,4-Trimethylbenzene	ug/kg	ND	1050	1200	114	59-144	
1,2-Dibromo-3-chloropropane	ug/kg	ND	2630	3400	129	56-147	
1,2-Dibromoethane (EDB)	ug/kg	ND	1050	1230	116	66-135	
1,2-Dichlorobenzene	ug/kg	ND	1050	1170	111	63-143	
1,2-Dichloroethane	ug/kg	ND	1050	1220	116	57-145	
1,2-Dichloropropane	ug/kg	ND	1050	1170	111	62-139	
1,3,5-Trimethylbenzene	ug/kg	ND	1050	1150	109	60-144	
1,3-Dichlorobenzene	ug/kg	ND	1050	1160	110	61-146	
1,3-Dichloropropane	ug/kg	ND	1050	1230	117	63-138	
1,4-Dichlorobenzene	ug/kg	ND	1050	1170	111	60-145	
2,2-Dichloropropane	ug/kg	ND	1050	1160	110	54-143	
2-Butanone (MEK)	ug/kg	ND	5270	5620	107	45-150	
2-Chlorotoluene	ug/kg	ND	1050	1180	112	62-140	
4-Chlorotoluene	ug/kg	ND	1050	1200	114	60-143	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	5270	6180	118	58-146	
Acetone	ug/kg	ND	5270	2700	51	30-150	CL
Allyl chloride	ug/kg	ND	1050	1130	108	55-142	
Benzene	ug/kg	ND	1050	1280	121	61-134	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

MATRIX SPIKE SAMPLE:	1849749	10288662005	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromobenzene	ug/kg	ND	1050	1240	118	64-143	
Bromochloromethane	ug/kg	ND	1050	1100	104	62-141	
Bromodichloromethane	ug/kg	ND	1050	1150	109	57-146	
Bromoform	ug/kg	ND	1050	1230	117	60-136	
Bromomethane	ug/kg	ND	1050	1560	149	54-141	M0, SS
Carbon tetrachloride	ug/kg	ND	1050	1190	113	50-150	
Chlorobenzene	ug/kg	ND	1050	1190	113	67-135	
Chloroethane	ug/kg	ND	1050	819	78	46-150	
Chloroform	ug/kg	ND	1050	1220	116	60-141	
Chloromethane	ug/kg	ND	1050	765	73	46-133	
cis-1,2-Dichloroethene	ug/kg	ND	1050	1220	116	64-138	
cis-1,3-Dichloropropene	ug/kg	ND	1050	1160	110	64-138	
Dibromochloromethane	ug/kg	ND	1050	1270	121	56-145	
Dibromomethane	ug/kg	ND	1050	1200	114	62-138	
Dichlorodifluoromethane	ug/kg	ND	1050	820	78	30-136	
Dichlorofluoromethane	ug/kg	ND	1050	1060	100	47-150	
Diethyl ether (Ethyl ether)	ug/kg	ND	1050	1720	163	59-137	M0
Ethylbenzene	ug/kg	ND	1050	1180	112	63-135	
Hexachloro-1,3-butadiene	ug/kg	ND	1050	1230	117	65-150	
Isopropylbenzene (Cumene)	ug/kg	ND	1050	1100	104	65-137	
Methyl-tert-butyl ether	ug/kg	ND	1050	1420	135	56-143	
Methylene Chloride	ug/kg	ND	1050	1230	115	62-133	
n-Butylbenzene	ug/kg	ND	1050	1060	101	58-148	
n-Propylbenzene	ug/kg	ND	1050	1170	111	60-142	
Naphthalene	ug/kg	ND	1050	1220	116	61-146	
p-Isopropyltoluene	ug/kg	ND	1050	1140	109	61-145	
sec-Butylbenzene	ug/kg	ND	1050	1110	106	57-147	
Styrene	ug/kg	ND	1050	1310	124	67-137	
tert-Butylbenzene	ug/kg	ND	1050	1160	110	57-149	
Tetrachloroethene	ug/kg	ND	1050	1150	109	66-138	
Tetrahydrofuran	ug/kg	ND	10500	6430	61	53-145	CL
Toluene	ug/kg	ND	1050	1320	125	67-132	
trans-1,2-Dichloroethene	ug/kg	ND	1050	1180	112	61-136	
trans-1,3-Dichloropropene	ug/kg	ND	1050	1140	108	60-140	
Trichloroethene	ug/kg	ND	1050	1110	106	58-150	
Trichlorofluoromethane	ug/kg	ND	1050	1140	108	53-150	
Vinyl chloride	ug/kg	ND	1050	789	75	45-139	
Xylene (Total)	ug/kg	ND	3150	3460	110	66-136	
1,2-Dichloroethane-d4 (S)	%					95	74-125
4-Bromofluorobenzene (S)	%					101	75-125
Toluene-d8 (S)	%					106	75-125

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

SAMPLE DUPLICATE: 1849750

Parameter	Units	10288662006 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	ND		30	
Allyl chloride	ug/kg	ND	ND		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Dichlorofluoromethane	ug/kg	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

SAMPLE DUPLICATE: 1849750

Parameter	Units	10288662006 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Tetrahydrofuran	ug/kg	ND	ND		30	
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	95	96	8		
4-Bromofluorobenzene (S)	%.	107	102	3		
Toluene-d8 (S)	%.	105	105	7		

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: MSV/29485

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 465 W

Associated Lab Samples: 10288662002, 10288662004

METHOD BLANK: 1851363

Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/24/14 02:49	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/24/14 02:49	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/24/14 02:49	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/24/14 02:49	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/24/14 02:49	
1,1-Dichloroethane	ug/L	ND	1.0	11/24/14 02:49	
1,1-Dichloroethene	ug/L	ND	1.0	11/24/14 02:49	
1,1-Dichloropropene	ug/L	ND	1.0	11/24/14 02:49	
1,2,3-Trichlorobenzene	ug/L	0.78J	1.0	11/24/14 02:49	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/24/14 02:49	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/24/14 02:49	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/24/14 02:49	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/24/14 02:49	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/24/14 02:49	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/24/14 02:49	
1,2-Dichloroethane	ug/L	ND	1.0	11/24/14 02:49	
1,2-Dichloropropane	ug/L	ND	4.0	11/24/14 02:49	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/24/14 02:49	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/24/14 02:49	
1,3-Dichloropropane	ug/L	ND	1.0	11/24/14 02:49	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/24/14 02:49	
2,2-Dichloropropane	ug/L	ND	4.0	11/24/14 02:49	
2-Butanone (MEK)	ug/L	ND	5.0	11/24/14 02:49	
2-Chlorotoluene	ug/L	ND	1.0	11/24/14 02:49	
4-Chlorotoluene	ug/L	ND	1.0	11/24/14 02:49	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/24/14 02:49	
Acetone	ug/L	ND	20.0	11/24/14 02:49	
Allyl chloride	ug/L	ND	4.0	11/24/14 02:49	
Benzene	ug/L	ND	1.0	11/24/14 02:49	
Bromobenzene	ug/L	ND	1.0	11/24/14 02:49	
Bromochloromethane	ug/L	ND	1.0	11/24/14 02:49	
Bromodichloromethane	ug/L	ND	1.0	11/24/14 02:49	
Bromoform	ug/L	ND	4.0	11/24/14 02:49	
Bromomethane	ug/L	ND	4.0	11/24/14 02:49	
Carbon tetrachloride	ug/L	ND	1.0	11/24/14 02:49	
Chlorobenzene	ug/L	ND	1.0	11/24/14 02:49	
Chloroethane	ug/L	ND	1.0	11/24/14 02:49	
Chloroform	ug/L	ND	1.0	11/24/14 02:49	
Chloromethane	ug/L	ND	4.0	11/24/14 02:49	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/24/14 02:49	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/24/14 02:49	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

METHOD BLANK: 1851363 Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/24/14 02:49	
Dibromomethane	ug/L	ND	4.0	11/24/14 02:49	
Dichlorodifluoromethane	ug/L	ND	1.0	11/24/14 02:49	
Dichlorofluoromethane	ug/L	ND	1.0	11/24/14 02:49	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/24/14 02:49	
Ethylbenzene	ug/L	ND	1.0	11/24/14 02:49	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/24/14 02:49	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/24/14 02:49	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/24/14 02:49	
Methylene Chloride	ug/L	ND	4.0	11/24/14 02:49	
n-Butylbenzene	ug/L	ND	1.0	11/24/14 02:49	
n-Propylbenzene	ug/L	ND	1.0	11/24/14 02:49	
Naphthalene	ug/L	ND	4.0	11/24/14 02:49	
p-Isopropyltoluene	ug/L	ND	1.0	11/24/14 02:49	
sec-Butylbenzene	ug/L	ND	1.0	11/24/14 02:49	
Styrene	ug/L	ND	1.0	11/24/14 02:49	
tert-Butylbenzene	ug/L	ND	1.0	11/24/14 02:49	
Tetrachloroethene	ug/L	ND	1.0	11/24/14 02:49	
Tetrahydrofuran	ug/L	ND	10.0	11/24/14 02:49	
Toluene	ug/L	ND	1.0	11/24/14 02:49	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/24/14 02:49	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/24/14 02:49	
Trichloroethene	ug/L	ND	0.40	11/24/14 02:49	
Trichlorofluoromethane	ug/L	ND	1.0	11/24/14 02:49	
Vinyl chloride	ug/L	ND	0.40	11/24/14 02:49	
Xylene (Total)	ug/L	ND	3.0	11/24/14 02:49	
1,2-Dichloroethane-d4 (S)	%	101	75-125	11/24/14 02:49	
4-Bromofluorobenzene (S)	%	104	75-125	11/24/14 02:49	
Toluene-d8 (S)	%	102	75-125	11/24/14 02:49	

LABORATORY CONTROL SAMPLE: 1851364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	21.9	110	75-125	
1,1,1-Trichloroethane	ug/L	20	21.2	106	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	19.9	100	74-125	
1,1,2-Trichloroethane	ug/L	20	20.7	104	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.9	99	56-133	
1,1-Dichloroethane	ug/L	20	20.4	102	75-125	
1,1-Dichloroethene	ug/L	20	20.6	103	70-125	
1,1-Dichloropropene	ug/L	20	18.7	94	73-125	
1,2,3-Trichlorobenzene	ug/L	20	20.1	100	75-125	
1,2,3-Trichloropropane	ug/L	20	19.4	97	75-125	
1,2,4-Trichlorobenzene	ug/L	20	19.6	98	75-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1851364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	21.0	105	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	50.6	101	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	20.6	103	75-125	
1,2-Dichlorobenzene	ug/L	20	21.1	106	75-125	
1,2-Dichloroethane	ug/L	20	19.9	99	75-125	
1,2-Dichloropropane	ug/L	20	20.4	102	75-125	
1,3,5-Trimethylbenzene	ug/L	20	22.2	111	75-125	
1,3-Dichlorobenzene	ug/L	20	20.5	102	75-125	
1,3-Dichloropropane	ug/L	20	20.4	102	75-125	
1,4-Dichlorobenzene	ug/L	20	20.1	100	75-125	
2,2-Dichloropropane	ug/L	20	18.8	94	66-130	
2-Butanone (MEK)	ug/L	100	94.2	94	64-126	
2-Chlorotoluene	ug/L	20	21.1	106	73-125	
4-Chlorotoluene	ug/L	20	21.0	105	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	88.8	89	71-125	
Acetone	ug/L	100	92.0	92	66-131	
Allyl chloride	ug/L	20	19.2	96	70-129	
Benzene	ug/L	20	19.8	99	75-125	
Bromobenzene	ug/L	20	20.3	101	75-125	
Bromochloromethane	ug/L	20	20.5	103	75-125	
Bromodichloromethane	ug/L	20	20.9	104	75-125	
Bromoform	ug/L	20	18.7	94	70-125	
Bromomethane	ug/L	20	25.1	126	30-150	
Carbon tetrachloride	ug/L	20	19.2	96	68-129	
Chlorobenzene	ug/L	20	20.3	101	75-125	
Chloroethane	ug/L	20	26.7	134	68-133	L0
Chloroform	ug/L	20	20.6	103	75-125	
Chloromethane	ug/L	20	19.1	95	57-140	
cis-1,2-Dichloroethene	ug/L	20	19.5	98	75-125	
cis-1,3-Dichloropropene	ug/L	20	21.8	109	75-125	
Dibromochloromethane	ug/L	20	20.6	103	75-125	
Dibromomethane	ug/L	20	20.8	104	75-125	
Dichlorodifluoromethane	ug/L	20	21.7	109	50-134	
Dichlorofluoromethane	ug/L	20	23.0	115	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	19.0	95	75-125	
Ethylbenzene	ug/L	20	20.1	101	75-125	
Hexachloro-1,3-butadiene	ug/L	20	21.6	108	74-128	
Isopropylbenzene (Cumene)	ug/L	20	20.1	101	73-125	
Methyl-tert-butyl ether	ug/L	20	20.0	100	75-125	
Methylene Chloride	ug/L	20	18.3	91	75-125	
n-Butylbenzene	ug/L	20	18.8	94	73-125	
n-Propylbenzene	ug/L	20	21.2	106	72-125	
Naphthalene	ug/L	20	20.2	101	74-125	
p-Isopropyltoluene	ug/L	20	19.8	99	74-125	
sec-Butylbenzene	ug/L	20	20.1	101	74-125	
Styrene	ug/L	20	21.6	108	75-125	
tert-Butylbenzene	ug/L	20	22.2	111	74-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1851364

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/L	20	21.1	106	71-125	
Tetrahydrofuran	ug/L	200	205	103	70-125	
Toluene	ug/L	20	20.1	101	75-125	
trans-1,2-Dichloroethene	ug/L	20	20.2	101	73-125	
trans-1,3-Dichloropropene	ug/L	20	18.8	94	75-125	
Trichloroethene	ug/L	20	21.5	108	75-125	
Trichlorofluoromethane	ug/L	20	25.5	127	70-128	
Vinyl chloride	ug/L	20	19.9	99	70-130	
Xylene (Total)	ug/L	60	63.4	106	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-125	
4-Bromofluorobenzene (S)	%			97	75-125	
Toluene-d8 (S)	%			101	75-125	

MATRIX SPIKE SAMPLE: 1852399

Parameter	Units	10288819002 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	20	17.6	88	74-131	
1,1,1-Trichloroethane	ug/L	ND	20	18.1	91	73-139	
1,1,2,2-Tetrachloroethane	ug/L	ND	20	16.7	83	72-125	
1,1,2-Trichloroethane	ug/L	ND	20	16.8	84	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	20	16.9	84	68-150	
1,1-Dichloroethane	ug/L	ND	20	16.8	84	73-132	
1,1-Dichloroethene	ug/L	ND	20	18.9	94	71-142	
1,1-Dichloropropene	ug/L	ND	20	16.3	82	73-139	
1,2,3-Trichlorobenzene	ug/L	ND	20	16.3	81	70-129	
1,2,3-Trichloropropane	ug/L	ND	20	16.0	80	74-125	
1,2,4-Trichlorobenzene	ug/L	ND	20	16.1	81	70-129	
1,2,4-Trimethylbenzene	ug/L	ND	20	17.2	86	72-136	
1,2-Dibromo-3-chloropropane	ug/L	ND	50	42.8	86	66-127	
1,2-Dibromoethane (EDB)	ug/L	ND	20	17.1	86	75-125	
1,2-Dichlorobenzene	ug/L	ND	20	17.3	87	75-125	
1,2-Dichloroethane	ug/L	ND	20	16.5	83	68-128	
1,2-Dichloropropane	ug/L	ND	20	16.4	82	74-131	
1,3,5-Trimethylbenzene	ug/L	ND	20	18.4	92	75-131	
1,3-Dichlorobenzene	ug/L	ND	20	17.1	85	73-125	
1,3-Dichloropropane	ug/L	ND	20	16.4	82	75-125	
1,4-Dichlorobenzene	ug/L	ND	20	16.8	84	73-125	
2,2-Dichloropropane	ug/L	ND	20	15.8	79	58-150	
2-Butanone (MEK)	ug/L	ND	100	79.5	80	56-140	
2-Chlorotoluene	ug/L	ND	20	17.6	88	70-130	
4-Chlorotoluene	ug/L	ND	20	17.3	86	73-126	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	100	77.0	77	69-128	
Acetone	ug/L	ND	100	77.7	73	57-143	
Allyl chloride	ug/L	ND	20	16.3	81	65-146	
Benzene	ug/L	ND	20	16.4	82	75-129	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

MATRIX SPIKE SAMPLE:	1852399	10288819002	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromobenzene	ug/L	ND	20	16.4	82	74-125	
Bromochloromethane	ug/L	ND	20	17.2	86	75-126	
Bromodichloromethane	ug/L	ND	20	16.8	84	75-128	
Bromoform	ug/L	ND	20	16.2	81	66-130	
Bromomethane	ug/L	ND	20	22.8	114	30-150	
Carbon tetrachloride	ug/L	ND	20	17.0	85	69-148	
Chlorobenzene	ug/L	ND	20	16.7	83	75-125	
Chloroethane	ug/L	ND	20	23.5	118	71-143	
Chloroform	ug/L	ND	20	17.2	86	75-126	
Chloromethane	ug/L	ND	20	17.7	89	55-150	
cis-1,2-Dichloroethene	ug/L	ND	20	16.0	80	75-130	
cis-1,3-Dichloropropene	ug/L	ND	20	17.1	85	72-129	
Dibromochloromethane	ug/L	ND	20	16.8	84	73-129	
Dibromomethane	ug/L	ND	20	17.4	87	75-125	
Dichlorodifluoromethane	ug/L	ND	20	19.6	98	70-150	
Dichlorofluoromethane	ug/L	ND	20	22.5	110	75-135	
Diethyl ether (Ethyl ether)	ug/L	ND	20	15.4	77	72-126	
Ethylbenzene	ug/L	ND	20	16.8	84	75-128	
Hexachloro-1,3-butadiene	ug/L	ND	20	19.1	95	65-144	
Isopropylbenzene (Cumene)	ug/L	ND	20	17.0	85	75-131	
Methyl-tert-butyl ether	ug/L	ND	20	16.1	80	74-128	
Methylene Chloride	ug/L	ND	20	15.3	76	69-125	
n-Butylbenzene	ug/L	ND	20	16.3	82	70-137	
n-Propylbenzene	ug/L	ND	20	17.5	88	72-131	
Naphthalene	ug/L	ND	20	16.1	76	70-132	
p-Isopropyltoluene	ug/L	ND	20	16.9	84	73-133	
sec-Butylbenzene	ug/L	ND	20	17.4	87	74-133	
Styrene	ug/L	ND	20	18.2	91	75-128	
tert-Butylbenzene	ug/L	ND	20	18.7	93	74-130	
Tetrachloroethene	ug/L	ND	20	18.0	90	68-140	
Tetrahydrofuran	ug/L	ND	200	172	86	65-131	
Toluene	ug/L	ND	20	16.8	84	75-129	
trans-1,2-Dichloroethene	ug/L	ND	20	17.9	89	70-136	
trans-1,3-Dichloropropene	ug/L	ND	20	15.0	75	71-125	
Trichloroethene	ug/L	ND	20	18.1	91	72-135	
Trichlorofluoromethane	ug/L	ND	20	25.0	125	75-150	
Vinyl chloride	ug/L	ND	20	19.1	95	73-150	
Xylene (Total)	ug/L	ND	60	53.5	89	75-129	
1,2-Dichloroethane-d4 (S)	%				101	75-125	
4-Bromofluorobenzene (S)	%				98	75-125	
Toluene-d8 (S)	%				99	75-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

SAMPLE DUPLICATE: 1852400

Parameter	Units	10288819003 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,1-Trichloroethane	ug/L	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/L	ND	ND		30	
1,1,2-Trichloroethane	ug/L	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	ND		30	
1,1-Dichloroethane	ug/L	ND	ND		30	
1,1-Dichloroethene	ug/L	ND	ND		30	
1,1-Dichloropropene	ug/L	ND	ND		30	
1,2,3-Trichlorobenzene	ug/L	ND	ND		30	
1,2,3-Trichloropropane	ug/L	ND	ND		30	
1,2,4-Trichlorobenzene	ug/L	ND	ND		30	
1,2,4-Trimethylbenzene	ug/L	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/L	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/L	ND	ND		30	
1,2-Dichlorobenzene	ug/L	ND	ND		30	
1,2-Dichloroethane	ug/L	ND	ND		30	
1,2-Dichloropropane	ug/L	ND	ND		30	
1,3,5-Trimethylbenzene	ug/L	ND	ND		30	
1,3-Dichlorobenzene	ug/L	ND	ND		30	
1,3-Dichloropropane	ug/L	ND	ND		30	
1,4-Dichlorobenzene	ug/L	ND	ND		30	
2,2-Dichloropropane	ug/L	ND	ND		30	
2-Butanone (MEK)	ug/L	ND	ND		30	
2-Chlorotoluene	ug/L	ND	ND		30	
4-Chlorotoluene	ug/L	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	ND		30	
Acetone	ug/L	ND	ND		30	
Allyl chloride	ug/L	ND	ND		30	
Benzene	ug/L	ND	ND		30	
Bromobenzene	ug/L	ND	ND		30	
Bromochloromethane	ug/L	ND	ND		30	
Bromodichloromethane	ug/L	ND	ND		30	
Bromoform	ug/L	ND	ND		30	
Bromomethane	ug/L	ND	ND		30	
Carbon tetrachloride	ug/L	ND	ND		30	
Chlorobenzene	ug/L	ND	ND		30	
Chloroethane	ug/L	ND	ND		30	
Chloroform	ug/L	ND	ND		30	
Chloromethane	ug/L	ND	ND		30	
cis-1,2-Dichloroethene	ug/L	ND	ND		30	
cis-1,3-Dichloropropene	ug/L	ND	ND		30	
Dibromochloromethane	ug/L	ND	ND		30	
Dibromomethane	ug/L	ND	ND		30	
Dichlorodifluoromethane	ug/L	ND	ND		30	
Dichlorofluoromethane	ug/L	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/L	ND	ND		30	
Ethylbenzene	ug/L	ND	ND		30	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

SAMPLE DUPLICATE: 1852400

Parameter	Units	10288819003 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/L	ND	ND		30	
Isopropylbenzene (Cumene)	ug/L	ND	ND		30	
Methyl-tert-butyl ether	ug/L	ND	ND		30	
Methylene Chloride	ug/L	ND	ND		30	
n-Butylbenzene	ug/L	ND	ND		30	
n-Propylbenzene	ug/L	ND	ND		30	
Naphthalene	ug/L	ND	ND		30	
p-Isopropyltoluene	ug/L	ND	ND		30	
sec-Butylbenzene	ug/L	ND	ND		30	
Styrene	ug/L	ND	ND		30	
tert-Butylbenzene	ug/L	ND	ND		30	
Tetrachloroethene	ug/L	ND	ND		30	
Tetrahydrofuran	ug/L	ND	ND		30	
Toluene	ug/L	ND	ND		30	
trans-1,2-Dichloroethene	ug/L	ND	ND		30	
trans-1,3-Dichloropropene	ug/L	ND	ND		30	
Trichloroethene	ug/L	ND	ND		30	
Trichlorofluoromethane	ug/L	ND	ND		30	
Vinyl chloride	ug/L	ND	ND		30	
Xylene (Total)	ug/L	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	102	100	2		
4-Bromofluorobenzene (S)	%.	105	102	3		
Toluene-d8 (S)	%.	101	100	1		

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

QC Batch: OEXT/27330 Analysis Method: EPA 8270  
QC Batch Method: EPA 3550 Analysis Description: 8270 Solid MSSV  
Associated Lab Samples: 10288662003, 10288662005, 10288662006

METHOD BLANK: 1848044 Matrix: Solid  
Associated Lab Samples: 10288662003, 10288662005, 10288662006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1,2-Dichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1,2-Diphenylhydrazine	ug/kg	ND	330	11/20/14 08:27	
1,3-Dichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1,4-Dichlorobenzene	ug/kg	ND	330	11/20/14 08:27	
1-Methylnaphthalene	ug/kg	ND	330	11/20/14 08:27	
2,4,5-Trichlorophenol	ug/kg	ND	330	11/20/14 08:27	
2,4,6-Trichlorophenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dichlorophenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dimethylphenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dinitrophenol	ug/kg	ND	330	11/20/14 08:27	
2,4-Dinitrotoluene	ug/kg	ND	330	11/20/14 08:27	
2,6-Dinitrotoluene	ug/kg	ND	330	11/20/14 08:27	
2-Chloronaphthalene	ug/kg	ND	330	11/20/14 08:27	
2-Chlorophenol	ug/kg	ND	330	11/20/14 08:27	
2-Methylnaphthalene	ug/kg	ND	330	11/20/14 08:27	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	11/20/14 08:27	
2-Nitroaniline	ug/kg	ND	330	11/20/14 08:27	
2-Nitrophenol	ug/kg	ND	330	11/20/14 08:27	
3&4-Methylphenol	ug/kg	ND	660	11/20/14 08:27	
3,3'-Dichlorobenzidine	ug/kg	ND	330	11/20/14 08:27	
3-Nitroaniline	ug/kg	ND	330	11/20/14 08:27	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1700	11/20/14 08:27	
4-Bromophenylphenyl ether	ug/kg	ND	330	11/20/14 08:27	
4-Chloro-3-methylphenol	ug/kg	ND	330	11/20/14 08:27	
4-Chloroaniline	ug/kg	ND	330	11/20/14 08:27	
4-Chlorophenylphenyl ether	ug/kg	ND	330	11/20/14 08:27	
4-Nitroaniline	ug/kg	ND	330	11/20/14 08:27	
4-Nitrophenol	ug/kg	ND	330	11/20/14 08:27	
Acenaphthene	ug/kg	ND	330	11/20/14 08:27	
Acenaphthylene	ug/kg	ND	330	11/20/14 08:27	
Anthracene	ug/kg	ND	330	11/20/14 08:27	
Benzo(a)anthracene	ug/kg	ND	330	11/20/14 08:27	
Benzo(a)pyrene	ug/kg	ND	330	11/20/14 08:27	
Benzo(b)fluoranthene	ug/kg	ND	330	11/20/14 08:27	
Benzo(g,h,i)perylene	ug/kg	ND	330	11/20/14 08:27	
Benzo(k)fluoranthene	ug/kg	ND	330	11/20/14 08:27	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	11/20/14 08:27	
bis(2-Chloroethyl) ether	ug/kg	ND	330	11/20/14 08:27	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	11/20/14 08:27	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	11/20/14 08:27	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

METHOD BLANK: 1848044 Matrix: Solid  
Associated Lab Samples: 10288662003, 10288662005, 10288662006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	11/20/14 08:27	
Carbazole	ug/kg	ND	330	11/20/14 08:27	
Chrysene	ug/kg	ND	330	11/20/14 08:27	
Di-n-butylphthalate	ug/kg	ND	330	11/20/14 08:27	
Di-n-octylphthalate	ug/kg	ND	330	11/20/14 08:27	
Dibenz(a,h)anthracene	ug/kg	ND	330	11/20/14 08:27	
Dibenzofuran	ug/kg	ND	330	11/20/14 08:27	
Diethylphthalate	ug/kg	ND	330	11/20/14 08:27	
Dimethylphthalate	ug/kg	ND	330	11/20/14 08:27	
Fluoranthene	ug/kg	ND	330	11/20/14 08:27	
Fluorene	ug/kg	ND	330	11/20/14 08:27	
Hexachloro-1,3-butadiene	ug/kg	ND	330	11/20/14 08:27	
Hexachlorobenzene	ug/kg	ND	330	11/20/14 08:27	
Hexachloroethane	ug/kg	ND	330	11/20/14 08:27	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	11/20/14 08:27	
Isophorone	ug/kg	ND	330	11/20/14 08:27	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	11/20/14 08:27	
N-Nitrosodimethylamine	ug/kg	ND	330	11/20/14 08:27	
N-Nitrosodiphenylamine	ug/kg	ND	330	11/20/14 08:27	
Naphthalene	ug/kg	ND	330	11/20/14 08:27	
Nitrobenzene	ug/kg	ND	330	11/20/14 08:27	
Pentachlorophenol	ug/kg	ND	670	11/20/14 08:27	
Phenanthrene	ug/kg	ND	330	11/20/14 08:27	
Phenol	ug/kg	ND	330	11/20/14 08:27	
Pyrene	ug/kg	ND	330	11/20/14 08:27	
2,4,6-Tribromophenol (S)	%	82	41-125	11/20/14 08:27	
2-Fluorobiphenyl (S)	%	76	46-125	11/20/14 08:27	
2-Fluorophenol (S)	%	76	31-125	11/20/14 08:27	
Nitrobenzene-d5 (S)	%	80	30-125	11/20/14 08:27	
Phenol-d6 (S)	%	80	38-125	11/20/14 08:27	
Terphenyl-d14 (S)	%	89	64-125	11/20/14 08:27	

LABORATORY CONTROL SAMPLE: 1848045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1360	82	40-125	
1,2-Dichlorobenzene	ug/kg	1670	1380	83	32-125	
1,2-Diphenylhydrazine	ug/kg	1670	1720	103	63-125	
1,3-Dichlorobenzene	ug/kg	1670	1340	80	31-125	
1,4-Dichlorobenzene	ug/kg	1670	1370	82	30-125	
1-Methylnaphthalene	ug/kg	1670	1440	86	54-125	
2,4,5-Trichlorophenol	ug/kg	1670	1410	85	63-125	
2,4,6-Trichlorophenol	ug/kg	1670	1370	82	62-125	
2,4-Dichlorophenol	ug/kg	1670	1380	83	56-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1848045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dimethylphenol	ug/kg	1670	1480	89	55-125	
2,4-Dinitrophenol	ug/kg	1670	1070	64	30-129	
2,4-Dinitrotoluene	ug/kg	1670	1420	85	61-125	
2,6-Dinitrotoluene	ug/kg	1670	1500	90	63-125	
2-Chloronaphthalene	ug/kg	1670	1410	85	60-125	
2-Chlorophenol	ug/kg	1670	1420	85	37-125	
2-Methylnaphthalene	ug/kg	1670	1420	85	56-125	
2-Methylphenol(o-Cresol)	ug/kg	1670	1510	91	45-125	
2-Nitroaniline	ug/kg	1670	1780	107	63-125	
2-Nitrophenol	ug/kg	1670	1380	83	47-125	
3&4-Methylphenol	ug/kg	1670	1540	92	50-125	
3,3'-Dichlorobenzidine	ug/kg	1670	979	59	49-125	
3-Nitroaniline	ug/kg	1670	1190	71	48-125	
4,6-Dinitro-2-methylphenol	ug/kg	1670	1340J	81	39-125	
4-Bromophenylphenyl ether	ug/kg	1670	1400	84	65-125	
4-Chloro-3-methylphenol	ug/kg	1670	1570	94	63-125	
4-Chloroaniline	ug/kg	1670	810	49	30-125	
4-Chlorophenylphenyl ether	ug/kg	1670	1410	85	66-125	
4-Nitroaniline	ug/kg	1670	1430	86	60-125	
4-Nitrophenol	ug/kg	1670	1730	104	59-125	
Acenaphthene	ug/kg	1670	1410	84	62-125	
Acenaphthylene	ug/kg	1670	1420	85	64-125	
Anthracene	ug/kg	1670	1440	86	66-125	
Benzo(a)anthracene	ug/kg	1670	1480	89	66-125	
Benzo(a)pyrene	ug/kg	1670	1440	86	66-125	
Benzo(b)fluoranthene	ug/kg	1670	1390	83	65-125	
Benzo(g,h,i)perylene	ug/kg	1670	1510	90	67-125	
Benzo(k)fluoranthene	ug/kg	1670	1380	83	66-125	
bis(2-Chloroethoxy)methane	ug/kg	1670	1510	91	51-125	
bis(2-Chloroethyl) ether	ug/kg	1670	1780	107	30-125	
bis(2-Chloroisopropyl) ether	ug/kg	1670	1990	119	30-125 2M	
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1580	95	68-125	
Butylbenzylphthalate	ug/kg	1670	1530	92	67-125	
Carbazole	ug/kg	1670	1460	88	63-125	
Chrysene	ug/kg	1670	1430	86	67-125	
Di-n-butylphthalate	ug/kg	1670	1520	91	68-125	
Di-n-octylphthalate	ug/kg	1670	1580	95	65-125	
Dibenz(a,h)anthracene	ug/kg	1670	1500	90	67-125	
Dibenzofuran	ug/kg	1670	1410	85	64-125	
Diethylphthalate	ug/kg	1670	1470	88	65-125	
Dimethylphthalate	ug/kg	1670	1460	88	63-125	
Fluoranthene	ug/kg	1670	1380	83	66-125	
Fluorene	ug/kg	1670	1450	87	64-125	
Hexachloro-1,3-butadiene	ug/kg	1670	1360	82	33-125	
Hexachlorobenzene	ug/kg	1670	1420	85	65-125	
Hexachloroethane	ug/kg	1670	1450	87	30-125	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1510	90	67-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1848045

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1620	97	56-125	
N-Nitroso-di-n-propylamine	ug/kg	1670	1690	102	45-125	
N-Nitrosodimethylamine	ug/kg	1670	1750	105	30-125	
N-Nitrosodiphenylamine	ug/kg	1670	1480	89	65-125	
Naphthalene	ug/kg	1670	1380	83	44-125	
Nitrobenzene	ug/kg	1670	1590	95	39-125	
Pentachlorophenol	ug/kg	1670	1330	80	45-125	
Phenanthrene	ug/kg	1670	1460	88	66-125	
Phenol	ug/kg	1670	1590	96	44-125	
Pyrene	ug/kg	1670	1470	88	67-125	
2,4,6-Tribromophenol (S)	%			87	41-125	
2-Fluorobiphenyl (S)	%			85	46-125	
2-Fluorophenol (S)	%			85	31-125	
Nitrobenzene-d5 (S)	%			91	30-125	
Phenol-d6 (S)	%			91	38-125	
Terphenyl-d14 (S)	%			88	64-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1848047 1848048

Parameter	Units	10288709001		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Spike Conc.	Spike Conc.	MS Result	MSD Result	% Rec	% Rec					
1,2,4-Trichlorobenzene	ug/kg	ND	3730	3730	2460	2030	66	55	38-125	19	30		
1,2-Dichlorobenzene	ug/kg	ND	3730	3730	2250	1780	61	48	42-125	23	30		
1,2-Diphenylhydrazine	ug/kg	ND	3730	3730	3950	3530	106	95	58-125	11	30		
1,3-Dichlorobenzene	ug/kg	ND	3730	3730	2220	1780	60	48	32-125	22	30		
1,4-Dichlorobenzene	ug/kg	ND	3730	3730	2290	1730	62	46	31-125	28	30		
1-Methylnaphthalene	ug/kg	ND	3730	3730	2890	2540	78	68	56-125	13	30		
2,4,5-Trichlorophenol	ug/kg	ND	3730	3730	3220	2810	86	76	56-125	14	30		
2,4,6-Trichlorophenol	ug/kg	ND	3730	3730	3210	2830	86	76	57-125	13	30		
2,4-Dichlorophenol	ug/kg	ND	3730	3730	3030	2630	82	71	55-125	14	30		
2,4-Dimethylphenol	ug/kg	ND	3730	3730	3240	2820	87	76	55-125	14	30		
2,4-Dinitrophenol	ug/kg	ND	3730	3730	1800	1560	48	42	30-127	14	30		
2,4-Dinitrotoluene	ug/kg	ND	3730	3730	3230	2970	87	80	36-129	9	30		
2,6-Dinitrotoluene	ug/kg	ND	3730	3730	3380	3100	91	83	37-127	9	30		
2-Chloronaphthalene	ug/kg	ND	3730	3730	3140	2790	85	75	56-125	12	30		
2-Chlorophenol	ug/kg	ND	3730	3730	2520	2050	68	55	46-125	21	30		
2-Methylnaphthalene	ug/kg	ND	3730	3730	2920	2530	79	68	54-125	15	30		
2-Methylphenol(o-Cresol)	ug/kg	ND	3730	3730	2950	2580	79	69	53-125	13	30		
2-Nitroaniline	ug/kg	ND	3730	3730	4130	3820	111	103	59-125	8	30		
2-Nitrophenol	ug/kg	ND	3730	3730	2680	2190	72	59	30-125	20	30		
3&4-Methylphenol	ug/kg	ND	3730	3730	3120	2690	84	72	54-125	15	30		
3,3'-Dichlorobenzidine	ug/kg	ND	3730	3730	1720	2200	46	59	30-148	24	30		
3-Nitroaniline	ug/kg	ND	3730	3730	2530	1960	68	53	31-125	25	30		
4,6-Dinitro-2-methylphenol	ug/kg	ND	3730	3730	2840J	2590J	76	70	30-150		30		
4-Bromophenylphenyl ether	ug/kg	ND	3730	3730	3360	2900	90	78	59-125	15	30		

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
 Pace Project No.: 10288662

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1848047												1848048	
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10288709001 Result	Spike Conc.	Spike Conc.	MS Conc.								
4-Chloro-3-methylphenol	ug/kg	ND	3730	3730	3420	2990	92	80	62-125	13	30		
4-Chloroaniline	ug/kg	ND	3730	3730	1380	815	37	22	30-125	51	30	M1,R1	
4-Chlorophenylphenyl ether	ug/kg	ND	3730	3730	3300	2980	89	80	61-125	10	30		
4-Nitroaniline	ug/kg	ND	3730	3730	2560	2350	69	63	53-125	8	30		
4-Nitrophenol	ug/kg	ND	3730	3730	3800	3360	102	90	45-125	12	30		
Acenaphthene	ug/kg	ND	3730	3730	3160	2840	85	76	58-125	11	30		
Acenaphthylene	ug/kg	ND	3730	3730	3210	2870	86	77	59-125	11	30		
Anthracene	ug/kg	ND	3730	3730	3280	2920	88	79	54-125	11	30		
Benzo(a)anthracene	ug/kg	ND	3730	3730	3410	2960	92	80	61-125	14	30		
Benzo(a)pyrene	ug/kg	ND	3730	3730	3400	2930	91	79	41-129	15	30		
Benzo(b)fluoranthene	ug/kg	ND	3730	3730	3450	2930	93	79	43-129	17	30		
Benzo(g,h,i)perylene	ug/kg	ND	3730	3730	3500	3030	94	82	55-125	14	30		
Benzo(k)fluoranthene	ug/kg	ND	3730	3730	3350	2900	90	78	53-125	14	30		
bis(2-Chloroethoxy)methane	ug/kg	ND	3730	3730	2940	2460	79	66	52-125	18	30		
bis(2-Chloroethyl) ether	ug/kg	ND	3730	3730	3310	2450	89	66	30-125	30	30		
bis(2-Chloroisopropyl) ether	ug/kg	ND	3730	3730	3540	2710	95	73	30-127	27	30	2M	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	3730	3730	3700	3180	100	86	67-125	15	30		
Butylbenzylphthalate	ug/kg	ND	3730	3730	3640	3120	98	84	63-125	15	30		
Carbazole	ug/kg	ND	3730	3730	3290	2980	88	80	58-125	10	30		
Chrysene	ug/kg	ND	3730	3730	3380	3010	91	81	39-133	12	30		
Di-n-butylphthalate	ug/kg	ND	3730	3730	3500	3100	94	83	64-125	12	30		
Di-n-octylphthalate	ug/kg	ND	3730	3730	3660	3130	98	84	64-125	15	30		
Dibenz(a,h)anthracene	ug/kg	ND	3730	3730	3490	3060	94	82	58-125	13	30		
Dibenzofuran	ug/kg	ND	3730	3730	3310	2930	89	79	60-125	12	30		
Diethylphthalate	ug/kg	ND	3730	3730	3440	2950	93	79	63-125	15	30		
Dimethylphthalate	ug/kg	ND	3730	3730	3300	3010	89	81	63-125	9	30		
Fluoranthene	ug/kg	ND	3730	3730	3310	2870	89	77	54-125	14	30		
Fluorene	ug/kg	ND	3730	3730	3360	2940	90	79	60-125	13	30		
Hexachloro-1,3-butadiene	ug/kg	ND	3730	3730	2310	1810	62	49	35-125	24	30		
Hexachlorobenzene	ug/kg	ND	3730	3730	3380	2990	91	80	58-125	12	30		
Hexachloroethane	ug/kg	ND	3730	3730	2240	1660	60	45	30-125	30	30		
Indeno(1,2,3-cd)pyrene	ug/kg	ND	3730	3730	3500	3130	94	84	51-125	11	30		
Isophorone	ug/kg	ND	3730	3730	3220	2830	87	76	54-125	13	30		
N-Nitroso-di-n-propylamine	ug/kg	ND	3730	3730	3150	2710	85	73	51-125	15	30		
N-Nitrosodimethylamine	ug/kg	ND	3730	3730	2730	2060	73	55	30-130	28	30		
N-Nitrosodiphenylamine	ug/kg	ND	3730	3730	3310	2950	89	79	61-125	12	30		
Naphthalene	ug/kg	ND	3730	3730	2620	2180	70	59	46-125	18	30		
Nitrobenzene	ug/kg	ND	3730	3730	2890	2380	78	64	41-125	19	30		
Pentachlorophenol	ug/kg	ND	3730	3730	3050	2560	82	69	30-136	17	30		
Phenanthrene	ug/kg	ND	3730	3730	3330	2950	90	79	55-125	12	30		
Phenol	ug/kg	ND	3730	3730	2960	2520	80	68	49-125	16	30		
Pyrene	ug/kg	ND	3730	3730	3400	3020	91	81	43-129	12	30		
2,4,6-Tribromophenol (S)	%						86	79	41-125				
2-Fluorobiphenyl (S)	%						80	71	46-125				
2-Fluorophenol (S)	%						65	51	31-125				
Nitrobenzene-d5 (S)	%						71	60	30-125				

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1848047		1848048									
Parameter	Units	10288709001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
Phenol-d6 (S)	%.						75	65	38-125				
Terphenyl-d14 (S)	%.						87	79	64-125				

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: OEXT/27399

Analysis Method: EPA 8270

QC Batch Method: EPA 3550

Analysis Description: 8270 Solid MSSV

Associated Lab Samples: 10288662001

METHOD BLANK: 1852549

Matrix: Solid

Associated Lab Samples: 10288662001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	11/30/14 13:20	
1,2-Dichlorobenzene	ug/kg	ND	330	11/30/14 13:20	
1,2-Diphenylhydrazine	ug/kg	ND	330	11/30/14 13:20	
1,3-Dichlorobenzene	ug/kg	ND	330	11/30/14 13:20	
1,4-Dichlorobenzene	ug/kg	ND	330	11/30/14 13:20	
1-Methylnaphthalene	ug/kg	ND	330	11/30/14 13:20	
2,4,5-Trichlorophenol	ug/kg	ND	330	11/30/14 13:20	
2,4,6-Trichlorophenol	ug/kg	ND	330	11/30/14 13:20	
2,4-Dichlorophenol	ug/kg	ND	330	11/30/14 13:20	
2,4-Dimethylphenol	ug/kg	ND	330	11/30/14 13:20	
2,4-Dinitrophenol	ug/kg	ND	330	11/30/14 13:20	
2,4-Dinitrotoluene	ug/kg	ND	330	11/30/14 13:20	
2,6-Dinitrotoluene	ug/kg	ND	330	11/30/14 13:20	
2-Chloronaphthalene	ug/kg	ND	330	11/30/14 13:20	
2-Chlorophenol	ug/kg	ND	330	11/30/14 13:20	
2-Methylnaphthalene	ug/kg	ND	330	11/30/14 13:20	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	11/30/14 13:20	
2-Nitroaniline	ug/kg	ND	330	11/30/14 13:20	
2-Nitrophenol	ug/kg	ND	330	11/30/14 13:20	
3&4-Methylphenol	ug/kg	ND	660	11/30/14 13:20	
3,3'-Dichlorobenzidine	ug/kg	ND	330	11/30/14 13:20	
3-Nitroaniline	ug/kg	ND	330	11/30/14 13:20	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1700	11/30/14 13:20	
4-Bromophenylphenyl ether	ug/kg	ND	330	11/30/14 13:20	
4-Chloro-3-methylphenol	ug/kg	ND	330	11/30/14 13:20	
4-Chloroaniline	ug/kg	ND	330	11/30/14 13:20	
4-Chlorophenylphenyl ether	ug/kg	ND	330	11/30/14 13:20	
4-Nitroaniline	ug/kg	ND	330	11/30/14 13:20	
4-Nitrophenol	ug/kg	ND	330	11/30/14 13:20	
Acenaphthene	ug/kg	ND	330	11/30/14 13:20	
Acenaphthylene	ug/kg	ND	330	11/30/14 13:20	
Anthracene	ug/kg	ND	330	11/30/14 13:20	
Benzo(a)anthracene	ug/kg	ND	330	11/30/14 13:20	
Benzo(a)pyrene	ug/kg	ND	330	11/30/14 13:20	
Benzo(b)fluoranthene	ug/kg	ND	330	11/30/14 13:20	
Benzo(g,h,i)perylene	ug/kg	ND	330	11/30/14 13:20	
Benzo(k)fluoranthene	ug/kg	ND	330	11/30/14 13:20	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	11/30/14 13:20	
bis(2-Chloroethyl) ether	ug/kg	ND	330	11/30/14 13:20	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	11/30/14 13:20	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	11/30/14 13:20	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

METHOD BLANK: 1852549

Matrix: Solid

Associated Lab Samples: 10288662001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	11/30/14 13:20	
Carbazole	ug/kg	ND	330	11/30/14 13:20	
Chrysene	ug/kg	ND	330	11/30/14 13:20	
Di-n-butylphthalate	ug/kg	ND	330	11/30/14 13:20	
Di-n-octylphthalate	ug/kg	ND	330	11/30/14 13:20	
Dibenz(a,h)anthracene	ug/kg	ND	330	11/30/14 13:20	
Dibenzofuran	ug/kg	ND	330	11/30/14 13:20	
Diethylphthalate	ug/kg	ND	330	11/30/14 13:20	
Dimethylphthalate	ug/kg	ND	330	11/30/14 13:20	
Fluoranthene	ug/kg	ND	330	11/30/14 13:20	
Fluorene	ug/kg	ND	330	11/30/14 13:20	
Hexachloro-1,3-butadiene	ug/kg	ND	330	11/30/14 13:20	
Hexachlorobenzene	ug/kg	ND	330	11/30/14 13:20	
Hexachloroethane	ug/kg	ND	330	11/30/14 13:20	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	11/30/14 13:20	
Isophorone	ug/kg	ND	330	11/30/14 13:20	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	11/30/14 13:20	
N-Nitrosodimethylamine	ug/kg	ND	330	11/30/14 13:20	
N-Nitrosodiphenylamine	ug/kg	ND	330	11/30/14 13:20	
Naphthalene	ug/kg	ND	330	11/30/14 13:20	
Nitrobenzene	ug/kg	ND	330	11/30/14 13:20	
Pentachlorophenol	ug/kg	ND	670	11/30/14 13:20	
Phenanthrene	ug/kg	ND	330	11/30/14 13:20	
Phenol	ug/kg	ND	330	11/30/14 13:20	
Pyrene	ug/kg	ND	330	11/30/14 13:20	
2,4,6-Tribromophenol (S)	%	68	41-125	11/30/14 13:20	
2-Fluorobiphenyl (S)	%	70	46-125	11/30/14 13:20	
2-Fluorophenol (S)	%	66	31-125	11/30/14 13:20	
Nitrobenzene-d5 (S)	%	63	30-125	11/30/14 13:20	
Phenol-d6 (S)	%	63	38-125	11/30/14 13:20	
Terphenyl-d14 (S)	%	78	64-125	11/30/14 13:20	

LABORATORY CONTROL SAMPLE: 1852550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1230	74	40-125	
1,2-Dichlorobenzene	ug/kg	1670	1200	72	32-125	
1,2-Diphenylhydrazine	ug/kg	1670	1090	65	63-125	
1,3-Dichlorobenzene	ug/kg	1670	1200	72	31-125	
1,4-Dichlorobenzene	ug/kg	1670	1200	72	30-125	
1-Methylnaphthalene	ug/kg	1670	1230	74	54-125	
2,4,5-Trichlorophenol	ug/kg	1670	1240	75	63-125	
2,4,6-Trichlorophenol	ug/kg	1670	1250	75	62-125	
2,4-Dichlorophenol	ug/kg	1670	1240	75	56-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1852550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dimethylphenol	ug/kg	1670	1170	70	55-125	
2,4-Dinitrophenol	ug/kg	1670	924	55	30-129	
2,4-Dinitrotoluene	ug/kg	1670	1270	76	61-125	
2,6-Dinitrotoluene	ug/kg	1670	1270	76	63-125	
2-Chloronaphthalene	ug/kg	1670	1250	75	60-125	
2-Chlorophenol	ug/kg	1670	1180	71	37-125	
2-Methylnaphthalene	ug/kg	1670	1230	74	56-125	
2-Methylphenol(o-Cresol)	ug/kg	1670	1130	68	45-125	
2-Nitroaniline	ug/kg	1670	1100	66	63-125	
2-Nitrophenol	ug/kg	1670	1240	74	47-125	
3&4-Methylphenol	ug/kg	1670	1140	68	50-125	
3,3'-Dichlorobenzidine	ug/kg	1670	955	57	49-125	
3-Nitroaniline	ug/kg	1670	972	58	48-125	
4,6-Dinitro-2-methylphenol	ug/kg	1670	1100J	66	39-125	
4-Bromophenylphenyl ether	ug/kg	1670	1260	75	65-125	
4-Chloro-3-methylphenol	ug/kg	1670	1220	73	63-125	
4-Chloroaniline	ug/kg	1670	820	49	30-125	
4-Chlorophenylphenyl ether	ug/kg	1670	1260	75	66-125	
4-Nitroaniline	ug/kg	1670	1150	69	60-125	
4-Nitrophenol	ug/kg	1670	1030	62	59-125	
Acenaphthene	ug/kg	1670	1240	75	62-125	
Acenaphthylene	ug/kg	1670	1260	75	64-125	
Anthracene	ug/kg	1670	1250	75	66-125	
Benzo(a)anthracene	ug/kg	1670	1250	75	66-125	
Benzo(a)pyrene	ug/kg	1670	1280	77	66-125	
Benzo(b)fluoranthene	ug/kg	1670	1240	74	65-125	
Benzo(g,h,i)perylene	ug/kg	1670	1270	76	67-125	
Benzo(k)fluoranthene	ug/kg	1670	1260	76	66-125	
bis(2-Chloroethoxy)methane	ug/kg	1670	1120	67	51-125	
bis(2-Chloroethyl) ether	ug/kg	1670	996	60	30-125	
bis(2-Chloroisopropyl) ether	ug/kg	1670	838	50	30-125 2M	
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1230	74	68-125	
Butylbenzylphthalate	ug/kg	1670	1270	76	67-125	
Carbazole	ug/kg	1670	1230	74	63-125	
Chrysene	ug/kg	1670	1240	74	67-125	
Di-n-butylphthalate	ug/kg	1670	1250	75	68-125	
Di-n-octylphthalate	ug/kg	1670	1240	75	65-125	
Dibenz(a,h)anthracene	ug/kg	1670	1270	76	67-125	
Dibenzofuran	ug/kg	1670	1240	74	64-125	
Diethylphthalate	ug/kg	1670	1250	75	65-125	
Dimethylphthalate	ug/kg	1670	1240	75	63-125	
Fluoranthene	ug/kg	1670	1230	74	66-125	
Fluorene	ug/kg	1670	1250	75	64-125	
Hexachloro-1,3-butadiene	ug/kg	1670	1240	75	33-125	
Hexachlorobenzene	ug/kg	1670	1240	74	65-125	
Hexachloroethane	ug/kg	1670	1150	69	30-125	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1290	77	67-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE: 1852550

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1100	66	56-125	
N-Nitroso-di-n-propylamine	ug/kg	1670	1020	61	45-125	
N-Nitrosodimethylamine	ug/kg	1670	900	54	30-125	2M
N-Nitrosodiphenylamine	ug/kg	1670	1230	74	65-125	
Naphthalene	ug/kg	1670	1200	72	44-125	
Nitrobenzene	ug/kg	1670	1110	66	39-125	
Pentachlorophenol	ug/kg	1670	1090	65	45-125	
Phenanthrene	ug/kg	1670	1240	74	66-125	
Phenol	ug/kg	1670	1090	65	44-125	
Pyrene	ug/kg	1670	1280	77	67-125	
2,4,6-Tribromophenol (S)	%			74	41-125	
2-Fluorobiphenyl (S)	%			75	46-125	
2-Fluorophenol (S)	%			69	31-125	
Nitrobenzene-d5 (S)	%			67	30-125	
Phenol-d6 (S)	%			66	38-125	
Terphenyl-d14 (S)	%			77	64-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1852553 1852554

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		10289623003 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,2,4-Trichlorobenzene	ug/kg	ND	1670	1670	1110	1110	66	67	38-125	0	30	
1,2-Dichlorobenzene	ug/kg	ND	1670	1670	1080	1060	65	63	42-125	2	30	
1,2-Diphenylhydrazine	ug/kg	ND	1670	1670	990	1040	59	63	58-125	5	30	
1,3-Dichlorobenzene	ug/kg	ND	1670	1670	1070	1060	64	63	32-125	2	30	
1,4-Dichlorobenzene	ug/kg	ND	1670	1670	1070	1040	64	63	31-125	2	30	
1-Methylnaphthalene	ug/kg	ND	1670	1670	1130	1160	68	70	56-125	2	30	
2,4,5-Trichlorophenol	ug/kg	ND	1670	1670	1140	1200	68	72	56-125	5	30	
2,4,6-Trichlorophenol	ug/kg	ND	1670	1670	1150	1210	69	73	57-125	5	30	
2,4-Dichlorophenol	ug/kg	ND	1670	1670	1140	1180	68	71	55-125	3	30	
2,4-Dimethylphenol	ug/kg	ND	1670	1670	1060	1110	64	67	55-125	5	30	
2,4-Dinitrophenol	ug/kg	ND	1670	1670	837	688	50	41	30-127	20	30	
2,4-Dinitrotoluene	ug/kg	ND	1670	1670	1180	1240	71	74	36-129	5	30	
2,6-Dinitrotoluene	ug/kg	ND	1670	1670	1150	1200	69	72	37-127	4	30	
2-Chloronaphthalene	ug/kg	ND	1670	1670	1150	1190	69	71	56-125	3	30	
2-Chlorophenol	ug/kg	ND	1670	1670	1080	1070	65	64	46-125	1	30	
2-Methylnaphthalene	ug/kg	ND	1670	1670	1130	1170	68	70	54-125	3	30	
2-Methylphenol(o-Cresol)	ug/kg	ND	1670	1670	1070	1060	64	63	53-125	2	30	
2-Nitroaniline	ug/kg	ND	1670	1670	989	1060	59	63	59-125	7	30	
2-Nitrophenol	ug/kg	ND	1670	1670	1130	1140	68	68	30-125	1	30	
3&4-Methylphenol	ug/kg	ND	1670	1670	1050	1080	63	65	54-125	3	30	
3,3'-Dichlorobenzidine	ug/kg	ND	1670	1670	911	886	55	53	30-148	3	30	
3-Nitroaniline	ug/kg	ND	1670	1670	888	846	53	51	31-125	5	30	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1670	1670	1010J	975J	60	58	30-150		30	
4-Bromophenylphenyl ether	ug/kg	ND	1670	1670	1140	1190	68	71	59-125	4	30	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288662

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1852553		1852554								
Parameter	Units	10289623003	MS	MSD	MS	MSD	MS	MSD	% Rec	Max	RPD	Qual
		Result	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec	Limits			
4-Chloro-3-methylphenol	ug/kg	ND	1670	1670	1100	1160	66	70	62-125	5	30	
4-Chloroaniline	ug/kg	ND	1670	1670	657	608	39	37	30-125	8	30	
4-Chlorophenylphenyl ether	ug/kg	ND	1670	1670	1160	1200	70	72	61-125	3	30	
4-Nitroaniline	ug/kg	ND	1670	1670	1050	1100	63	66	53-125	4	30	
4-Nitrophenol	ug/kg	ND	1670	1670	926	972	56	58	45-125	5	30	
Acenaphthene	ug/kg	ND	1670	1670	1140	1180	68	71	58-125	3	30	
Acenaphthylene	ug/kg	ND	1670	1670	1160	1210	70	73	59-125	4	30	
Anthracene	ug/kg	ND	1670	1670	1130	1190	68	71	54-125	5	30	
Benzo(a)anthracene	ug/kg	ND	1670	1670	1140	1200	68	72	61-125	5	30	
Benzo(a)pyrene	ug/kg	ND	1670	1670	1180	1210	71	73	41-129	3	30	
Benzo(b)fluoranthene	ug/kg	ND	1670	1670	1180	1220	71	73	43-129	3	30	
Benzo(g,h,i)perylene	ug/kg	ND	1670	1670	1190	1220	71	73	55-125	3	30	
Benzo(k)fluoranthene	ug/kg	ND	1670	1670	1160	1190	69	71	53-125	3	30	
bis(2-Chloroethoxy)methane	ug/kg	ND	1670	1670	1010	1050	61	63	52-125	3	30	
bis(2-Chloroethyl) ether	ug/kg	ND	1670	1670	886	872	53	52	30-125	2	30	
bis(2-Chloroisopropyl) ether	ug/kg	ND	1670	1670	747	731	45	44	30-127	2	30	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	1670	1670	1130	1160	68	69	67-125	2	30	
Butylbenzylphthalate	ug/kg	ND	1670	1670	1160	1210	70	72	63-125	4	30	
Carbazole	ug/kg	ND	1670	1670	1120	1160	67	69	58-125	4	30	
Chrysene	ug/kg	ND	1670	1670	1140	1190	69	71	39-133	4	30	
Di-n-butylphthalate	ug/kg	ND	1670	1670	1130	1170	68	70	64-125	4	30	
Di-n-octylphthalate	ug/kg	ND	1670	1670	1160	1190	70	71	64-125	2	30	
Dibenz(a,h)anthracene	ug/kg	ND	1670	1670	1180	1220	71	73	58-125	3	30	
Dibenzofuran	ug/kg	ND	1670	1670	1150	1190	69	72	60-125	4	30	
Diethylphthalate	ug/kg	ND	1670	1670	1140	1200	69	72	63-125	5	30	
Dimethylphthalate	ug/kg	ND	1670	1670	1150	1190	69	72	63-125	4	30	
Fluoranthene	ug/kg	ND	1670	1670	1130	1170	68	70	54-125	4	30	
Fluorene	ug/kg	ND	1670	1670	1150	1200	69	72	60-125	5	30	
Hexachloro-1,3-butadiene	ug/kg	ND	1670	1670	1090	1130	66	68	35-125	3	30	
Hexachlorobenzene	ug/kg	ND	1670	1670	1110	1170	67	70	58-125	5	30	
Hexachloroethane	ug/kg	ND	1670	1670	1040	1010	63	61	30-125	3	30	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	1670	1670	1200	1240	72	75	51-125	4	30	
Isophorone	ug/kg	ND	1670	1670	1010	1040	61	62	54-125	3	30	
N-Nitroso-di-n-propylamine	ug/kg	ND	1670	1670	939	944	56	57	51-125	1	30	
N-Nitrosodimethylamine	ug/kg	ND	1670	1670	793	788	48	47	30-130	1	30	
N-Nitrosodiphenylamine	ug/kg	ND	1670	1670	1120	1160	67	70	61-125	4	30	
Naphthalene	ug/kg	ND	1670	1670	1090	1090	65	66	46-125	0	30	
Nitrobenzene	ug/kg	ND	1670	1670	997	1010	60	60	41-125	1	30	
Pentachlorophenol	ug/kg	ND	1670	1670	988	1060	59	63	30-136	7	30	
Phenanthrene	ug/kg	ND	1670	1670	1130	1200	68	72	55-125	6	30	
Phenol	ug/kg	ND	1670	1670	1010	1010	61	60	49-125	1	30	
Pyrene	ug/kg	ND	1670	1670	1170	1220	70	73	43-129	4	30	
2,4,6-Tribromophenol (S)	%						67	73	41-125			
2-Fluorobiphenyl (S)	%						69	72	46-125			
2-Fluorophenol (S)	%						62	63	31-125			
Nitrobenzene-d5 (S)	%						60	63	30-125			

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1852553 1852554												
Parameter	Units	10289623003 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual
			Spike Conc.	Spike Conc.						RPD	RPD	
Phenol-d6 (S)	%.						61	62	38-125			
Terphenyl-d14 (S)	%.						70	75	64-125			

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: OEXT/27288

Analysis Method: EPA 8270

QC Batch Method: EPA 3520

Analysis Description: 8270 Water MSSV

Associated Lab Samples: 10288662002, 10288662004

METHOD BLANK: 1845699

Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	10.0	11/18/14 12:22	
1,2-Dichlorobenzene	ug/L	ND	10.0	11/18/14 12:22	
1,2-Diphenylhydrazine	ug/L	ND	10.0	11/18/14 12:22	
1,3-Dichlorobenzene	ug/L	ND	10.0	11/18/14 12:22	
1,4-Dichlorobenzene	ug/L	ND	10.0	11/18/14 12:22	
1-Methylnaphthalene	ug/L	ND	10.0	11/18/14 12:22	
2,4,5-Trichlorophenol	ug/L	ND	10.0	11/18/14 12:22	
2,4,6-Trichlorophenol	ug/L	ND	10.0	11/18/14 12:22	
2,4-Dichlorophenol	ug/L	ND	10.0	11/18/14 12:22	
2,4-Dimethylphenol	ug/L	ND	50.0	11/18/14 12:22	
2,4-Dinitrophenol	ug/L	ND	10.0	11/18/14 12:22	
2,4-Dinitrotoluene	ug/L	ND	10.0	11/18/14 12:22	
2,6-Dinitrotoluene	ug/L	ND	10.0	11/18/14 12:22	
2-Chloronaphthalene	ug/L	ND	10.0	11/18/14 12:22	
2-Chlorophenol	ug/L	ND	10.0	11/18/14 12:22	
2-Methylnaphthalene	ug/L	ND	10.0	11/18/14 12:22	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	11/18/14 12:22	
2-Nitroaniline	ug/L	ND	10.0	11/18/14 12:22	
2-Nitrophenol	ug/L	ND	10.0	11/18/14 12:22	
3&4-Methylphenol	ug/L	ND	20.0	11/18/14 12:22	
3,3'-Dichlorobenzidine	ug/L	ND	50.0	11/18/14 12:22	
3-Nitroaniline	ug/L	ND	10.0	11/18/14 12:22	
4,6-Dinitro-2-methylphenol	ug/L	ND	10.0	11/18/14 12:22	
4-Bromophenylphenyl ether	ug/L	ND	10.0	11/18/14 12:22	
4-Chloro-3-methylphenol	ug/L	ND	10.0	11/18/14 12:22	
4-Chloroaniline	ug/L	ND	50.0	11/18/14 12:22	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	11/18/14 12:22	
4-Nitroaniline	ug/L	ND	10.0	11/18/14 12:22	
4-Nitrophenol	ug/L	ND	10.0	11/18/14 12:22	
Acenaphthene	ug/L	ND	10.0	11/18/14 12:22	
Acenaphthylene	ug/L	ND	10.0	11/18/14 12:22	
Anthracene	ug/L	ND	10.0	11/18/14 12:22	
Benzo(a)anthracene	ug/L	ND	10.0	11/18/14 12:22	
Benzo(a)pyrene	ug/L	ND	10.0	11/18/14 12:22	
Benzo(b)fluoranthene	ug/L	ND	10.0	11/18/14 12:22	
Benzo(g,h,i)perylene	ug/L	ND	10.0	11/18/14 12:22	
Benzo(k)fluoranthene	ug/L	ND	10.0	11/18/14 12:22	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	11/18/14 12:22	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	11/18/14 12:22	
bis(2-Chloroisopropyl) ether	ug/L	ND	10.0	11/18/14 12:22	
bis(2-Ethylhexyl)phthalate	ug/L	ND	10.0	11/18/14 12:22	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

METHOD BLANK: 1845699

Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/L	ND	10.0	11/18/14 12:22	
Carbazole	ug/L	ND	10.0	11/18/14 12:22	
Chrysene	ug/L	ND	10.0	11/18/14 12:22	
Di-n-butylphthalate	ug/L	ND	10.0	11/18/14 12:22	
Di-n-octylphthalate	ug/L	ND	10.0	11/18/14 12:22	
Dibenz(a,h)anthracene	ug/L	ND	10.0	11/18/14 12:22	
Dibenzofuran	ug/L	ND	10.0	11/18/14 12:22	
Diethylphthalate	ug/L	ND	10.0	11/18/14 12:22	
Dimethylphthalate	ug/L	ND	10.0	11/18/14 12:22	
Fluoranthene	ug/L	ND	10.0	11/18/14 12:22	
Fluorene	ug/L	ND	10.0	11/18/14 12:22	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	11/18/14 12:22	
Hexachlorobenzene	ug/L	ND	10.0	11/18/14 12:22	
Hexachloroethane	ug/L	ND	10.0	11/18/14 12:22	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	11/18/14 12:22	
Isophorone	ug/L	ND	10.0	11/18/14 12:22	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	11/18/14 12:22	
N-Nitrosodimethylamine	ug/L	ND	10.0	11/18/14 12:22	
N-Nitrosodiphenylamine	ug/L	ND	10.0	11/18/14 12:22	
Naphthalene	ug/L	ND	10.0	11/18/14 12:22	
Nitrobenzene	ug/L	ND	10.0	11/18/14 12:22	
Pentachlorophenol	ug/L	ND	20.0	11/18/14 12:22	
Phenanthrene	ug/L	ND	10.0	11/18/14 12:22	
Phenol	ug/L	ND	10.0	11/18/14 12:22	
Pyrene	ug/L	ND	10.0	11/18/14 12:22	
2,4,6-Tribromophenol (S)	%	79	66-125	11/18/14 12:22	
2-Fluorobiphenyl (S)	%	80	55-125	11/18/14 12:22	
2-Fluorophenol (S)	%	80	53-125	11/18/14 12:22	
Nitrobenzene-d5 (S)	%	80	60-125	11/18/14 12:22	
Phenol-d6 (S)	%	80	59-125	11/18/14 12:22	
Terphenyl-d14 (S)	%	89	67-125	11/18/14 12:22	

LABORATORY CONTROL SAMPLE & LCSD: 1845700

1845701

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	41.4	41.6	83	83	60-125	0	20	
1,2-Dichlorobenzene	ug/L	50	39.1	39.1	78	78	59-125	0	20	
1,2-Diphenylhydrazine	ug/L	50	44.0	44.9	88	90	71-125	2	20	
1,3-Dichlorobenzene	ug/L	50	38.6	38.3	77	77	56-125	1	20	
1,4-Dichlorobenzene	ug/L	50	38.6	38.7	77	77	57-125	0	20	
1-Methylnaphthalene	ug/L	50	42.1	43.8	84	88	69-125	4	20	
2,4,5-Trichlorophenol	ug/L	50	44.7	46.1	89	92	75-125	3	20	
2,4,6-Trichlorophenol	ug/L	50	44.8	45.2	90	90	74-125	1	20	
2,4-Dichlorophenol	ug/L	50	42.2	44.0	84	88	68-125	4	20	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE & LCSD:		1845700	1845701		LCS	LCSD	% Rec		Max	
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	% Rec	% Rec	Limits	RPD	RPD	Qualifiers
2,4-Dimethylphenol	ug/L	50	36.5J	38.1J	73	76	45-125		20	
2,4-Dinitrophenol	ug/L	50	38.9	42.3	78	85	30-142	8	20	
2,4-Dinitrotoluene	ug/L	50	45.4	47.5	91	95	75-125	5	20	
2,6-Dinitrotoluene	ug/L	50	45.4	46.6	91	93	75-125	3	20	
2-Chloronaphthalene	ug/L	50	43.4	44.6	87	89	72-125	3	20	
2-Chlorophenol	ug/L	50	40.4	41.5	81	83	57-125	3	20	
2-Methylnaphthalene	ug/L	50	42.0	43.8	84	88	70-125	4	20	
2-Methylphenol(o-Cresol)	ug/L	50	40.3	41.6	81	83	61-125	3	20	
2-Nitroaniline	ug/L	50	44.6	45.2	89	90	74-125	1	20	
2-Nitrophenol	ug/L	50	42.4	43.3	85	87	65-125	2	20	
3&4-Methylphenol	ug/L	50	40.3	42.9	81	86	65-125	6	20	
3,3'-Dichlorobenzidine	ug/L	50	44.4J	42.7J	89	85	65-129		20	
3-Nitroaniline	ug/L	50	48.7	46.4	97	93	70-127	5	20	
4,6-Dinitro-2-methylphenol	ug/L	50	41.5	44.2	83	88	45-134	6	20	
4-Bromophenylphenyl ether	ug/L	50	45.4	46.3	91	93	75-125	2	20	
4-Chloro-3-methylphenol	ug/L	50	43.7	45.8	87	92	75-125	5	20	
4-Chloroaniline	ug/L	50	42.7J	40.2J	85	80	45-125		20	
4-Chlorophenylphenyl ether	ug/L	50	44.9	46.4	90	93	75-125	3	20	
4-Nitroaniline	ug/L	50	44.2	46.2	88	92	71-125	4	20	
4-Nitrophenol	ug/L	50	43.7	44.0	87	88	65-126	1	20	
Acenaphthene	ug/L	50	44.7	45.4	89	91	75-125	2	20	
Acenaphthylene	ug/L	50	44.3	45.1	89	90	75-125	2	20	
Anthracene	ug/L	50	45.0	46.4	90	93	75-125	3	20	
Benzo(a)anthracene	ug/L	50	45.0	46.8	90	94	75-125	4	20	
Benzo(a)pyrene	ug/L	50	45.2	46.3	90	93	75-125	2	20	
Benzo(b)fluoranthene	ug/L	50	44.1	45.5	88	91	75-125	3	20	
Benzo(g,h,i)perylene	ug/L	50	45.0	46.5	90	93	75-125	3	20	
Benzo(k)fluoranthene	ug/L	50	47.2	48.9	94	98	75-125	3	20	
bis(2-Chloroethoxy)methane	ug/L	50	41.2	42.9	82	86	66-125	4	20	
bis(2-Chloroethyl) ether	ug/L	50	40.1	40.1	80	80	54-125	0	20	
bis(2-Chloroisopropyl) ether	ug/L	50	37.5	37.4	75	75	51-125	0	20	
bis(2-Ethylhexyl)phthalate	ug/L	50	44.9	50.9	90	102	75-125	12	20	
Butylbenzylphthalate	ug/L	50	45.3	46.7	91	93	75-125	3	20	
Carbazole	ug/L	50	45.3	46.9	91	94	75-125	4	20	
Chrysene	ug/L	50	44.7	46.9	89	94	75-125	5	20	
Di-n-butylphthalate	ug/L	50	44.9	46.5	90	93	75-125	3	20	
Di-n-octylphthalate	ug/L	50	44.3	46.1	89	92	75-125	4	20	
Dibenz(a,h)anthracene	ug/L	50	45.5	46.7	91	93	75-125	3	20	
Dibenzofuran	ug/L	50	44.8	45.3	90	91	75-125	1	20	
Diethylphthalate	ug/L	50	44.7	46.4	89	93	75-125	4	20	
Dimethylphthalate	ug/L	50	45.3	46.6	91	93	75-125	3	20	
Fluoranthene	ug/L	50	45.4	46.8	91	94	75-125	3	20	
Fluorene	ug/L	50	44.7	45.7	89	91	75-125	2	20	
Hexachloro-1,3-butadiene	ug/L	50	40.0	40.7	80	81	56-125	2	20	
Hexachlorobenzene	ug/L	50	44.8	46.3	90	93	75-125	3	20	
Hexachloroethane	ug/L	50	37.7	38.1	75	76	52-125	1	20	
Indeno(1,2,3-cd)pyrene	ug/L	50	45.3	46.4	91	93	75-125	2	20	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

LABORATORY CONTROL SAMPLE & LCSD: 1845700			1845701							
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Isophorone	ug/L	50	41.8	43.8	84	88	71-125	5	20	
N-Nitroso-di-n-propylamine	ug/L	50	39.8	41.3	80	83	65-125	4	20	
N-Nitrosodimethylamine	ug/L	50	40.1	38.9	80	78	54-125	3	20	
N-Nitrosodiphenylamine	ug/L	50	44.0	45.5	88	91	75-125	3	20	
Naphthalene	ug/L	50	40.8	42.0	82	84	65-125	3	20	
Nitrobenzene	ug/L	50	41.0	41.7	82	83	61-125	2	20	
Pentachlorophenol	ug/L	50	43.5	46.3	87	93	46-128	6	20	
Phenanthrene	ug/L	50	45.1	46.6	90	93	75-125	3	20	
Phenol	ug/L	50	40.9	41.6	82	83	60-125	2	20	
Pyrene	ug/L	50	45.8	47.5	92	95	75-125	4	20	
2,4,6-Tribromophenol (S)	%				87	89	66-125			
2-Fluorobiphenyl (S)	%				84	85	55-125			
2-Fluorophenol (S)	%				78	78	53-125			
Nitrobenzene-d5 (S)	%				79	80	60-125			
Phenol-d6 (S)	%				79	79	59-125			
Terphenyl-d14 (S)	%				88	91	67-125			

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: OEXT/27349 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

METHOD BLANK: 1849674 Matrix: Solid

Associated Lab Samples: 10288662001, 10288662003, 10288662005, 10288662006

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	11/21/14 17:31	
n-Triacontane (S)	%.	99	50-150	11/21/14 17:31	

LABORATORY CONTROL SAMPLE & LCSD: 1849675 1849676

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	63.0	70.9	79	89	70-120	12	20	
n-Triacontane (S)	%.				86	94	50-150			

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288662

QC Batch: OEXT/27266 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10288662002, 10288662004

METHOD BLANK: 1844215 Matrix: Water

Associated Lab Samples: 10288662002, 10288662004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	11/15/14 13:25	
n-Triacontane (S)	%.	77	50-150	11/15/14 13:25	

LABORATORY CONTROL SAMPLE & LCSD: 1844216 1844217

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	1.8	90	91	75-115	1	20	
n-Triacontane (S)	%.				90	90	50-150			

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## QUALIFIERS

Project: MnDOT I35W  
Pace Project No.: 10288662

### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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 Surrogate recovery outside laboratory control limits due to matrix interferences.

2M The associated compound was outside of 20% for the associated continuing calibration but within 40% of the true value.

B Analyte was detected in the associated method blank.

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

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

D6 The relative percent difference (RPD) between the sample and sample duplicate exceeded laboratory control limits.

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.

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

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

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.

S0 Surrogate recovery outside laboratory control limits.

S5 Surrogate recovery outside control limits due to matrix interferences (not confirmed by re-analysis).

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

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## QUALIFIERS

Project: MnDOT I35W

Pace Project No.: 10288662

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### ANALYTE QUALIFIERS

T6	High boiling point hydrocarbons are present in the sample.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MnDOT I35W  
Pace Project No.: 10288662

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10288662001	DP-6(6-8)	WI MOD DRO	OEXT/27349	WI MOD DRO	GCSV/14544
10288662003	DP-7(8-10)	WI MOD DRO	OEXT/27349	WI MOD DRO	GCSV/14544
10288662005	DP-12(4-5)	WI MOD DRO	OEXT/27349	WI MOD DRO	GCSV/14544
10288662006	DP-5(9-10)	WI MOD DRO	OEXT/27349	WI MOD DRO	GCSV/14544
10288662002	DP-6	WI MOD DRO	OEXT/27266	WI MOD DRO	GCSV/14506
10288662004	DP-7	WI MOD DRO	OEXT/27266	WI MOD DRO	GCSV/14506
10288662001	DP-6(6-8)	TPH GRO/PVOC WI ext.	GCV/12975	WI MOD GRO	GCV/13001
10288662003	DP-7(8-10)	TPH GRO/PVOC WI ext.	GCV/12975	WI MOD GRO	GCV/13001
10288662005	DP-12(4-5)	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288662006	DP-5(9-10)	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288662002	DP-6	WI MOD GRO	GCV/12979		
10288662004	DP-7	WI MOD GRO	GCV/12979		
10288662001	DP-6(6-8)	EPA 3050	MPRP/50660	EPA 6010C	ICP/21804
10288662003	DP-7(8-10)	EPA 3050	MPRP/50660	EPA 6010C	ICP/21804
10288662005	DP-12(4-5)	EPA 3050	MPRP/50660	EPA 6010C	ICP/21804
10288662006	DP-5(9-10)	EPA 3050	MPRP/50660	EPA 6010C	ICP/21804
10288662002	DP-6	EPA 3010	MPRP/50743	EPA 6010C	ICP/21825
10288662004	DP-7	EPA 3010	MPRP/50743	EPA 6010C	ICP/21825
10288662002	DP-6	EPA 7470A	MERP/12171	EPA 7470A	MERC/14065
10288662004	DP-7	EPA 7470A	MERP/12171	EPA 7470A	MERC/14065
10288662001	DP-6(6-8)	EPA 7471B	MERP/12158	EPA 7471B	MERC/14072
10288662003	DP-7(8-10)	EPA 7471B	MERP/12158	EPA 7471B	MERC/14072
10288662005	DP-12(4-5)	EPA 7471B	MERP/12158	EPA 7471B	MERC/14072
10288662006	DP-5(9-10)	EPA 7471B	MERP/12158	EPA 7471B	MERC/14072
10288662001	DP-6(6-8)	ASTM D2974	MPRP/50923		
10288662003	DP-7(8-10)	ASTM D2974	MPRP/50923		
10288662005	DP-12(4-5)	ASTM D2974	MPRP/50923		
10288662006	DP-5(9-10)	ASTM D2974	MPRP/50923		
10288662001	DP-6(6-8)	EPA 3550	OEXT/27399	EPA 8270	MSSV/11486
10288662003	DP-7(8-10)	EPA 3550	OEXT/27330	EPA 8270	MSSV/11458
10288662005	DP-12(4-5)	EPA 3550	OEXT/27330	EPA 8270	MSSV/11458
10288662006	DP-5(9-10)	EPA 3550	OEXT/27330	EPA 8270	MSSV/11458
10288662002	DP-6	EPA 3520	OEXT/27288	EPA 8270	MSSV/11448
10288662004	DP-7	EPA 3520	OEXT/27288	EPA 8270	MSSV/11448
10288662001	DP-6(6-8)	EPA 5035/5030B	MSV/29460	EPA 8260	MSV/29480
10288662003	DP-7(8-10)	EPA 5035/5030B	MSV/29460	EPA 8260	MSV/29480
10288662005	DP-12(4-5)	EPA 5035/5030B	MSV/29460	EPA 8260	MSV/29480
10288662006	DP-5(9-10)	EPA 5035/5030B	MSV/29460	EPA 8260	MSV/29480
10288662007	TB 111314	EPA 5035/5030B	MSV/29460	EPA 8260	MSV/29480
10288662002	DP-6	EPA 8260	MSV/29485		
10288662004	DP-7	EPA 8260	MSV/29485		

### REPORT OF LABORATORY ANALYSIS

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# CHAIN-OF-CUSTODY / Analytical Request Document

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

102464662

Page: 1 of 1  
 1851639

### Section A

**Required Client Information:**  
 Company: WSP  
 Address: 123 N 3rd Ste 507  
 Email To: Minneapolis MN 55401  
 Phone: 612 343 0510  
 Requested Due Date/TAT: Standard

**Required Project Information:**  
 Report To: Paula Berger  
 Copy To: Judy Andrews  
 Purchase Order No.: 1402370-01  
 Project Name: MNDOT I35W  
 Project Number: 1

### Section B

**Attention:** Accounting  
 Company Name: WSP  
 Address: Syracuse, NY  
 Pace Quote Reference: Kabor Xiong  
 Pace Project Manager: Kabor Xiong  
 Pace Profile #:

### Section C

**REGULATORY AGENCY**  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location: MN  
 STATE: MN

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives	Analysis Test ↑	Requested Analysis Filtered (Y/N)	Pace Project No. / Lab I.D.
				COMPOSITE START	COMPOSITE END/GRAB						
1	DP-6(6-8)	DW	SL	DATE: 11-13	TIME: 0915	2014	7	Unpreserved	X	X	001
2	DP-6	WT	WT	DATE: 11-13	TIME: 0940		10	H <sub>2</sub> SO <sub>4</sub>	X	X	002
3	DP-7(8-10)	SL	SL	DATE: 11-13	TIME: 1115		9	HNO <sub>3</sub>	X	X	003
4	DP-7	WT	WT	DATE: 11-13	TIME: 1155		10	HCl	X	X	004
5	DP-12(4-5)	SL	SL	DATE: 11-13	TIME: 1325		9	NaOH	X	X	005
6	DP-5(9-10)	SL	SL	DATE: 11-13	TIME: 1510		9	Na <sub>2</sub> O <sub>2</sub>	X	X	006
7	TB111314	SL	SL	DATE: 11-13	TIME:			Other	X	X	STOP BLANK 007

**ADDITIONAL COMMENTS:** Judy Andrews / WSP 11-13-14 1211 B2719 Pace 11/24/14 4:8

**RELIQUISHED BY / AFFILIATION:** Judy Andrews **DATE:** 11/13/14

**ACCEPTED BY / AFFILIATION:** Judy Andrews **DATE:** 11/13/14

**SAMPLER NAME AND SIGNATURE:** Judy Andrews **DATE SIGNED (MM/DD/YY):** 11/13/14

**PRINT Name of SAMPLER:** Judy Andrews

**SIGNATURE of SAMPLER:** Judy Andrews

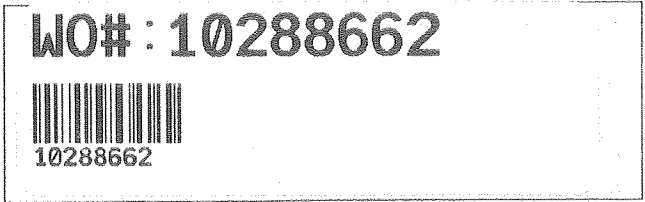
**Temp in °C:** 4.8

**Received on:** Ice (Y/N)

**Sealed Cooler:** (Y/N)

**Samples Intact:** (Y/N)

Sample Condition Upon Receipt
Client Name: WSP
Project #: \_\_\_\_\_
WO#: 10288662



**Courier:**     Fed Ex     UPS     USPS     Client  
 Commercial     Pace     SpeedDee     Other: \_\_\_\_\_  
**Tracking Number:** \_\_\_\_\_

**Custody Seal on Cooler/Box Present?**     Yes     No       **Seals Intact?**     Yes     No       **Optional:**    Proj. Due Date: \_\_\_\_\_    Proj. Name: \_\_\_\_\_  
**Packing Material:**     Bubble Wrap     Bubble Bags     None     Other: \_\_\_\_\_       **Temp Blank?**     Yes     No  
**Thermom. Used:**     B88A9130516413     B88A912167504     B88A9132521491       **Type of Ice:**     Wet     Blue     None     Samples on ice, cooling process has begun  
**Cooler Temp Read (°C):** 4.5    **Cooler Temp Corrected (°C):** 4.8       **Biological Tissue Frozen?**     Yes     No     N/A  
**Temp should be above freezing to 6°C**    **Correction Factor:** 40.3       **Date and Initials of Person Examining Contents:** PW 11/13

				Comments:
Chain of Custody Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	5.
<b>Short Hold Time Analysis (&lt;72 hr)?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	6.
<b>Rush Turn Around Time Requested?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	9.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>SL, WI</u>				
All containers needing acid/base preservation have been checked?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	13. <input checked="" type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> HCl Sample # <u>2/2</u> Initial when completed: _____    Lot # of added preservative: _____
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl<2; NaOH >9 Sulfide, NaOH>12 Cyanide)	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Exceptions: VOA, Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Headspace in VOA Vials (>6mm)?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	14.
Trip Blank Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>090814-3</u>				

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

**Project Manager Review:** Kalvin Xiang    **Date:** NW-14, 2014  
 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)

Data File: \\192.168.10.12\chem\10gcs4.i\112114dro.b\11210044.D

Report Date: 11/22/2014

Sample ID: 10288662001

Client ID:

Instrument: 10gcs4.i

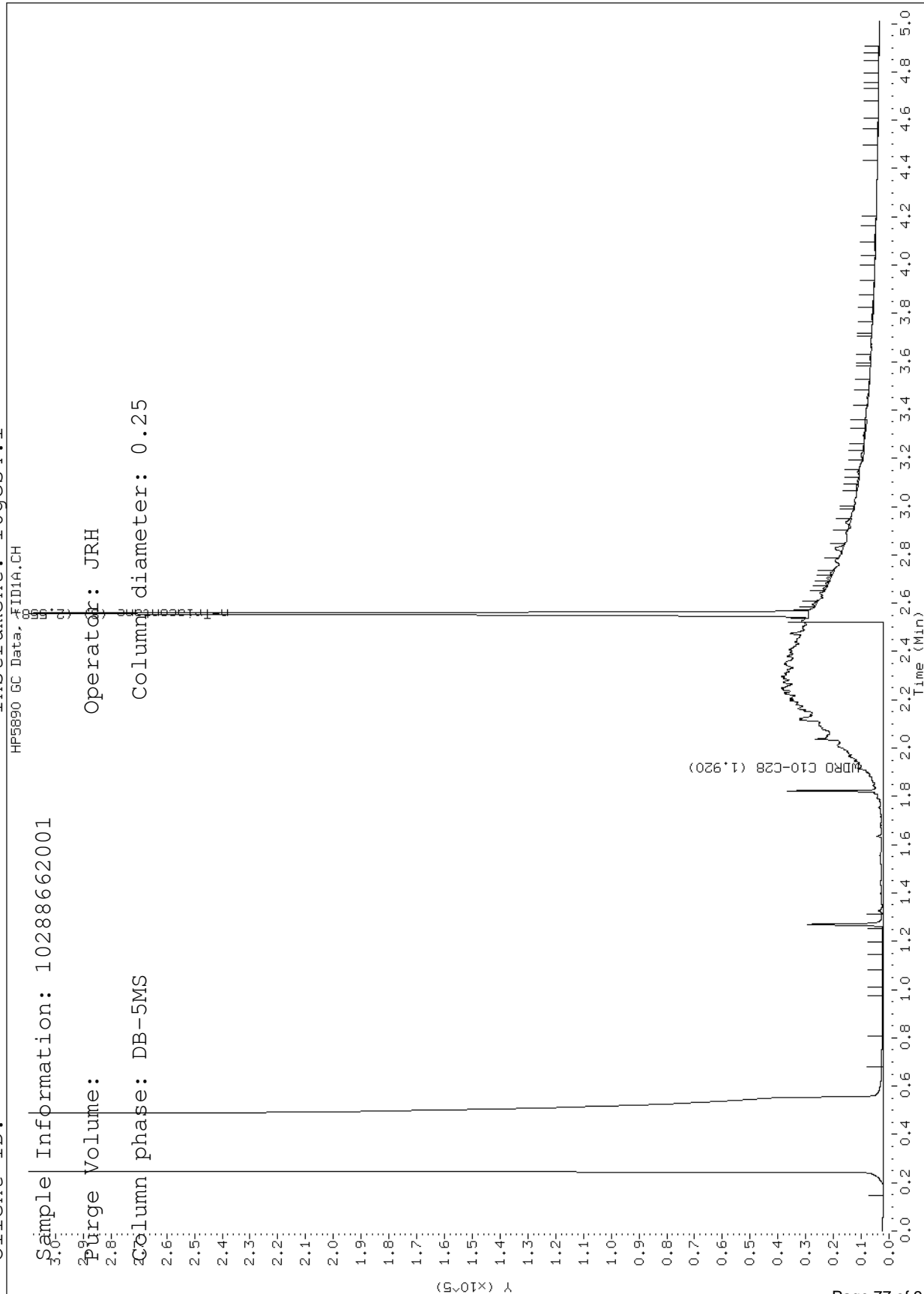
Sample Information: 10288662001

Purge Volume: 2.8

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcs4.i\112114dro.b\11210049.D

Report Date: 11/22/2014

Sample ID: 10288662003

Client ID:

Instrument: 10gcs4.i

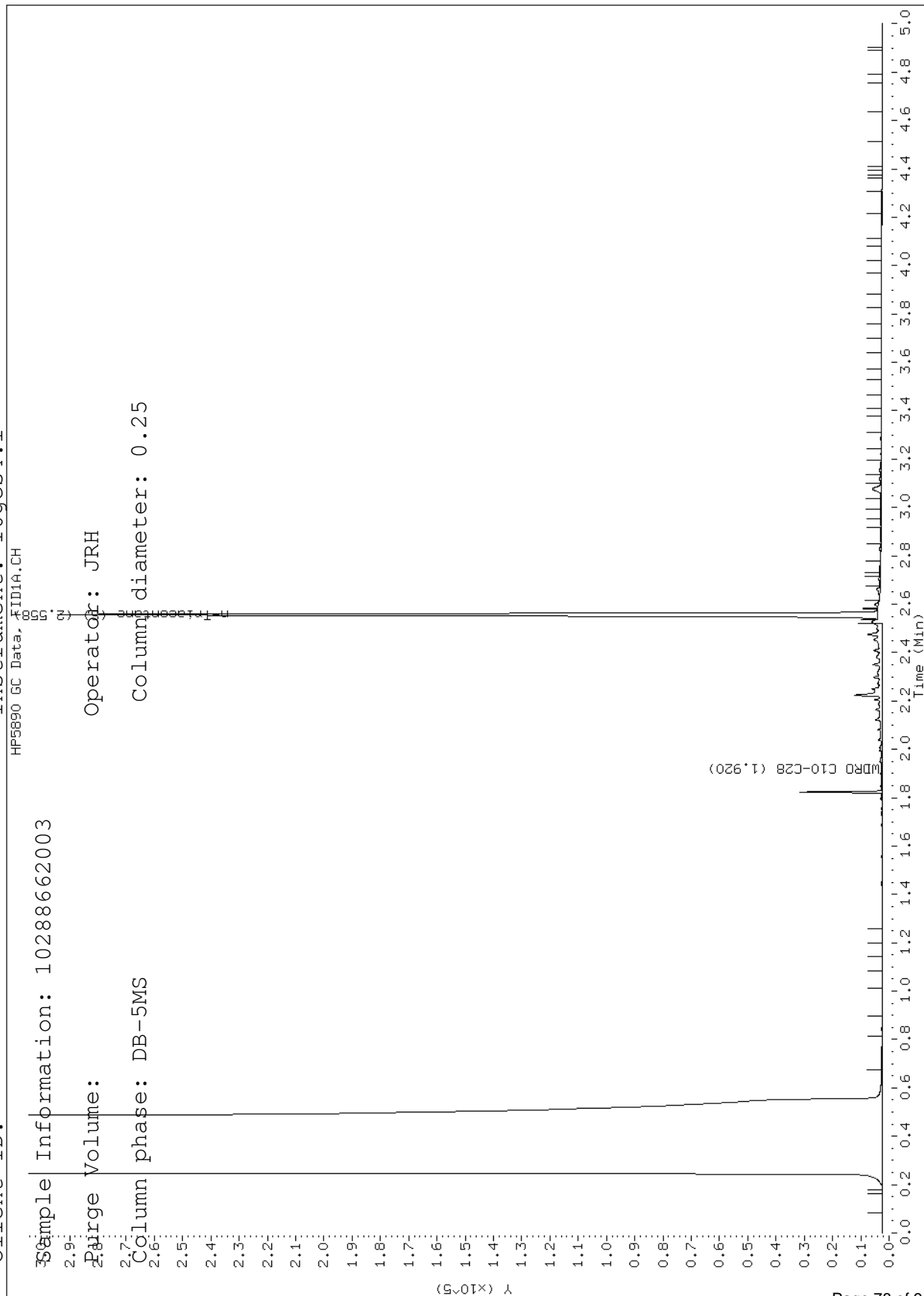
Sample Information: 10288662003

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcs4.i\112114dro.b\11210048.D

Report Date: 11/22/2014

Sample ID: 10288662005

Client ID:

Instrument: 10gcs4.i

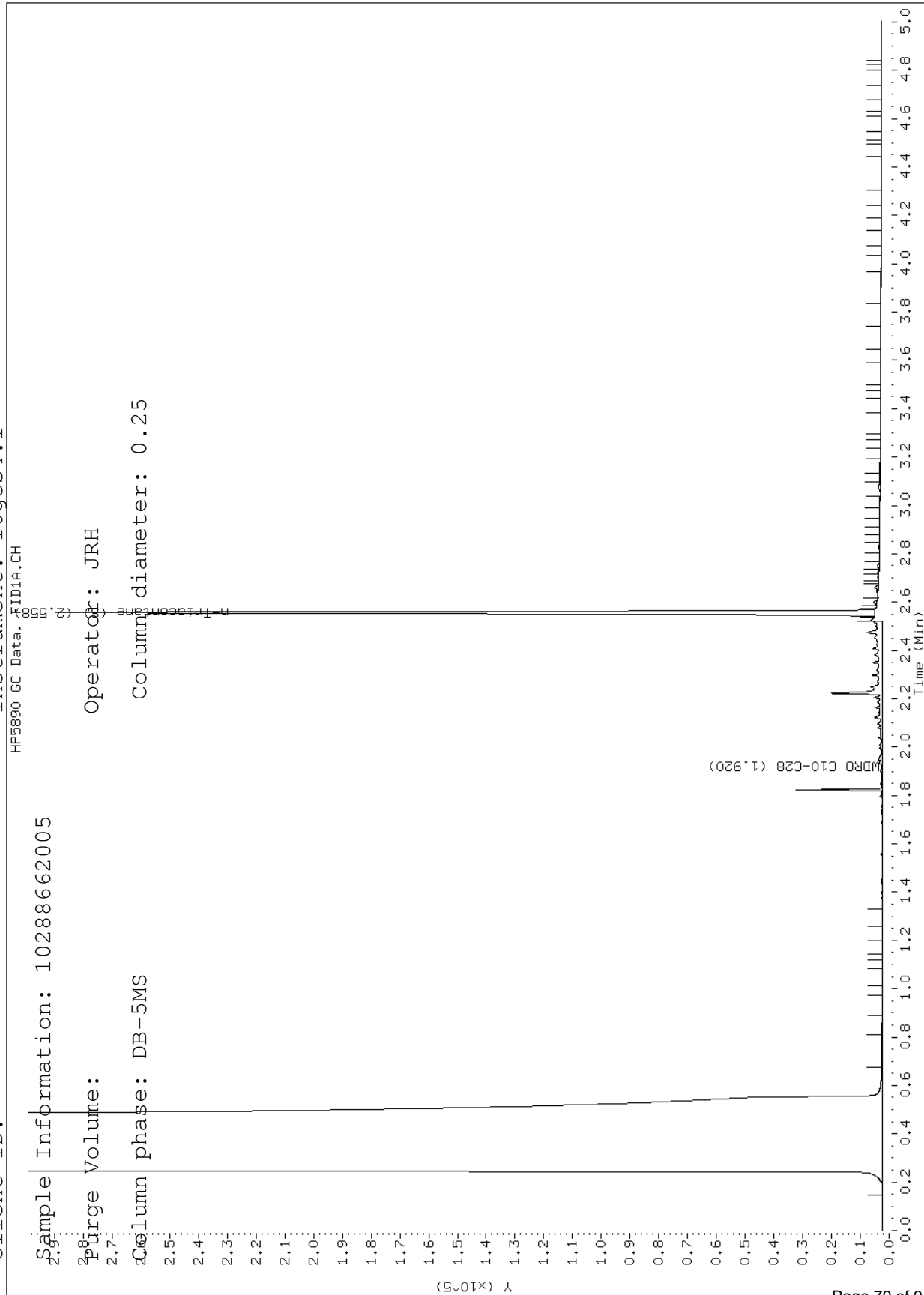
Sample Information: 10288662005

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



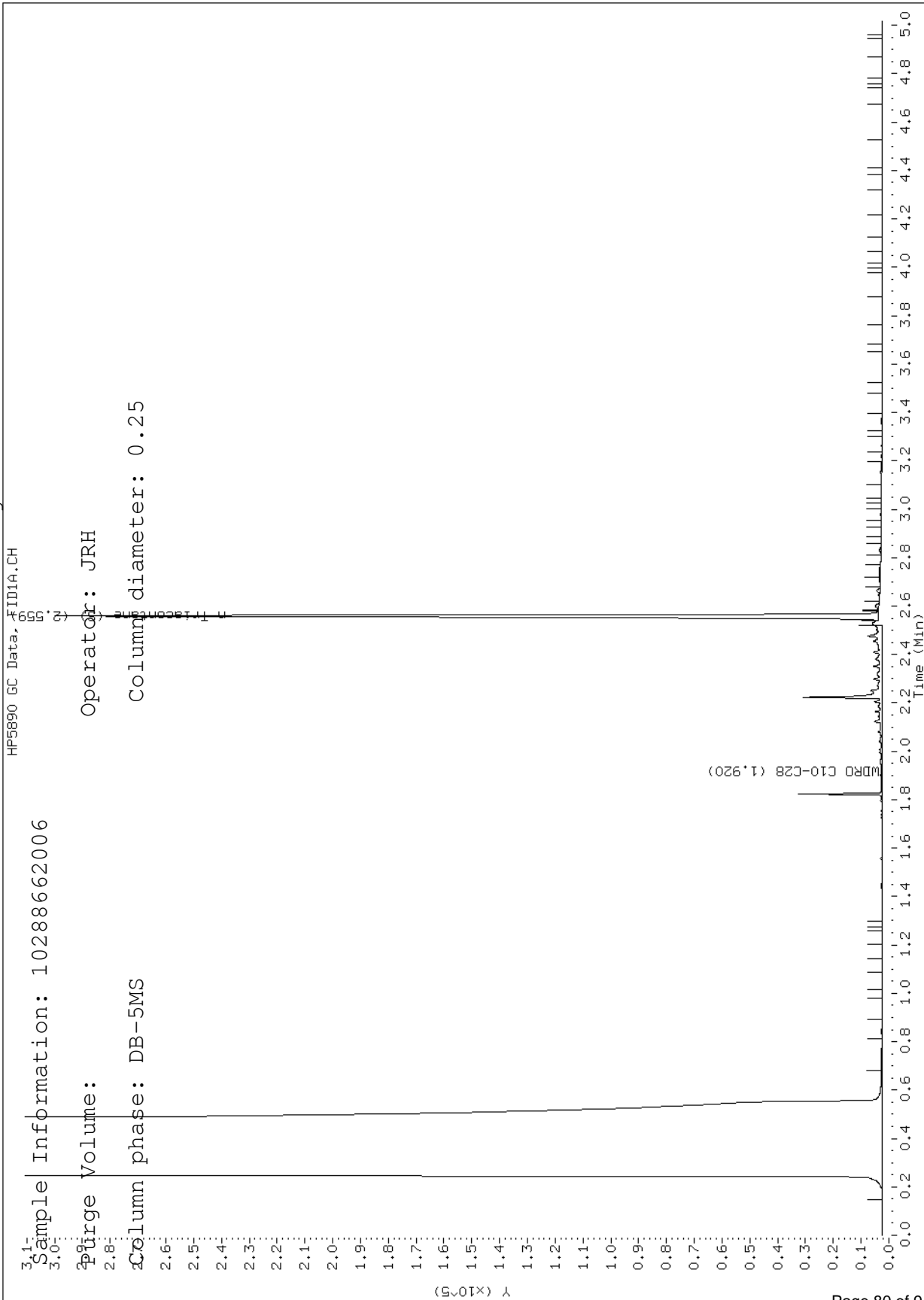
Data File: \\192.168.10.12\chem\10gcs4.i\112114dro.b\11210057.D

Report Date: 11/22/2014

Sample ID: 10288662006

Client ID:

Instrument: 10gcs4.i





Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150016.D

Report Date: 11/16/2014

Sample ID: 10288662002

Client ID:

Instrument: 10gcs4.i

HP5890 GC Data, FID1A.CH

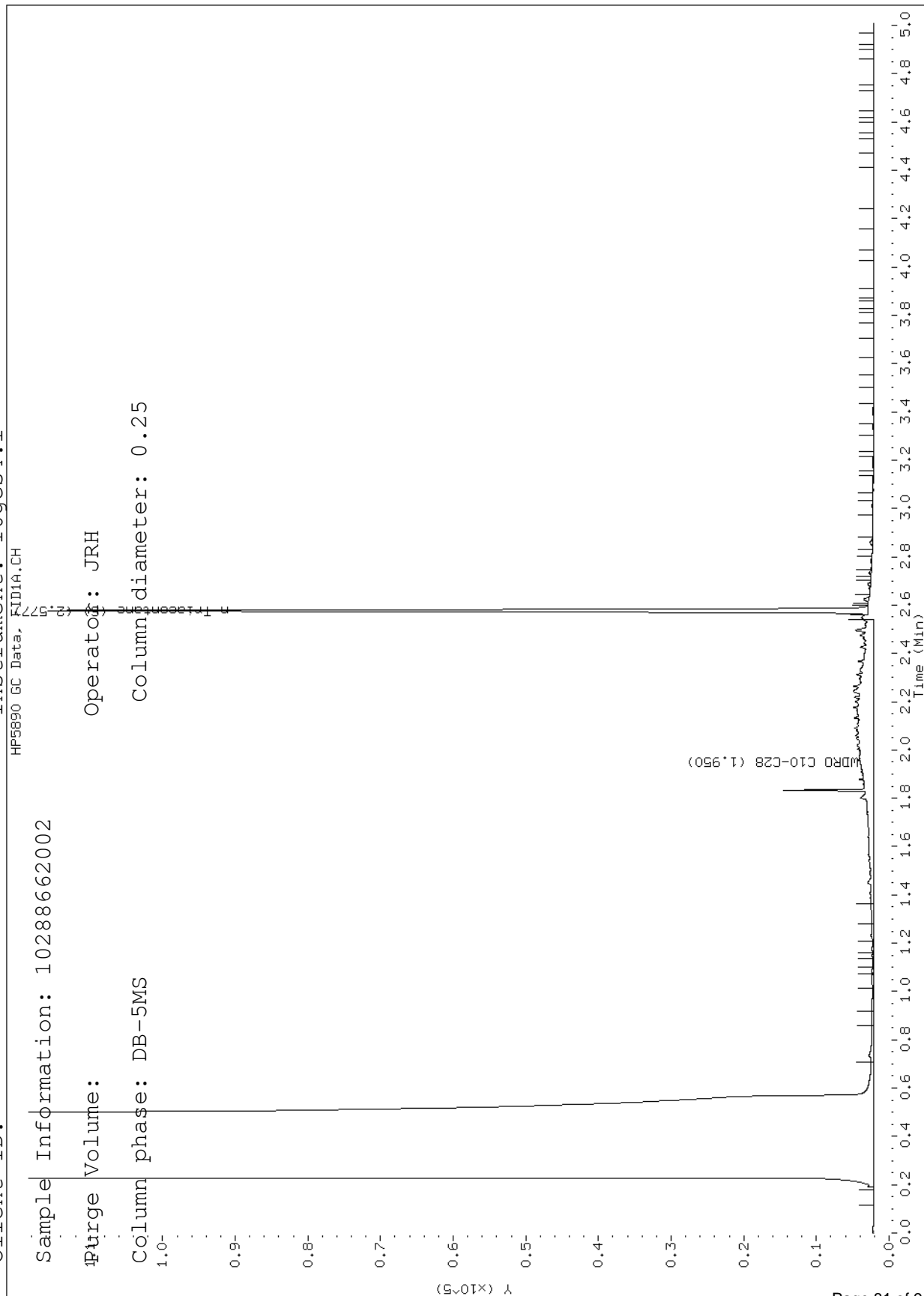
Sample Information: 10288662002

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcs4.i\111514dro.b\11150028.D

Report Date: 11/16/2014

Sample ID: 10288662004

Client ID:

Instrument: 10gcs4.i

HP5890 GC Data, FID1A.CH

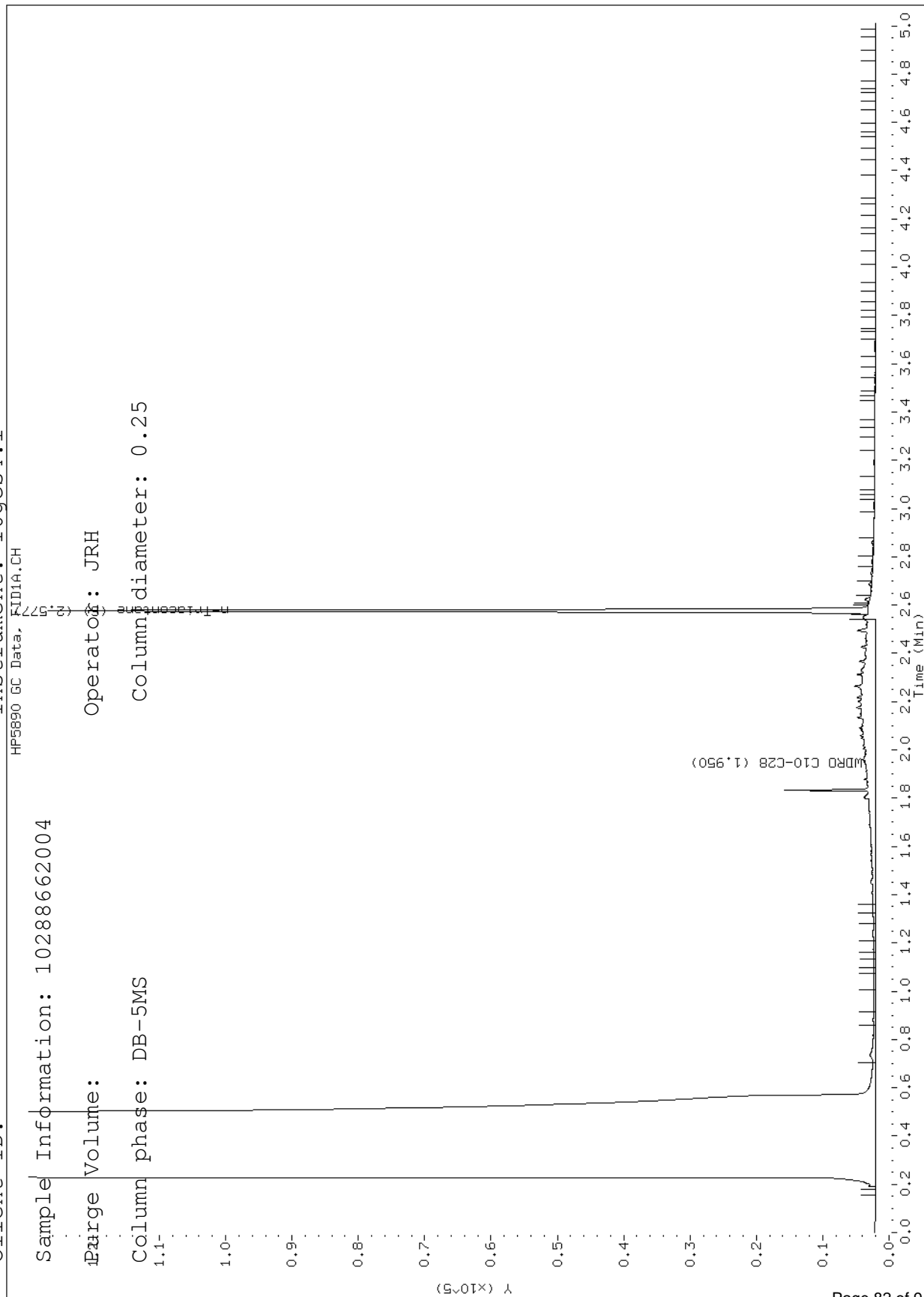
Sample Information: 10288662004

Purge Volume:

Operator: JRH

Column phase: DB-5MS

Column diameter: 0.25



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-1.b\112614039.d

Report Date: 12/01/2014

Sample ID: 10288662001

Client ID:

Instrument: 10gcv9.i

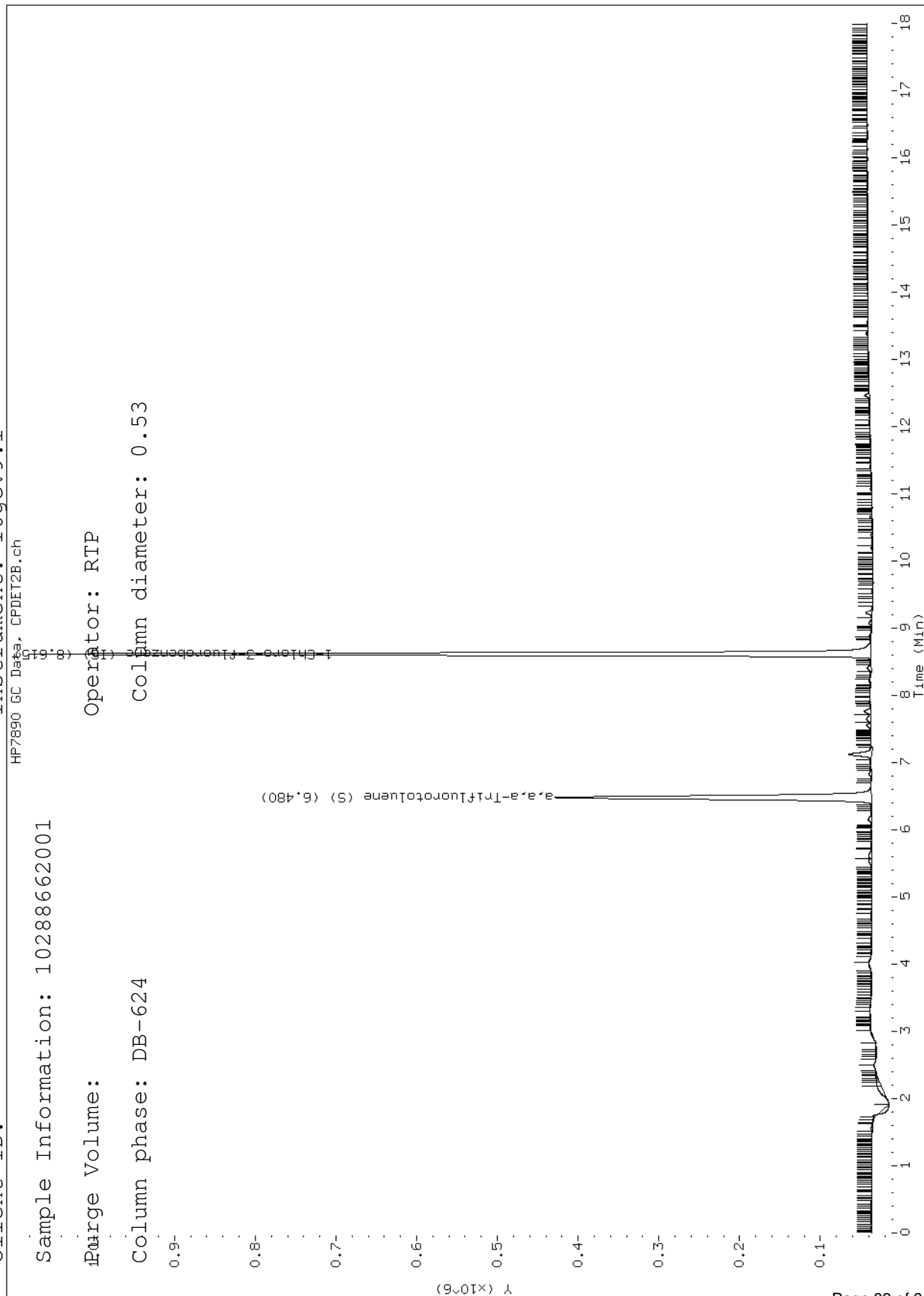
Sample Information: 10288662001

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-2.b\112614039.d

Report Date: 12/01/2014

Sample ID: 10288662001

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

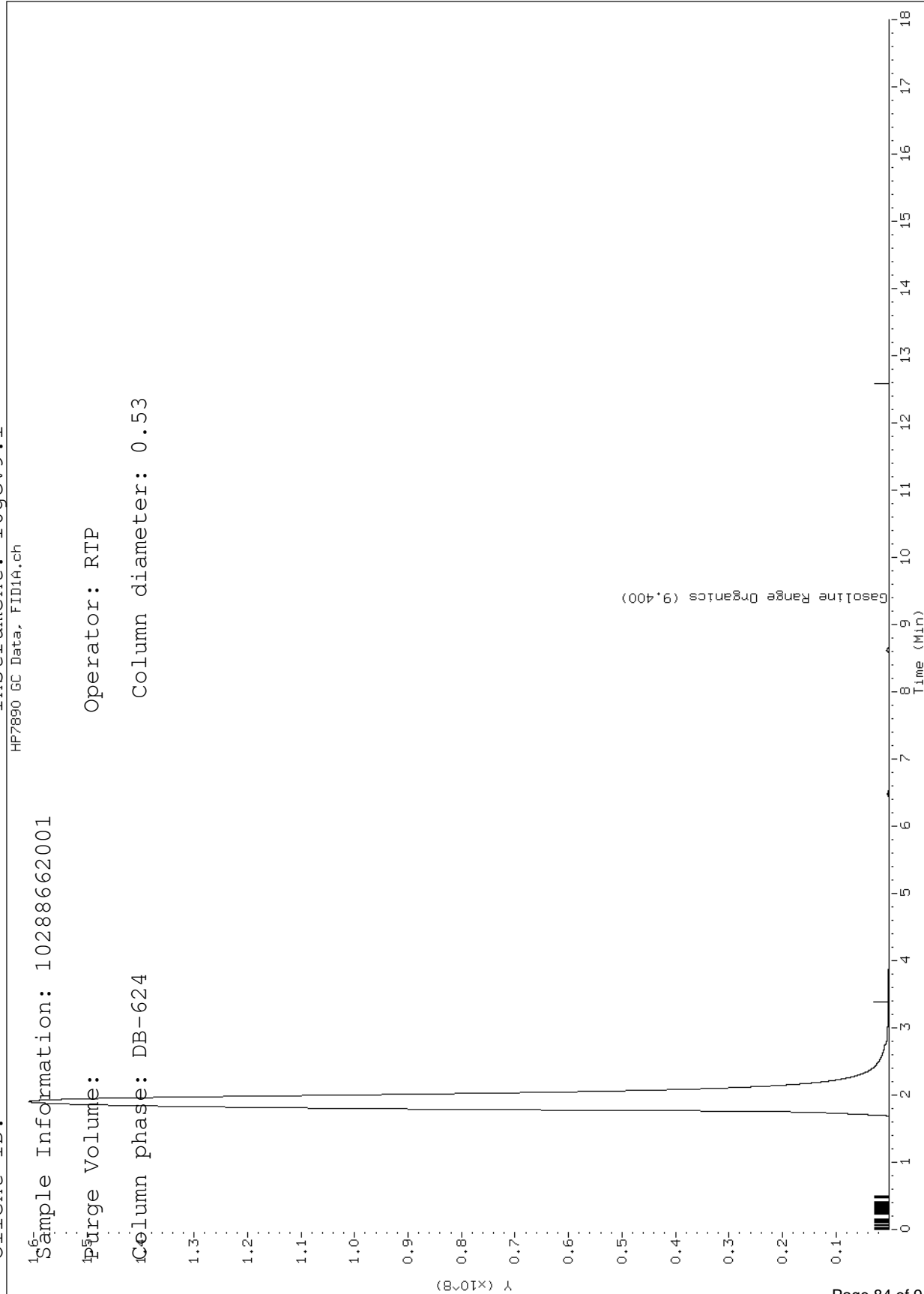
Sample Information: 10288662001

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-1.b\112614038.d

Report Date: 12/01/2014

Sample ID: 10288662003

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

Sample Information: 10288662003

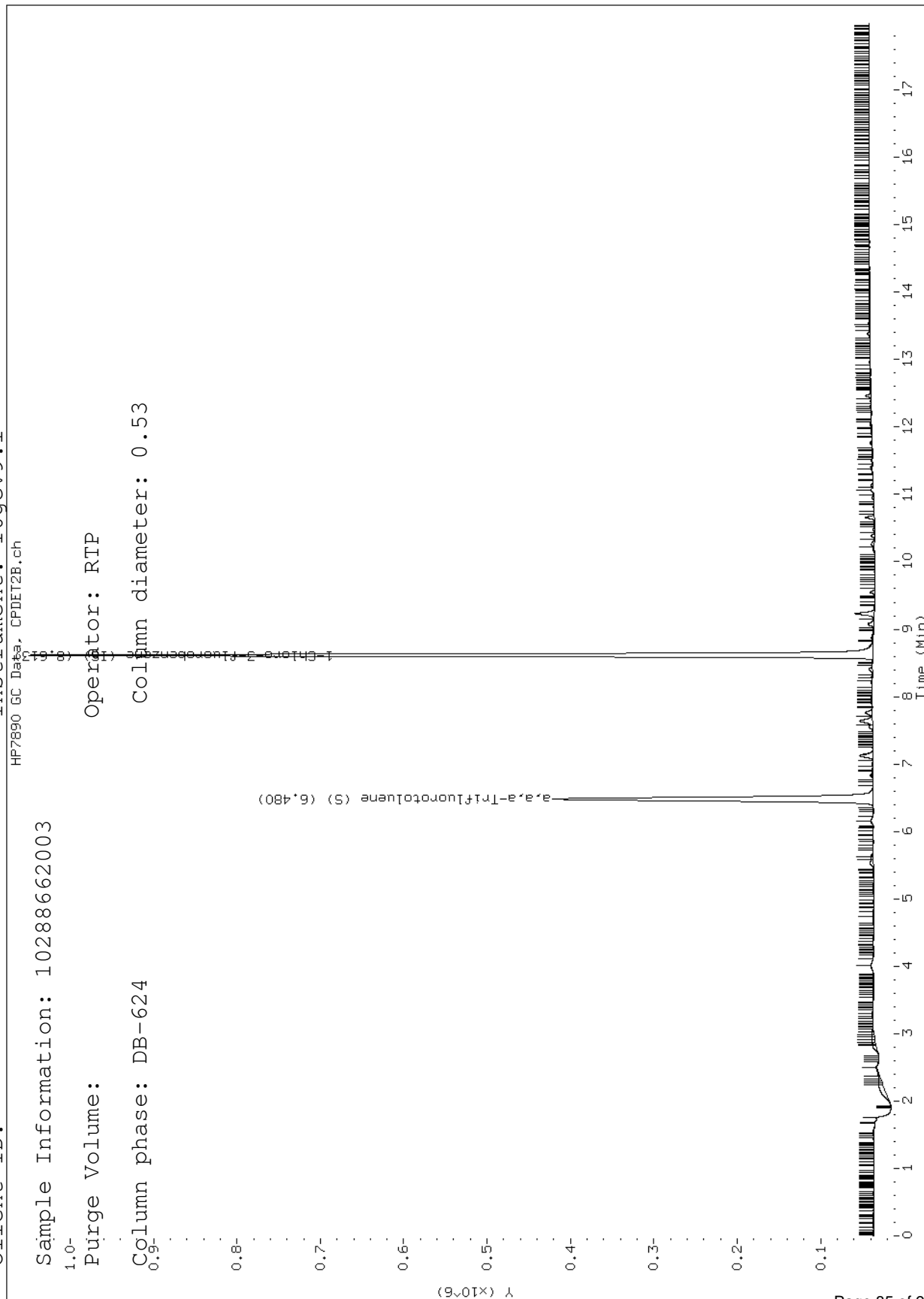
1.0-

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-2.b\112614038.d

Report Date: 12/01/2014

Sample ID: 10288662003

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

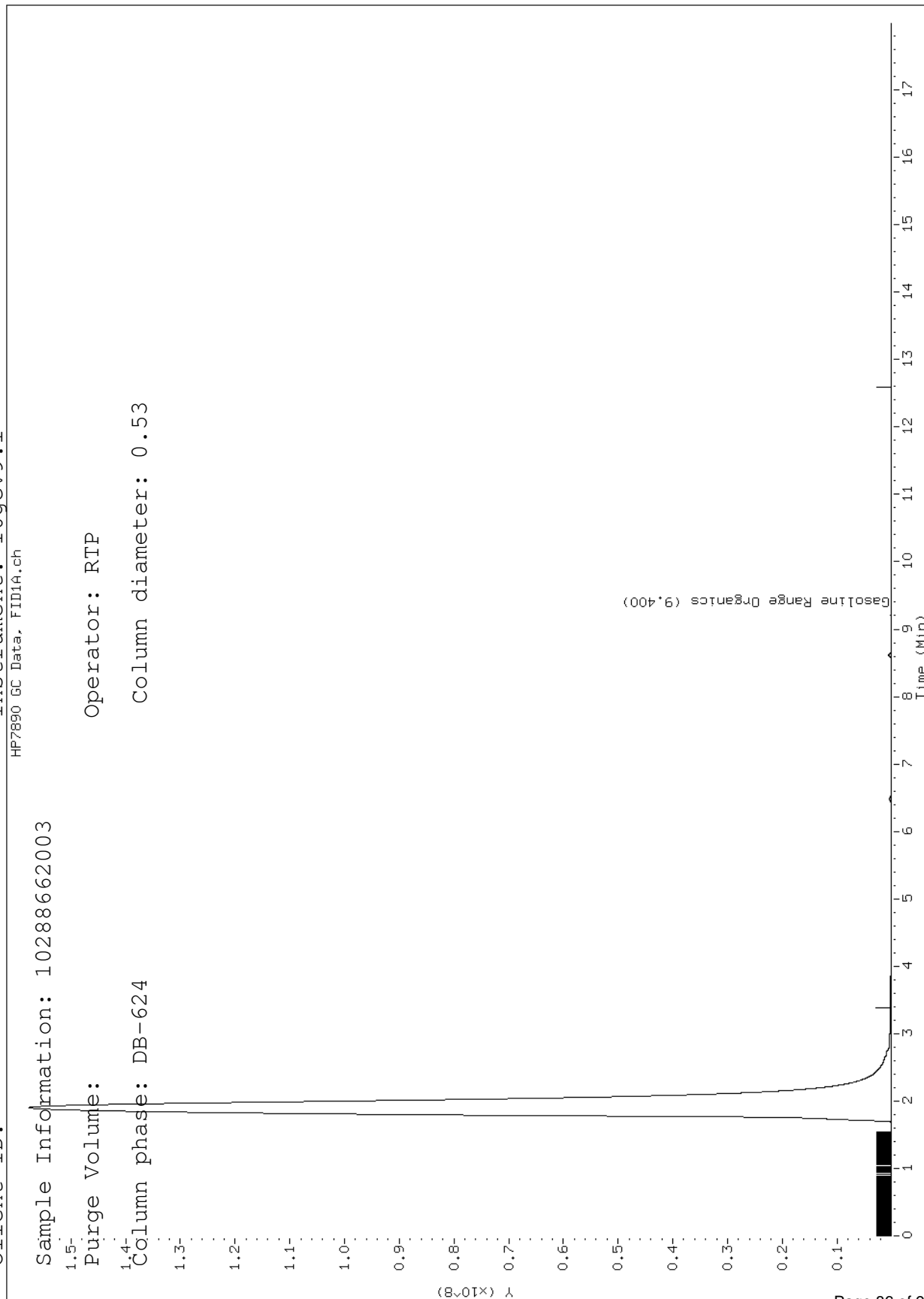
Sample Information: 10288662003

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-1.b\112614059.d

Report Date: 12/01/2014

Sample ID: 10288662005

Client ID:

Instrument: 10gcv9.i

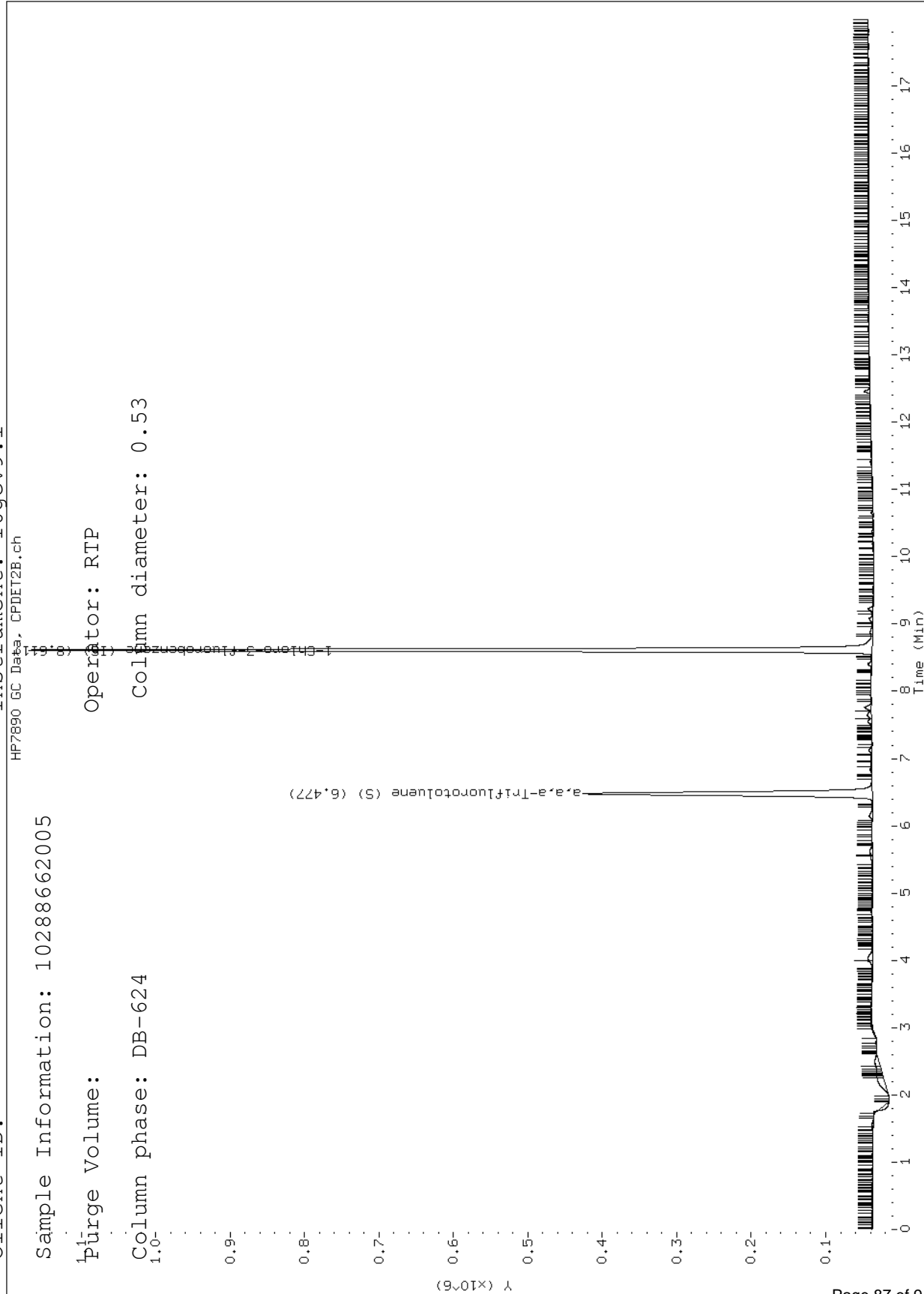
Sample Information: 10288662005

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-2.b\112614059.d

Report Date: 12/01/2014

Sample ID: 10288662005

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

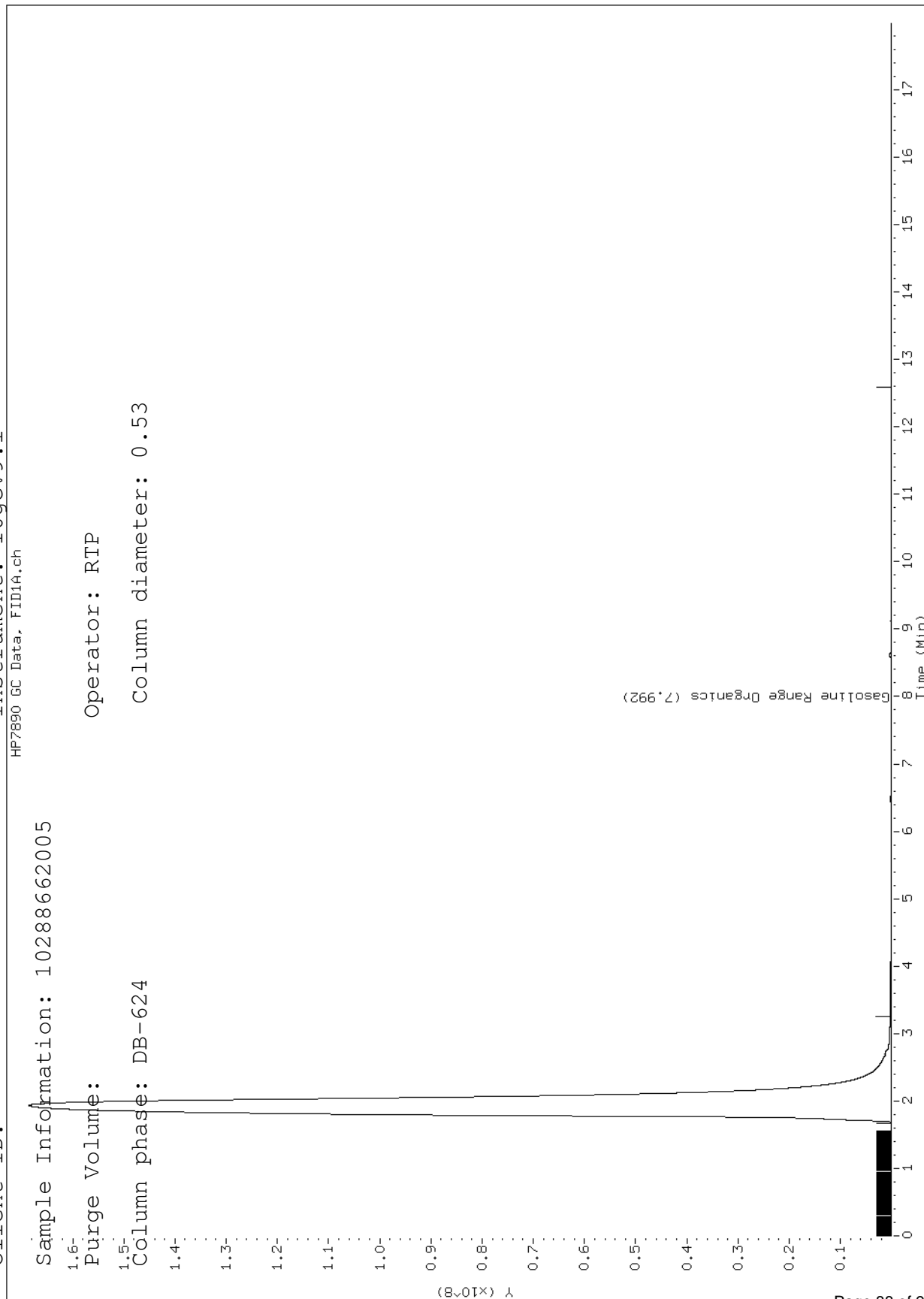
Sample Information: 10288662005

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53





Data File: \\192.168.10.12\chem\10gcv9.i\112614a-1.b\112614060.d

Report Date: 12/01/2014

Sample ID: 10288662006

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

Sample Information: 10288662006

Purge Volume:

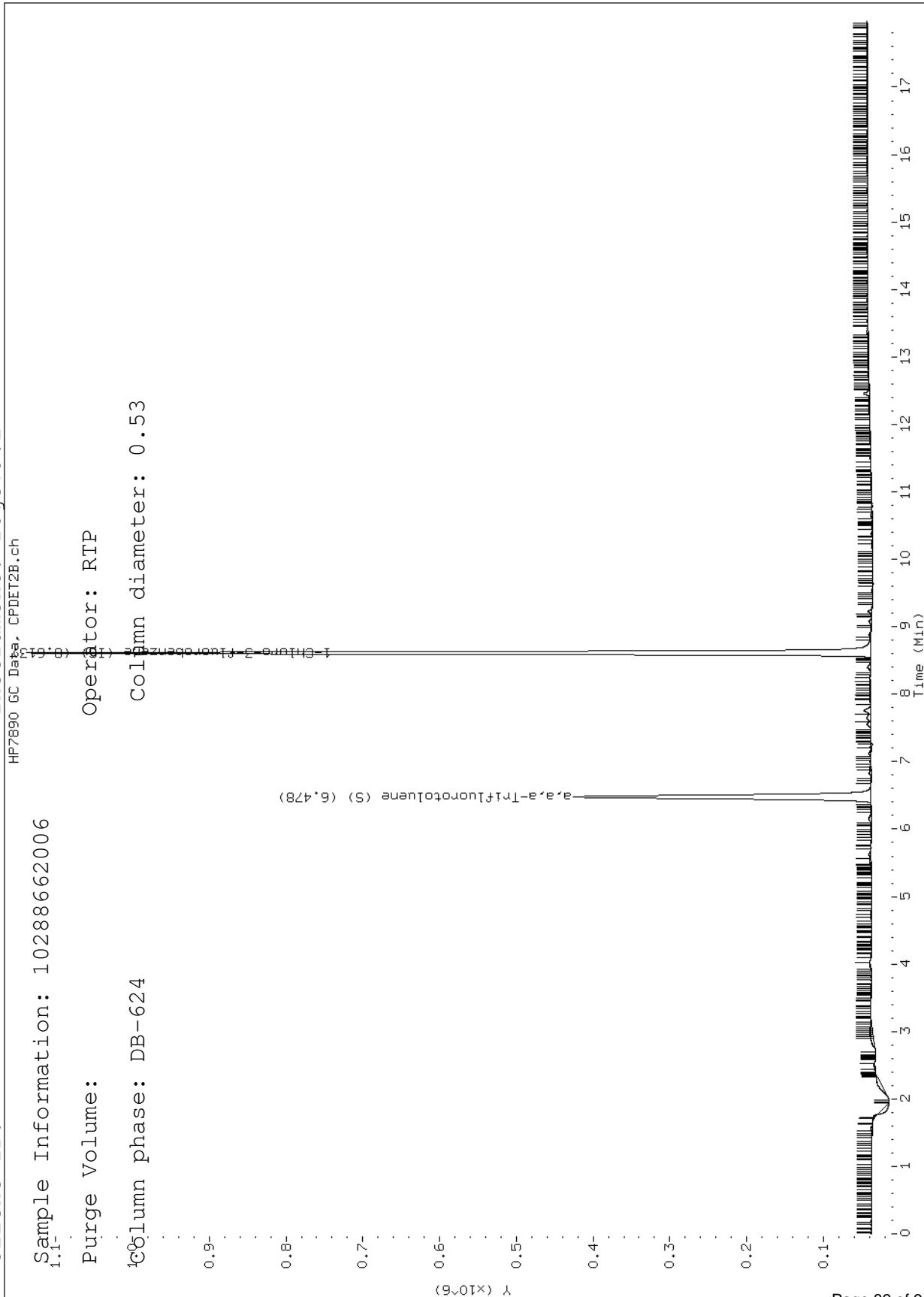
Operator: RTP

Column phase: DB-624

Column diameter: 0.53

Y-axis label:  $(\times 10^{-6})$

X-axis label: Time (Min)



Data File: \\192.168.10.12\chem\10gcv9.i\112614a-2.b\112614060.d

Report Date: 12/01/2014

Sample ID: 10288662006

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

Sample Information: 10288662006

Purge Volume:

Operator: RTP

Column phase: DB-624

Column diameter: 0.53

1.4-  
1.3-  
1.2-  
1.1-  
1.0-  
0.9-  
0.8-  
0.7-  
0.6-  
0.5-  
0.4-  
0.3-  
0.2-  
0.1-  
0

$\times 10^{-8}$

Gasoline Range Organics (7.992)

Time (Min)

Data File: \\192.168.10.12\chem\10gcv9.i\112514c-1.b\112514053.d

Report Date: 11/26/2014

Sample ID: 10288662002

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

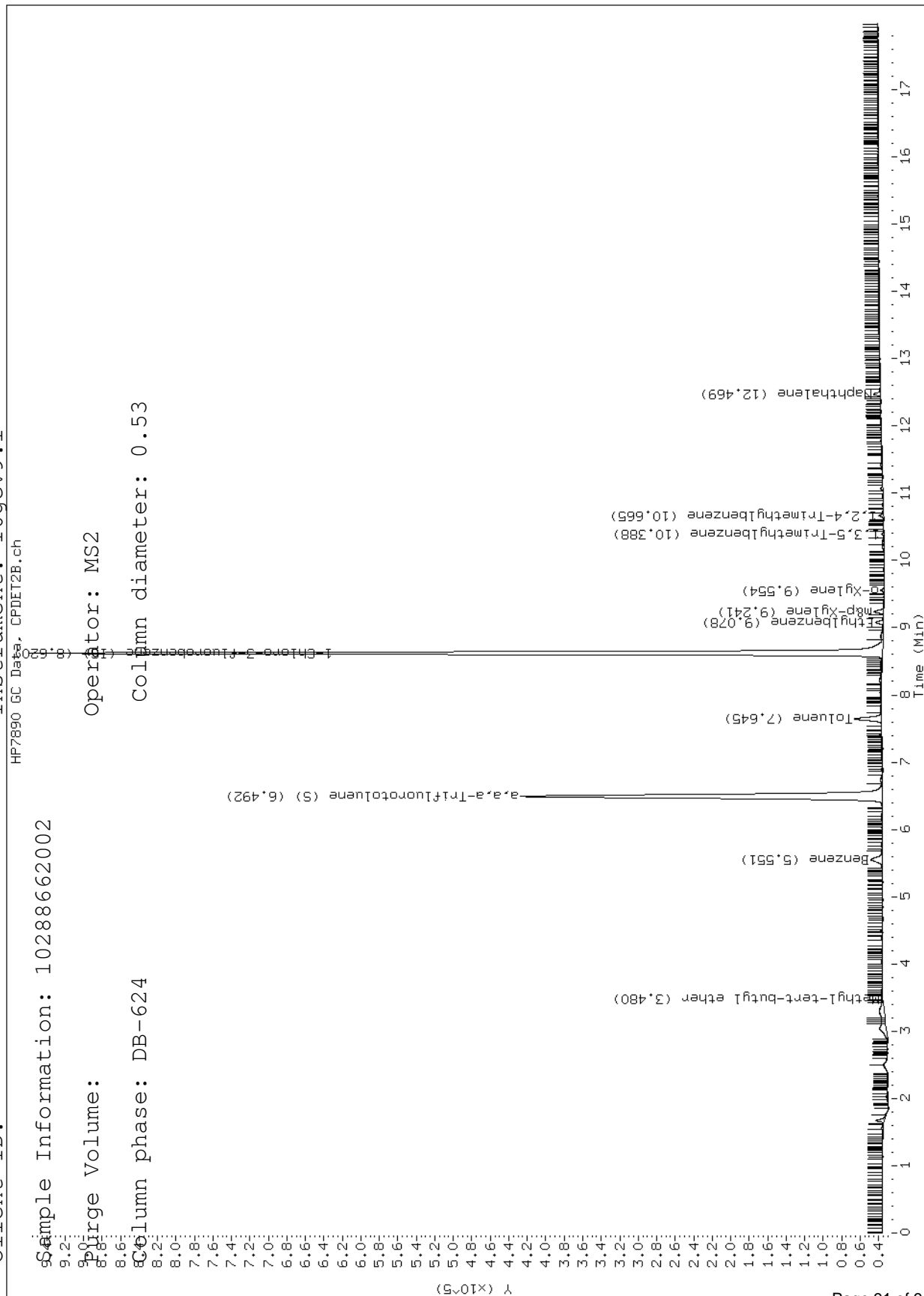
Sample Information: 10288662002

Injection Volume: 1.0

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112514c-2.b\112514053.d

Report Date: 11/26/2014

Sample ID: 10288662002

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

Sample Information: 10288662002

2.1-

Purge Volume:

2.0-

Operator: MS2

Column phase: DB-624

Column diameter: 0.53

1.8-

1.7-

1.6-

1.5-

1.4-

1.3-

1.2-

1.1-

1.0-

0.9-

0.8-

0.7-

0.6-

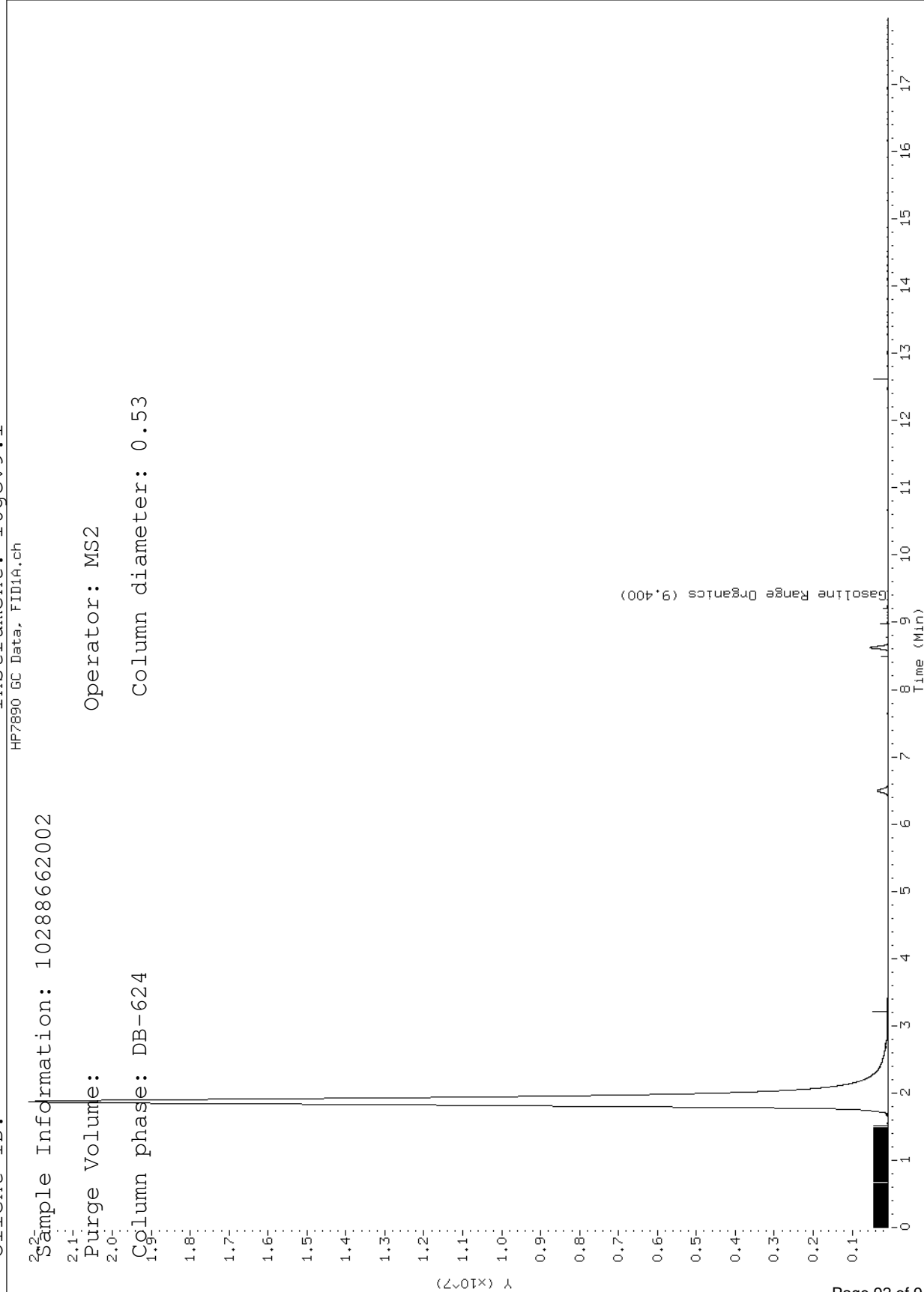
0.5-

0.4-

0.3-

0.2-

0.1-



Data File: \\192.168.10.12\chem\10gcv9.i\112514c-1.b\112514054.d

Report Date: 11/26/2014

Sample ID: 10288662004

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, CPDET2B.ch

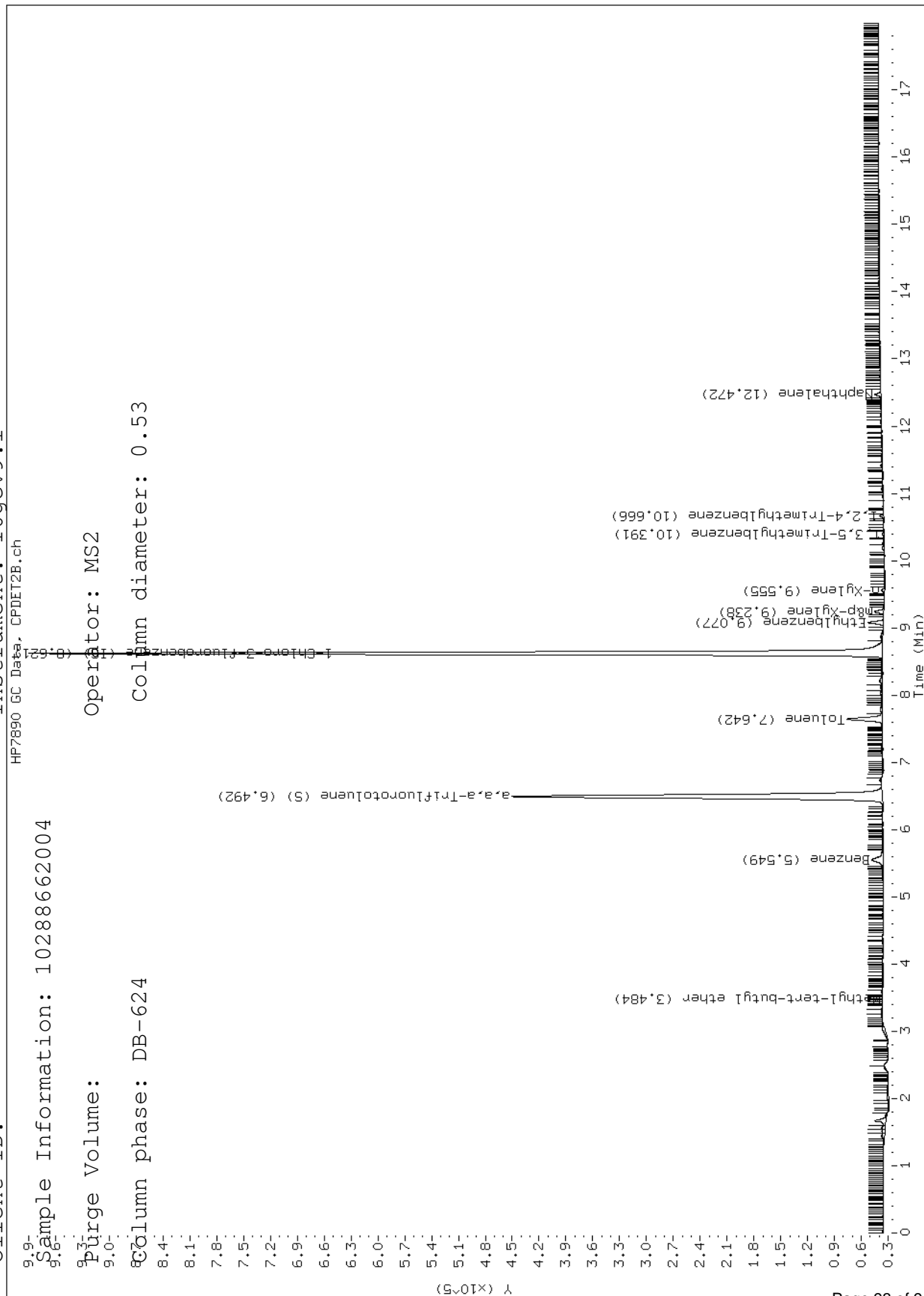
Sample Information: 10288662004

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



Data File: \\192.168.10.12\chem\10gcv9.i\112514c-2.b\112514054.d

Report Date: 11/26/2014

Sample ID: 10288662004

Client ID:

Instrument: 10gcv9.i

HP7890 GC Data, FID1A.ch

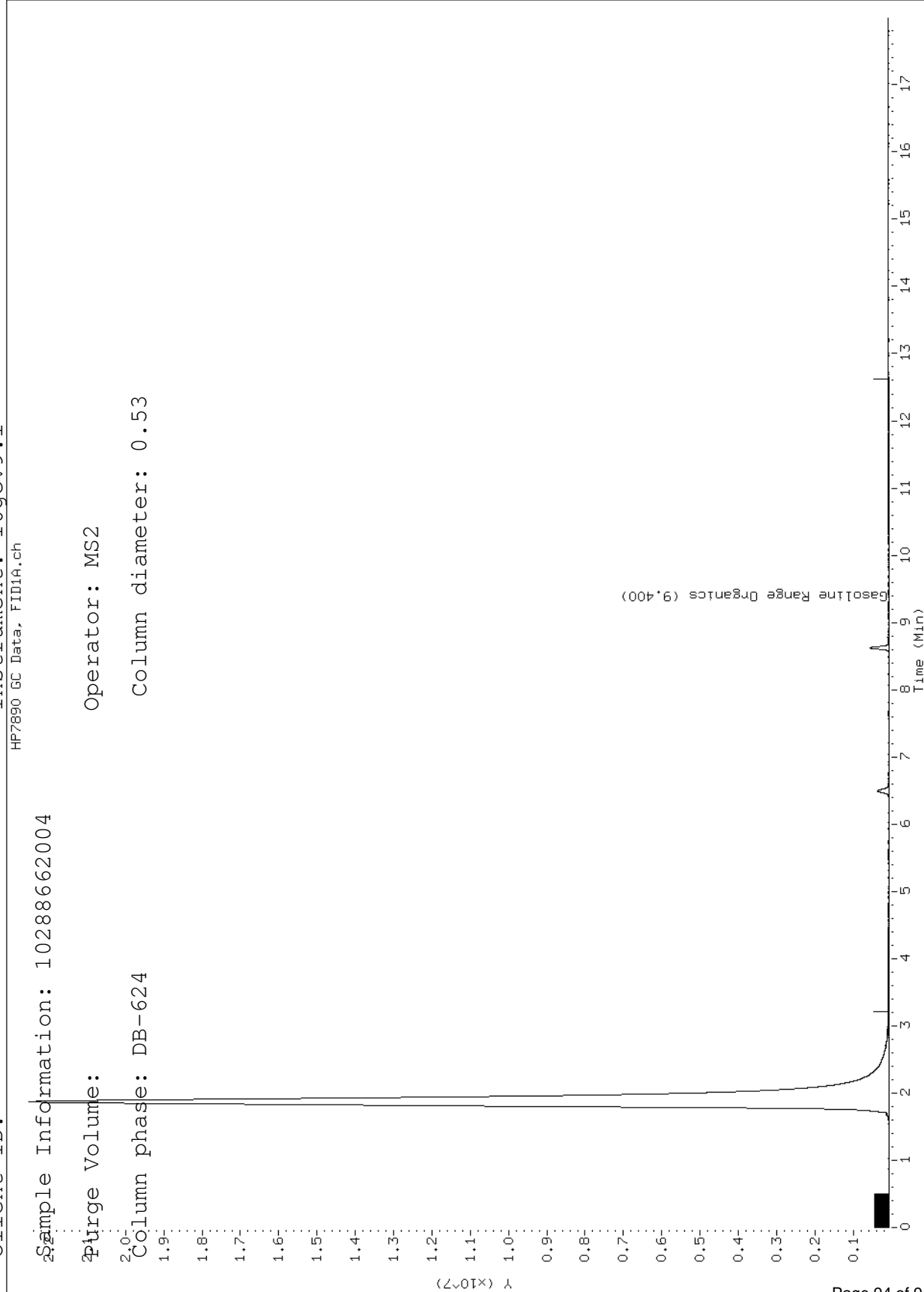
Sample Information: 10288662004

Purge Volume:

Operator: MS2

Column phase: DB-624

Column diameter: 0.53



December 03, 2014

Ms. Paula Berger  
WSP Environment and Energy  
123 North Third Street  
Suite 808  
Minneapolis, MN 55401

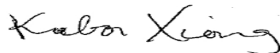
RE: Project: MnDOT I35W  
Pace Project No.: 10288933

Dear Ms. Berger:

Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 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,



Kabor Xiong  
kabor.xiong@pacelabs.com  
Project Manager

Enclosures

cc: Ms. Judy Andrews, WSP Environment and Energy



## REPORT OF LABORATORY ANALYSIS

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## CERTIFICATIONS

Project: MnDOT I35W

Pace Project No.: 10288933

---

### Minnesota Certification IDs

1700 Elm Street SE Suite 200, Minneapolis, MN 55414

A2LA Certification #: 2926.01

Alaska Certification #: UST-078

Alaska Certification #MN00064

Alabama Certification #40770

Arizona Certification #: AZ-0014

Arkansas Certification #: 88-0680

California Certification #: 01155CA

Colorado Certification #Pace

Connecticut Certification #: PH-0256

EPA Region 8 Certification #: 8TMS-L

Florida/NELAP Certification #: E87605

Guam Certification #:14-008r

Georgia Certification #: 959

Georgia EPD #: Pace

Idaho Certification #: MN00064

Hawaii Certification #MN00064

Illinois Certification #: 200011

Indiana Certification#C-MN-01

Iowa Certification #: 368

Kansas Certification #: E-10167

Kentucky Dept of Envi. Protection - DW #90062

Kentucky Dept of Envi. Protection - WW #:90062

Louisiana DEQ Certification #: 3086

Louisiana DHH #: LA140001

Maine Certification #: 2013011

Maryland Certification #: 322

Michigan DEPH Certification #: 9909

Minnesota Certification #: 027-053-137

Mississippi Certification #: Pace

Montana Certification #: MT0092

Nevada Certification #: MN\_00064

Nebraska Certification #: Pace

New Jersey Certification #: MN-002

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

West Virginia Certification #: 382

West Virginia DHHR #:9952C

Wisconsin Certification #: 999407970

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## REPORT OF LABORATORY ANALYSIS

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## SAMPLE SUMMARY

Project: MnDOT I35W

Pace Project No.: 10288933

Lab ID	Sample ID	Matrix	Date Collected	Date Received
10288933001	DP-1	Solid	11/14/14 08:40	11/14/14 16:38
10288933002	DP-2	Solid	11/14/14 10:42	11/14/14 16:38
10288933003	DP-2	Water	11/14/14 11:15	11/14/14 16:38
10288933004	DP-5	Water	11/13/14 15:55	11/14/14 16:38
10288933005	DP-5B	Water	11/14/14 12:10	11/14/14 16:38
10288933006	DP-8	Solid	11/14/14 13:48	11/14/14 16:38
10288933007	DP-9	Solid	11/14/14 14:20	11/14/14 16:38
10288933008	DP-10	Solid	11/14/14 14:50	11/14/14 16:38
10288933009	TB111414-A	Solid	11/14/14 00:00	11/14/14 16:38

## REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: MnDOT I35W  
Pace Project No.: 10288933

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10288933001	DP-1	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288933002	DP-2	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
10288933003	DP-2	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	AEJ	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	AJC	70	PASI-M
10288933004	DP-5	WI MOD DRO	MT	2	PASI-M
10288933005	DP-5B	WI MOD GRO	AEJ	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7470A	DM	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	AJC	70	PASI-M
10288933006	DP-8	WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
		ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
10288933007	DP-9	EPA 8260	LPM	70	PASI-M
		WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M

### REPORT OF LABORATORY ANALYSIS

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### SAMPLE ANALYTE COUNT

Project: MnDOT I35W

Pace Project No.: 10288933

Lab ID	Sample ID	Method	Analysts	Analytes Reported	Laboratory
10288933008	DP-10	ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
		WI MOD DRO	MT	2	PASI-M
		WI MOD GRO	RTP	2	PASI-M
		EPA 6010C	WBS	7	PASI-M
		EPA 7471B	DM	1	PASI-M
10288933009	TB111414-A	ASTM D2974	JDL	1	PASI-M
		EPA 8270	JLR	72	PASI-M
		EPA 8260	LPM	70	PASI-M
		EPA 8260	LPM	70	PASI-M

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample:** DP-1      **Lab ID:** 10288933001      Collected: 11/14/14 08:40      Received: 11/14/14 16:38      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	7.4	1.1	1	11/24/14 12:14	11/25/14 13:17		
<b>Surrogates</b>									
n-Triacontane (S)	88 %		50-150		1	11/24/14 12:14	11/25/14 13:17	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	12.7	6.3	1	11/22/14 09:02	11/27/14 13:57		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	75 %		80-125		1	11/22/14 09:02	11/27/14 13:57	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	5.3	mg/kg	1.1	0.33	1	11/20/14 15:02	11/24/14 15:49	7440-38-2	
Barium	111	mg/kg	0.57	0.063	1	11/20/14 15:02	11/24/14 15:49	7440-39-3	
Cadmium	0.30	mg/kg	0.17	0.019	1	11/20/14 15:02	11/24/14 15:49	7440-43-9	
Chromium	15.0	mg/kg	0.57	0.074	1	11/20/14 15:02	11/24/14 15:49	7440-47-3	
Lead	8.2	mg/kg	1.1	0.084	1	11/20/14 15:02	11/24/14 15:49	7439-92-1	
Selenium	0.72J	mg/kg	0.86	0.39	1	11/20/14 15:02	11/24/14 15:49	7782-49-2	
Silver	ND	mg/kg	0.57	0.057	1	11/20/14 15:02	11/24/14 15:49	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	0.031	mg/kg	0.023	0.0069	1	11/22/14 14:26	11/24/14 14:37	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	18.1	%	0.10	0.10	1		12/01/14 10:12		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	83-32-9	
Acenaphthylene	ND	ug/kg	403	78.8	1	11/20/14 07:00	11/21/14 09:58	208-96-8	
Anthracene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	120-12-7	
Benzo(a)anthracene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	56-55-3	
Benzo(a)pyrene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	403	51.1	1	11/20/14 07:00	11/21/14 09:58	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	403	49.0	1	11/20/14 07:00	11/21/14 09:58	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	101-55-3	
Butylbenzylphthalate	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	85-68-7	
Carbazole	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	59-50-7	
4-Chloroaniline	ND	ug/kg	403	103	1	11/20/14 07:00	11/21/14 09:58	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	108-60-1	
2-Chloronaphthalene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	91-58-7	
2-Chlorophenol	ND	ug/kg	403	50.3	1	11/20/14 07:00	11/21/14 09:58	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	7005-72-3	
Chrysene	ND	ug/kg	403	54.1	1	11/20/14 07:00	11/21/14 09:58	218-01-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-1**      **Lab ID: 10288933001**      Collected: 11/14/14 08:40      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	53-70-3	
Dibenzofuran	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	403	47.0	1	11/20/14 07:00	11/21/14 09:58	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	403	114	1	11/20/14 07:00	11/21/14 09:58	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	120-83-2	
Diethylphthalate	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	403	70.8	1	11/20/14 07:00	11/21/14 09:58	105-67-9	
Dimethylphthalate	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	131-11-3	
Di-n-butylphthalate	ND	ug/kg	403	55.9	1	11/20/14 07:00	11/21/14 09:58	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2080	1040	1	11/20/14 07:00	11/21/14 09:58	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	403	77.9	1	11/20/14 07:00	11/21/14 09:58	606-20-2	
Di-n-octylphthalate	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	403	68.9	1	11/20/14 07:00	11/21/14 09:58	117-81-7	
Fluoranthene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	206-44-0	
Fluorene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	403	40.8	1	11/20/14 07:00	11/21/14 09:58	87-68-3	
Hexachlorobenzene	ND	ug/kg	403	52.9	1	11/20/14 07:00	11/21/14 09:58	118-74-1	
Hexachloroethane	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	193-39-5	
Isophorone	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	78-59-1	
1-Methylnaphthalene	ND	ug/kg	403	47.3	1	11/20/14 07:00	11/21/14 09:58	90-12-0	
2-Methylnaphthalene	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	95-48-7	
3&4-Methylphenol	ND	ug/kg	806	201	1	11/20/14 07:00	11/21/14 09:58		
Naphthalene	ND	ug/kg	403	28.7	1	11/20/14 07:00	11/21/14 09:58	91-20-3	
2-Nitroaniline	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	88-74-4	
3-Nitroaniline	ND	ug/kg	403	89.5	1	11/20/14 07:00	11/21/14 09:58	99-09-2	
4-Nitroaniline	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	100-01-6	
Nitrobenzene	ND	ug/kg	403	45.4	1	11/20/14 07:00	11/21/14 09:58	98-95-3	
2-Nitrophenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	88-75-5	
4-Nitrophenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	86-30-6	
Pentachlorophenol	ND	ug/kg	818	201	1	11/20/14 07:00	11/21/14 09:58	87-86-5	
Phenanthrene	ND	ug/kg	403	57.6	1	11/20/14 07:00	11/21/14 09:58	85-01-8	
Phenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	108-95-2	
Pyrene	ND	ug/kg	403	50.8	1	11/20/14 07:00	11/21/14 09:58	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	403	44.0	1	11/20/14 07:00	11/21/14 09:58	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	403	44.7	1	11/20/14 07:00	11/21/14 09:58	95-95-4	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-1**      **Lab ID: 10288933001**      Collected: 11/14/14 08:40      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	403	201	1	11/20/14 07:00	11/21/14 09:58	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	62 %		30-125		1	11/20/14 07:00	11/21/14 09:58	4165-60-0	
2-Fluorobiphenyl (S)	67 %		46-125		1	11/20/14 07:00	11/21/14 09:58	321-60-8	
Terphenyl-d14 (S)	88 %		64-125		1	11/20/14 07:00	11/21/14 09:58	1718-51-0	
Phenol-d6 (S)	64 %		38-125		1	11/20/14 07:00	11/21/14 09:58	13127-88-3	
2-Fluorophenol (S)	65 %		31-125		1	11/20/14 07:00	11/21/14 09:58	367-12-4	
2,4,6-Tribromophenol (S)	76 %		41-125		1	11/20/14 07:00	11/21/14 09:58	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1570	785	1	11/21/14 18:19	11/22/14 19:43	67-64-1	CL
Allyl chloride	ND	ug/kg	314	10.3	1	11/21/14 18:19	11/22/14 19:43	107-05-1	
Benzene	ND	ug/kg	31.4	15.7	1	11/21/14 18:19	11/22/14 19:43	71-43-2	
Bromobenzene	ND	ug/kg	78.5	13.6	1	11/21/14 18:19	11/22/14 19:43	108-86-1	
Bromochloromethane	ND	ug/kg	78.5	10.7	1	11/21/14 18:19	11/22/14 19:43	74-97-5	
Bromodichloromethane	ND	ug/kg	78.5	14.0	1	11/21/14 18:19	11/22/14 19:43	75-27-4	
Bromoform	ND	ug/kg	314	157	1	11/21/14 18:19	11/22/14 19:43	75-25-2	
Bromomethane	ND	ug/kg	785	393	1	11/21/14 18:19	11/22/14 19:43	74-83-9	L3,M0
2-Butanone (MEK)	ND	ug/kg	1570	196	1	11/21/14 18:19	11/22/14 19:43	78-93-3	
n-Butylbenzene	ND	ug/kg	78.5	9.5	1	11/21/14 18:19	11/22/14 19:43	104-51-8	
sec-Butylbenzene	ND	ug/kg	78.5	9.3	1	11/21/14 18:19	11/22/14 19:43	135-98-8	
tert-Butylbenzene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	98-06-6	
Carbon tetrachloride	ND	ug/kg	78.5	12.7	1	11/21/14 18:19	11/22/14 19:43	56-23-5	
Chlorobenzene	ND	ug/kg	78.5	12.1	1	11/21/14 18:19	11/22/14 19:43	108-90-7	
Chloroethane	ND	ug/kg	785	19.8	1	11/21/14 18:19	11/22/14 19:43	75-00-3	
Chloroform	ND	ug/kg	78.5	12.0	1	11/21/14 18:19	11/22/14 19:43	67-66-3	
Chloromethane	ND	ug/kg	314	14.3	1	11/21/14 18:19	11/22/14 19:43	74-87-3	
2-Chlorotoluene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	95-49-8	
4-Chlorotoluene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	785	41.6	1	11/21/14 18:19	11/22/14 19:43	96-12-8	
Dibromochloromethane	ND	ug/kg	78.5	17.0	1	11/21/14 18:19	11/22/14 19:43	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	78.5	9.7	1	11/21/14 18:19	11/22/14 19:43	106-93-4	
Dibromomethane	ND	ug/kg	78.5	22.0	1	11/21/14 18:19	11/22/14 19:43	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	314	36.3	1	11/21/14 18:19	11/22/14 19:43	75-71-8	
1,1-Dichloroethane	ND	ug/kg	78.5	11.0	1	11/21/14 18:19	11/22/14 19:43	75-34-3	
1,2-Dichloroethane	ND	ug/kg	78.5	18.5	1	11/21/14 18:19	11/22/14 19:43	107-06-2	
1,1-Dichloroethene	ND	ug/kg	78.5	15.7	1	11/21/14 18:19	11/22/14 19:43	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	78.5	16.0	1	11/21/14 18:19	11/22/14 19:43	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	78.5	15.6	1	11/21/14 18:19	11/22/14 19:43	156-60-5	
Dichlorofluoromethane	ND	ug/kg	785	393	1	11/21/14 18:19	11/22/14 19:43	75-43-4	
1,2-Dichloropropane	ND	ug/kg	78.5	12.6	1	11/21/14 18:19	11/22/14 19:43	78-87-5	
1,3-Dichloropropane	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	142-28-9	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-1**      **Lab ID: 10288933001**      Collected: 11/14/14 08:40      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	314	10.5	1	11/21/14 18:19	11/22/14 19:43	594-20-7	
1,1-Dichloropropene	ND	ug/kg	78.5	12.8	1	11/21/14 18:19	11/22/14 19:43	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	78.5	9.9	1	11/21/14 18:19	11/22/14 19:43	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	78.5	11.1	1	11/21/14 18:19	11/22/14 19:43	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	314	16.7	1	11/21/14 18:19	11/22/14 19:43	60-29-7	L3
Ethylbenzene	ND	ug/kg	78.5	9.9	1	11/21/14 18:19	11/22/14 19:43	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	393	196	1	11/21/14 18:19	11/22/14 19:43	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	98-82-8	
p-Isopropyltoluene	ND	ug/kg	78.5	11.4	1	11/21/14 18:19	11/22/14 19:43	99-87-6	
Methylene Chloride	ND	ug/kg	314	157	1	11/21/14 18:19	11/22/14 19:43	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	393	196	1	11/21/14 18:19	11/22/14 19:43	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	1634-04-4	
Naphthalene	ND	ug/kg	314	157	1	11/21/14 18:19	11/22/14 19:43	91-20-3	
n-Propylbenzene	ND	ug/kg	78.5	9.5	1	11/21/14 18:19	11/22/14 19:43	103-65-1	
Styrene	ND	ug/kg	78.5	11.7	1	11/21/14 18:19	11/22/14 19:43	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	78.5	10.8	1	11/21/14 18:19	11/22/14 19:43	79-34-5	
Tetrachloroethene	ND	ug/kg	78.5	28.4	1	11/21/14 18:19	11/22/14 19:43	127-18-4	
Tetrahydrofuran	ND	ug/kg	3140	100	1	11/21/14 18:19	11/22/14 19:43	109-99-9	CL,L2
Toluene	ND	ug/kg	78.5	10.7	1	11/21/14 18:19	11/22/14 19:43	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	78.5	18.7	1	11/21/14 18:19	11/22/14 19:43	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	78.5	14.3	1	11/21/14 18:19	11/22/14 19:43	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	78.5	13.3	1	11/21/14 18:19	11/22/14 19:43	79-00-5	
Trichloroethene	ND	ug/kg	78.5	9.8	1	11/21/14 18:19	11/22/14 19:43	79-01-6	
Trichlorofluoromethane	ND	ug/kg	314	14.0	1	11/21/14 18:19	11/22/14 19:43	75-69-4	L3,M0
1,2,3-Trichloropropane	ND	ug/kg	314	10.4	1	11/21/14 18:19	11/22/14 19:43	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	314	32.8	1	11/21/14 18:19	11/22/14 19:43	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	78.5	39.3	1	11/21/14 18:19	11/22/14 19:43	108-67-8	
Vinyl chloride	ND	ug/kg	31.4	11.7	1	11/21/14 18:19	11/22/14 19:43	75-01-4	
Xylene (Total)	ND	ug/kg	236	30.9	1	11/21/14 18:19	11/22/14 19:43	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	95 %		74-125		1	11/21/14 18:19	11/22/14 19:43	17060-07-0	
Toluene-d8 (S)	103 %		75-125		1	11/21/14 18:19	11/22/14 19:43	2037-26-5	
4-Bromofluorobenzene (S)	105 %		75-125		1	11/21/14 18:19	11/22/14 19:43	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933002**      Collected: 11/14/14 10:42      Received: 11/14/14 16:38      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>1.4J</b>	mg/kg	6.0	0.90	1	11/24/14 12:14	11/25/14 12:56		
<b>Surrogates</b>									
n-Triacontane (S)	81	%	50-150		1	11/24/14 12:14	11/25/14 12:56	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	13.0	6.5	1	11/22/14 09:02	11/27/14 14:20		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	75	%	80-125		1	11/22/14 09:02	11/27/14 14:20	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>5.4</b>	mg/kg	1.2	0.36	1	11/20/14 15:02	11/24/14 15:58	7440-38-2	
Barium	<b>120</b>	mg/kg	0.62	0.068	1	11/20/14 15:02	11/24/14 15:58	7440-39-3	
Cadmium	<b>0.40</b>	mg/kg	0.18	0.021	1	11/20/14 15:02	11/24/14 15:58	7440-43-9	
Chromium	<b>16.7</b>	mg/kg	0.62	0.080	1	11/20/14 15:02	11/24/14 15:58	7440-47-3	
Lead	<b>8.7</b>	mg/kg	1.2	0.091	1	11/20/14 15:02	11/24/14 15:58	7439-92-1	
Selenium	<b>0.87J</b>	mg/kg	0.92	0.42	1	11/20/14 15:02	11/24/14 15:58	7782-49-2	
Silver	ND	mg/kg	0.62	0.062	1	11/20/14 15:02	11/24/14 15:58	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.033</b>	mg/kg	0.023	0.0070	1	11/22/14 14:26	11/24/14 14:39	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>24.0</b>	%	0.10	0.10	1		12/01/14 10:13		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	83-32-9	
Acenaphthylene	ND	ug/kg	433	84.7	1	11/20/14 07:00	11/21/14 10:37	208-96-8	
Anthracene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	120-12-7	
Benzo(a)anthracene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	56-55-3	
Benzo(a)pyrene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	433	54.9	1	11/20/14 07:00	11/21/14 10:37	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	433	52.7	1	11/20/14 07:00	11/21/14 10:37	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	101-55-3	
Butylbenzylphthalate	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	85-68-7	
Carbazole	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	59-50-7	
4-Chloroaniline	ND	ug/kg	433	111	1	11/20/14 07:00	11/21/14 10:37	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	108-60-1	
2-Chloronaphthalene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	91-58-7	
2-Chlorophenol	ND	ug/kg	433	54.1	1	11/20/14 07:00	11/21/14 10:37	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	7005-72-3	
Chrysene	ND	ug/kg	433	58.2	1	11/20/14 07:00	11/21/14 10:37	218-01-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933002**      Collected: 11/14/14 10:42      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	53-70-3	
Dibenzofuran	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	433	50.6	1	11/20/14 07:00	11/21/14 10:37	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	433	123	1	11/20/14 07:00	11/21/14 10:37	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	120-83-2	
Diethylphthalate	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	433	76.1	1	11/20/14 07:00	11/21/14 10:37	105-67-9	
Dimethylphthalate	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	131-11-3	
Di-n-butylphthalate	ND	ug/kg	433	60.0	1	11/20/14 07:00	11/21/14 10:37	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2230	1120	1	11/20/14 07:00	11/21/14 10:37	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	433	83.7	1	11/20/14 07:00	11/21/14 10:37	606-20-2	
Di-n-octylphthalate	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	433	74.0	1	11/20/14 07:00	11/21/14 10:37	117-81-7	
Fluoranthene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	206-44-0	
Fluorene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	433	43.9	1	11/20/14 07:00	11/21/14 10:37	87-68-3	
Hexachlorobenzene	ND	ug/kg	433	56.9	1	11/20/14 07:00	11/21/14 10:37	118-74-1	
Hexachloroethane	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	193-39-5	
Isophorone	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	78-59-1	
1-Methylnaphthalene	ND	ug/kg	433	50.9	1	11/20/14 07:00	11/21/14 10:37	90-12-0	
2-Methylnaphthalene	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	95-48-7	
3&4-Methylphenol	ND	ug/kg	866	216	1	11/20/14 07:00	11/21/14 10:37		
Naphthalene	ND	ug/kg	433	30.9	1	11/20/14 07:00	11/21/14 10:37	91-20-3	
2-Nitroaniline	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	88-74-4	
3-Nitroaniline	ND	ug/kg	433	96.2	1	11/20/14 07:00	11/21/14 10:37	99-09-2	
4-Nitroaniline	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	100-01-6	
Nitrobenzene	ND	ug/kg	433	48.8	1	11/20/14 07:00	11/21/14 10:37	98-95-3	
2-Nitrophenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	88-75-5	
4-Nitrophenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	86-30-6	
Pentachlorophenol	ND	ug/kg	879	216	1	11/20/14 07:00	11/21/14 10:37	87-86-5	
Phenanthrene	ND	ug/kg	433	61.9	1	11/20/14 07:00	11/21/14 10:37	85-01-8	
Phenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	108-95-2	
Pyrene	ND	ug/kg	433	54.6	1	11/20/14 07:00	11/21/14 10:37	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	433	47.3	1	11/20/14 07:00	11/21/14 10:37	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	433	48.0	1	11/20/14 07:00	11/21/14 10:37	95-95-4	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933002**      Collected: 11/14/14 10:42      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	433	216	1	11/20/14 07:00	11/21/14 10:37	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	60 %		30-125		1	11/20/14 07:00	11/21/14 10:37	4165-60-0	
2-Fluorobiphenyl (S)	66 %		46-125		1	11/20/14 07:00	11/21/14 10:37	321-60-8	
Terphenyl-d14 (S)	85 %		64-125		1	11/20/14 07:00	11/21/14 10:37	1718-51-0	
Phenol-d6 (S)	64 %		38-125		1	11/20/14 07:00	11/21/14 10:37	13127-88-3	
2-Fluorophenol (S)	64 %		31-125		1	11/20/14 07:00	11/21/14 10:37	367-12-4	
2,4,6-Tribromophenol (S)	76 %		41-125		1	11/20/14 07:00	11/21/14 10:37	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1350	675	1	11/21/14 18:19	11/22/14 19:59	67-64-1	CL
Allyl chloride	ND	ug/kg	270	8.9	1	11/21/14 18:19	11/22/14 19:59	107-05-1	
Benzene	ND	ug/kg	27.0	13.5	1	11/21/14 18:19	11/22/14 19:59	71-43-2	
Bromobenzene	ND	ug/kg	67.5	11.7	1	11/21/14 18:19	11/22/14 19:59	108-86-1	
Bromochloromethane	ND	ug/kg	67.5	9.2	1	11/21/14 18:19	11/22/14 19:59	74-97-5	
Bromodichloromethane	ND	ug/kg	67.5	12.0	1	11/21/14 18:19	11/22/14 19:59	75-27-4	
Bromoform	ND	ug/kg	270	135	1	11/21/14 18:19	11/22/14 19:59	75-25-2	
Bromomethane	ND	ug/kg	675	338	1	11/21/14 18:19	11/22/14 19:59	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1350	169	1	11/21/14 18:19	11/22/14 19:59	78-93-3	
n-Butylbenzene	ND	ug/kg	67.5	8.2	1	11/21/14 18:19	11/22/14 19:59	104-51-8	
sec-Butylbenzene	ND	ug/kg	67.5	8.0	1	11/21/14 18:19	11/22/14 19:59	135-98-8	
tert-Butylbenzene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	98-06-6	
Carbon tetrachloride	ND	ug/kg	67.5	10.9	1	11/21/14 18:19	11/22/14 19:59	56-23-5	
Chlorobenzene	ND	ug/kg	67.5	10.4	1	11/21/14 18:19	11/22/14 19:59	108-90-7	
Chloroethane	ND	ug/kg	675	17.0	1	11/21/14 18:19	11/22/14 19:59	75-00-3	
Chloroform	ND	ug/kg	67.5	10.3	1	11/21/14 18:19	11/22/14 19:59	67-66-3	
Chloromethane	ND	ug/kg	270	12.3	1	11/21/14 18:19	11/22/14 19:59	74-87-3	
2-Chlorotoluene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	95-49-8	
4-Chlorotoluene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	675	35.8	1	11/21/14 18:19	11/22/14 19:59	96-12-8	
Dibromochloromethane	ND	ug/kg	67.5	14.6	1	11/21/14 18:19	11/22/14 19:59	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	67.5	8.3	1	11/21/14 18:19	11/22/14 19:59	106-93-4	
Dibromomethane	ND	ug/kg	67.5	18.9	1	11/21/14 18:19	11/22/14 19:59	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	270	31.2	1	11/21/14 18:19	11/22/14 19:59	75-71-8	
1,1-Dichloroethane	ND	ug/kg	67.5	9.4	1	11/21/14 18:19	11/22/14 19:59	75-34-3	
1,2-Dichloroethane	ND	ug/kg	67.5	15.9	1	11/21/14 18:19	11/22/14 19:59	107-06-2	
1,1-Dichloroethene	ND	ug/kg	67.5	13.5	1	11/21/14 18:19	11/22/14 19:59	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	67.5	13.8	1	11/21/14 18:19	11/22/14 19:59	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	67.5	13.4	1	11/21/14 18:19	11/22/14 19:59	156-60-5	
Dichlorofluoromethane	ND	ug/kg	675	338	1	11/21/14 18:19	11/22/14 19:59	75-43-4	
1,2-Dichloropropane	ND	ug/kg	67.5	10.8	1	11/21/14 18:19	11/22/14 19:59	78-87-5	
1,3-Dichloropropane	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	142-28-9	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933002**      Collected: 11/14/14 10:42      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	270	9.0	1	11/21/14 18:19	11/22/14 19:59	594-20-7	
1,1-Dichloropropene	ND	ug/kg	67.5	11.0	1	11/21/14 18:19	11/22/14 19:59	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	67.5	8.5	1	11/21/14 18:19	11/22/14 19:59	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	67.5	9.5	1	11/21/14 18:19	11/22/14 19:59	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	270	14.3	1	11/21/14 18:19	11/22/14 19:59	60-29-7	L3
Ethylbenzene	ND	ug/kg	67.5	8.5	1	11/21/14 18:19	11/22/14 19:59	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	338	169	1	11/21/14 18:19	11/22/14 19:59	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	98-82-8	
p-Isopropyltoluene	ND	ug/kg	67.5	9.8	1	11/21/14 18:19	11/22/14 19:59	99-87-6	
Methylene Chloride	ND	ug/kg	270	135	1	11/21/14 18:19	11/22/14 19:59	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	338	169	1	11/21/14 18:19	11/22/14 19:59	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	1634-04-4	
Naphthalene	ND	ug/kg	270	135	1	11/21/14 18:19	11/22/14 19:59	91-20-3	
n-Propylbenzene	ND	ug/kg	67.5	8.2	1	11/21/14 18:19	11/22/14 19:59	103-65-1	
Styrene	ND	ug/kg	67.5	10.1	1	11/21/14 18:19	11/22/14 19:59	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	67.5	9.3	1	11/21/14 18:19	11/22/14 19:59	79-34-5	
Tetrachloroethene	ND	ug/kg	67.5	24.4	1	11/21/14 18:19	11/22/14 19:59	127-18-4	
Tetrahydrofuran	ND	ug/kg	2700	86.3	1	11/21/14 18:19	11/22/14 19:59	109-99-9	CL,L2
Toluene	ND	ug/kg	67.5	9.2	1	11/21/14 18:19	11/22/14 19:59	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	67.5	16.1	1	11/21/14 18:19	11/22/14 19:59	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	67.5	12.3	1	11/21/14 18:19	11/22/14 19:59	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	67.5	11.4	1	11/21/14 18:19	11/22/14 19:59	79-00-5	
Trichloroethene	ND	ug/kg	67.5	8.4	1	11/21/14 18:19	11/22/14 19:59	79-01-6	
Trichlorofluoromethane	ND	ug/kg	270	12.0	1	11/21/14 18:19	11/22/14 19:59	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	270	9.0	1	11/21/14 18:19	11/22/14 19:59	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	270	28.2	1	11/21/14 18:19	11/22/14 19:59	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	67.5	33.8	1	11/21/14 18:19	11/22/14 19:59	108-67-8	
Vinyl chloride	ND	ug/kg	27.0	10.0	1	11/21/14 18:19	11/22/14 19:59	75-01-4	
Xylene (Total)	ND	ug/kg	203	26.5	1	11/21/14 18:19	11/22/14 19:59	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	93 %		74-125		1	11/21/14 18:19	11/22/14 19:59	17060-07-0	
Toluene-d8 (S)	104 %		75-125		1	11/21/14 18:19	11/22/14 19:59	2037-26-5	
4-Bromofluorobenzene (S)	106 %		75-125		1	11/21/14 18:19	11/22/14 19:59	460-00-4	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

Sample: DP-2      Lab ID: 10288933003      Collected: 11/14/14 11:15      Received: 11/14/14 16:38      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/L	0.13	0.027	1	11/19/14 10:10	11/20/14 14:39		
<b>Surrogates</b>									
n-Triacontane (S)	67 %		50-150		1	11/19/14 10:10	11/20/14 14:39	638-68-6	P4
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	100	50.0	1		11/26/14 23:56		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	78 %		80-125		1		11/26/14 23:56	98-08-8	S1
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3010									
Arsenic	13.0J	ug/L	20.0	3.2	1	11/21/14 09:52	11/24/14 22:10	7440-38-2	
Barium	1920	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 22:10	7440-39-3	
Cadmium	6.7	ug/L	3.0	0.25	1	11/21/14 09:52	11/24/14 22:10	7440-43-9	
Chromium	23.2	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 22:10	7440-47-3	
Lead	32.7	ug/L	10.0	2.0	1	11/21/14 09:52	11/24/14 22:10	7439-92-1	
Selenium	18.2J	ug/L	20.0	6.6	1	11/21/14 09:52	11/24/14 22:10	7782-49-2	
Silver	ND	ug/L	10.0	0.63	1	11/21/14 09:52	11/24/14 22:10	7440-22-4	
<b>7470A Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	1.7	ug/L	0.20	0.026	1	11/24/14 10:25	11/24/14 12:20	7439-97-6	
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
Phenol	ND	ug/L	12.7	2.6	1	11/19/14 07:23	11/20/14 14:10	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	12.7	2.4	1	11/19/14 07:23	11/20/14 14:10	111-44-4	
2-Chlorophenol	ND	ug/L	12.7	2.4	1	11/19/14 07:23	11/20/14 14:10	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	12.7	2.5	1	11/19/14 07:23	11/20/14 14:10	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	12.7	2.5	1	11/19/14 07:23	11/20/14 14:10	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	12.7	2.5	1	11/19/14 07:23	11/20/14 14:10	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	12.7	2.5	1	11/19/14 07:23	11/20/14 14:10	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	12.7	2.2	1	11/19/14 07:23	11/20/14 14:10	108-60-1	
3&4-Methylphenol	ND	ug/L	25.3	2.2	1	11/19/14 07:23	11/20/14 14:10		
N-Nitroso-di-n-propylamine	ND	ug/L	12.7	2.3	1	11/19/14 07:23	11/20/14 14:10	621-64-7	
Hexachloroethane	ND	ug/L	12.7	2.6	1	11/19/14 07:23	11/20/14 14:10	67-72-1	
Nitrobenzene	ND	ug/L	12.7	2.4	1	11/19/14 07:23	11/20/14 14:10	98-95-3	
Isophorone	ND	ug/L	12.7	2.0	1	11/19/14 07:23	11/20/14 14:10	78-59-1	
2-Nitrophenol	ND	ug/L	12.7	2.4	1	11/19/14 07:23	11/20/14 14:10	88-75-5	
2,4-Dimethylphenol	ND	ug/L	63.3	9.2	1	11/19/14 07:23	11/20/14 14:10	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	12.7	1.9	1	11/19/14 07:23	11/20/14 14:10	111-91-1	
2,4-Dichlorophenol	ND	ug/L	12.7	2.2	1	11/19/14 07:23	11/20/14 14:10	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	12.7	2.6	1	11/19/14 07:23	11/20/14 14:10	120-82-1	
Naphthalene	ND	ug/L	12.7	2.0	1	11/19/14 07:23	11/20/14 14:10	91-20-3	
4-Chloroaniline	ND	ug/L	63.3	16.5	1	11/19/14 07:23	11/20/14 14:10	106-47-8	L2
Hexachloro-1,3-butadiene	ND	ug/L	12.7	2.3	1	11/19/14 07:23	11/20/14 14:10	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	12.7	2.0	1	11/19/14 07:23	11/20/14 14:10	59-50-7	
2-Methylnaphthalene	ND	ug/L	12.7	1.8	1	11/19/14 07:23	11/20/14 14:10	91-57-6	
2,4,6-Trichlorophenol	ND	ug/L	12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	88-06-2	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933003**      Collected: 11/14/14 11:15      Received: 11/14/14 16:38      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
2,4,5-Trichlorophenol	ND ug/L		12.7	3.7	1	11/19/14 07:23	11/20/14 14:10	95-95-4	
2-Chloronaphthalene	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	91-58-7	
2-Nitroaniline	ND ug/L		12.7	3.4	1	11/19/14 07:23	11/20/14 14:10	88-74-4	
Dimethylphthalate	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	131-11-3	
Acenaphthylene	ND ug/L		12.7	1.6	1	11/19/14 07:23	11/20/14 14:10	208-96-8	
2,6-Dinitrotoluene	ND ug/L		12.7	2.5	1	11/19/14 07:23	11/20/14 14:10	606-20-2	
3-Nitroaniline	ND ug/L		12.7	4.0	1	11/19/14 07:23	11/20/14 14:10	99-09-2	
Acenaphthene	ND ug/L		12.7	2.1	1	11/19/14 07:23	11/20/14 14:10	83-32-9	
2,4-Dinitrophenol	ND ug/L		12.7	3.5	1	11/19/14 07:23	11/20/14 14:10	51-28-5	
4-Nitrophenol	ND ug/L		12.7	5.8	1	11/19/14 07:23	11/20/14 14:10	100-02-7	
Dibenzofuran	ND ug/L		12.7	2.1	1	11/19/14 07:23	11/20/14 14:10	132-64-9	
2,4-Dinitrotoluene	ND ug/L		12.7	2.7	1	11/19/14 07:23	11/20/14 14:10	121-14-2	
Diethylphthalate	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		12.7	1.8	1	11/19/14 07:23	11/20/14 14:10	7005-72-3	
Fluorene	ND ug/L		12.7	1.7	1	11/19/14 07:23	11/20/14 14:10	86-73-7	
4-Nitroaniline	ND ug/L		12.7	3.5	1	11/19/14 07:23	11/20/14 14:10	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		12.7	4.4	1	11/19/14 07:23	11/20/14 14:10	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		12.7	2.2	1	11/19/14 07:23	11/20/14 14:10	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		12.7	2.6	1	11/19/14 07:23	11/20/14 14:10	101-55-3	
Hexachlorobenzene	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	118-74-1	
Pentachlorophenol	ND ug/L		25.3	2.8	1	11/19/14 07:23	11/20/14 14:10	87-86-5	
Phenanthrene	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	85-01-8	
Anthracene	ND ug/L		12.7	2.9	1	11/19/14 07:23	11/20/14 14:10	120-12-7	
Di-n-butylphthalate	ND ug/L		12.7	2.0	1	11/19/14 07:23	11/20/14 14:10	84-74-2	
Fluoranthene	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	206-44-0	
Pyrene	ND ug/L		12.7	2.2	1	11/19/14 07:23	11/20/14 14:10	129-00-0	
Butylbenzylphthalate	ND ug/L		12.7	2.4	1	11/19/14 07:23	11/20/14 14:10	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		63.3	9.2	1	11/19/14 07:23	11/20/14 14:10	91-94-1	L2
Benzo(a)anthracene	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	56-55-3	
Chrysene	ND ug/L		12.7	2.7	1	11/19/14 07:23	11/20/14 14:10	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		12.7	4.7	1	11/19/14 07:23	11/20/14 14:10	117-81-7	
Di-n-octylphthalate	ND ug/L		12.7	2.2	1	11/19/14 07:23	11/20/14 14:10	117-84-0	
Benzo(b)fluoranthene	ND ug/L		12.7	2.5	1	11/19/14 07:23	11/20/14 14:10	205-99-2	
Benzo(k)fluoranthene	ND ug/L		12.7	2.7	1	11/19/14 07:23	11/20/14 14:10	207-08-9	
Benzo(a)pyrene	ND ug/L		12.7	6.3	1	11/19/14 07:23	11/20/14 14:10	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		12.7	2.2	1	11/19/14 07:23	11/20/14 14:10	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		12.7	2.3	1	11/19/14 07:23	11/20/14 14:10	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		12.7	2.1	1	11/19/14 07:23	11/20/14 14:10	191-24-2	
N-Nitrosodimethylamine	ND ug/L		12.7	3.9	1	11/19/14 07:23	11/20/14 14:10	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		12.7	2.1	1	11/19/14 07:23	11/20/14 14:10	122-66-7	
Carbazole	ND ug/L		12.7	2.6	1	11/19/14 07:23	11/20/14 14:10	86-74-8	
1-Methylnaphthalene	ND ug/L		12.7	2.1	1	11/19/14 07:23	11/20/14 14:10	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	62 %.		60-125		1	11/19/14 07:23	11/20/14 14:10	4165-60-0	
2-Fluorobiphenyl (S)	64 %.		55-125		1	11/19/14 07:23	11/20/14 14:10	321-60-8	
Terphenyl-d14 (S)	73 %.		67-125		1	11/19/14 07:23	11/20/14 14:10	1718-51-0	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933003**      Collected: 11/14/14 11:15      Received: 11/14/14 16:38      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
<b>Surrogates</b>									
Phenol-d6 (S)	63 %.		59-125		1	11/19/14 07:23	11/20/14 14:10	13127-88-3	
2-Fluorophenol (S)	62 %.		53-125		1	11/19/14 07:23	11/20/14 14:10	367-12-4	
2,4,6-Tribromophenol (S)	70 %.		66-125		1	11/19/14 07:23	11/20/14 14:10	118-79-6	
<b>8260 VOC</b>			Analytical Method: EPA 8260						
Acetone	ND ug/L		100	50.0	5		11/24/14 19:20	67-64-1	
Allyl chloride	ND ug/L		20.0	2.2	5		11/24/14 19:20	107-05-1	
Benzene	ND ug/L		5.0	0.75	5		11/24/14 19:20	71-43-2	
Bromobenzene	ND ug/L		5.0	0.66	5		11/24/14 19:20	108-86-1	
Bromochloromethane	ND ug/L		5.0	0.58	5		11/24/14 19:20	74-97-5	
Bromodichloromethane	ND ug/L		5.0	1.0	5		11/24/14 19:20	75-27-4	
Bromoform	ND ug/L		20.0	10.0	5		11/24/14 19:20	75-25-2	
Bromomethane	ND ug/L		20.0	10.0	5		11/24/14 19:20	74-83-9	
2-Butanone (MEK)	ND ug/L		25.0	12.5	5		11/24/14 19:20	78-93-3	
n-Butylbenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	104-51-8	
sec-Butylbenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	135-98-8	
tert-Butylbenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	98-06-6	
Carbon tetrachloride	ND ug/L		5.0	0.80	5		11/24/14 19:20	56-23-5	
Chlorobenzene	ND ug/L		5.0	0.33	5		11/24/14 19:20	108-90-7	
Chloroethane	ND ug/L		5.0	1.2	5		11/24/14 19:20	75-00-3	
Chloroform	ND ug/L		5.0	0.80	5		11/24/14 19:20	67-66-3	
Chloromethane	ND ug/L		20.0	1.7	5		11/24/14 19:20	74-87-3	
2-Chlorotoluene	ND ug/L		5.0	0.69	5		11/24/14 19:20	95-49-8	
4-Chlorotoluene	ND ug/L		5.0	0.42	5		11/24/14 19:20	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		20.0	10.0	5		11/24/14 19:20	96-12-8	
Dibromochloromethane	ND ug/L		5.0	2.5	5		11/24/14 19:20	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		5.0	0.74	5		11/24/14 19:20	106-93-4	
Dibromomethane	ND ug/L		20.0	0.92	5		11/24/14 19:20	74-95-3	
1,2-Dichlorobenzene	ND ug/L		5.0	0.80	5		11/24/14 19:20	95-50-1	
1,3-Dichlorobenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	541-73-1	
1,4-Dichlorobenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	106-46-7	
Dichlorodifluoromethane	ND ug/L		5.0	2.5	5		11/24/14 19:20	75-71-8	
1,1-Dichloroethane	ND ug/L		5.0	0.80	5		11/24/14 19:20	75-34-3	
1,2-Dichloroethane	ND ug/L		5.0	0.66	5		11/24/14 19:20	107-06-2	
1,1-Dichloroethene	ND ug/L		5.0	1.0	5		11/24/14 19:20	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		5.0	0.66	5		11/24/14 19:20	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		5.0	1.2	5		11/24/14 19:20	156-60-5	
Dichlorofluoromethane	ND ug/L		5.0	1.0	5		11/24/14 19:20	75-43-4	
1,2-Dichloropropane	ND ug/L		20.0	0.71	5		11/24/14 19:20	78-87-5	
1,3-Dichloropropane	ND ug/L		5.0	2.5	5		11/24/14 19:20	142-28-9	
2,2-Dichloropropane	ND ug/L		20.0	0.87	5		11/24/14 19:20	594-20-7	
1,1-Dichloropropene	ND ug/L		5.0	2.5	5		11/24/14 19:20	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		20.0	0.64	5		11/24/14 19:20	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		20.0	0.92	5		11/24/14 19:20	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		20.0	0.70	5		11/24/14 19:20	60-29-7	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-2**      **Lab ID: 10288933003**      Collected: 11/14/14 11:15      Received: 11/14/14 16:38      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b> Analytical Method: EPA 8260									
Ethylbenzene	ND ug/L		5.0	0.82	5		11/24/14 19:20	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		5.0	2.5	5		11/24/14 19:20	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		5.0	2.5	5		11/24/14 19:20	98-82-8	
p-Isopropyltoluene	ND ug/L		5.0	2.5	5		11/24/14 19:20	99-87-6	
Methylene Chloride	ND ug/L		20.0	10.0	5		11/24/14 19:20	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		25.0	12.5	5		11/24/14 19:20	108-10-1	
Methyl-tert-butyl ether	ND ug/L		5.0	0.84	5		11/24/14 19:20	1634-04-4	
Naphthalene	ND ug/L		20.0	10.0	5		11/24/14 19:20	91-20-3	
n-Propylbenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	103-65-1	
Styrene	ND ug/L		5.0	0.32	5		11/24/14 19:20	100-42-5	
1,1,1,2-Tetrachloroethane	ND ug/L		5.0	2.5	5		11/24/14 19:20	630-20-6	
1,1,2,2-Tetrachloroethane	ND ug/L		5.0	2.5	5		11/24/14 19:20	79-34-5	
Tetrachloroethene	ND ug/L		5.0	0.78	5		11/24/14 19:20	127-18-4	
Tetrahydrofuran	ND ug/L		50.0	10	5		11/24/14 19:20	109-99-9	
Toluene	ND ug/L		5.0	0.55	5		11/24/14 19:20	108-88-3	
1,2,3-Trichlorobenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	87-61-6	
1,2,4-Trichlorobenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	120-82-1	
1,1,1-Trichloroethane	ND ug/L		5.0	1.3	5		11/24/14 19:20	71-55-6	
1,1,2-Trichloroethane	ND ug/L		5.0	0.64	5		11/24/14 19:20	79-00-5	
Trichloroethene	ND ug/L		2.0	0.46	5		11/24/14 19:20	79-01-6	
Trichlorofluoromethane	ND ug/L		5.0	1.1	5		11/24/14 19:20	75-69-4	
1,2,3-Trichloropropane	ND ug/L		20.0	6.1	5		11/24/14 19:20	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND ug/L		5.0	2.5	5		11/24/14 19:20	76-13-1	
1,2,4-Trimethylbenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	95-63-6	
1,3,5-Trimethylbenzene	ND ug/L		5.0	2.5	5		11/24/14 19:20	108-67-8	
Vinyl chloride	ND ug/L		2.0	0.98	5		11/24/14 19:20	75-01-4	
Xylene (Total)	ND ug/L		15.0	2.0	5		11/24/14 19:20	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	102 %.		75-125		5		11/24/14 19:20	17060-07-0	3M,pH
Toluene-d8 (S)	101 %.		75-125		5		11/24/14 19:20	2037-26-5	
4-Bromofluorobenzene (S)	100 %.		75-125		5		11/24/14 19:20	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288933

Sample: DP-5		Lab ID: 10288933004		Collected: 11/13/14 15:55	Received: 11/14/14 16:38	Matrix: Water			
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b>		Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO							
Diesel Range Organics	<b>0.073J</b>	mg/L	0.12	0.025	1	11/19/14 10:10	11/20/14 14:17		
<b>Surrogates</b>									
n-Triacontane (S)	77 %.		50-150		1	11/19/14 10:10	11/20/14 14:17	638-68-6	P4

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

Sample: DP-5B      Lab ID: 10288933005      Collected: 11/14/14 12:10      Received: 11/14/14 16:38      Matrix: Water									
Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO									
Gasoline Range Organics	ND	ug/L	100	50.0	1		11/26/14 19:28		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	82	%	80-125		1		11/26/14 19:28	98-08-8	
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3010									
Arsenic	18.6J	ug/L	20.0	3.2	1	11/21/14 09:52	11/24/14 22:13	7440-38-2	
Barium	2990	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 22:13	7440-39-3	
Cadmium	4.7	ug/L	3.0	0.25	1	11/21/14 09:52	11/24/14 22:13	7440-43-9	
Chromium	57.7	ug/L	10.0	5.0	1	11/21/14 09:52	11/24/14 22:13	7440-47-3	
Lead	28.3	ug/L	10.0	2.0	1	11/21/14 09:52	11/24/14 22:13	7439-92-1	
Selenium	16.2J	ug/L	20.0	6.6	1	11/21/14 09:52	11/24/14 22:13	7782-49-2	
Silver	ND	ug/L	10.0	0.63	1	11/21/14 09:52	11/24/14 22:13	7440-22-4	
<b>7470A Mercury</b> Analytical Method: EPA 7470A      Preparation Method: EPA 7470A									
Mercury	1.2	ug/L	0.20	0.026	1	11/24/14 10:25	11/24/14 12:23	7439-97-6	
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3520									
Phenol	ND	ug/L	12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	108-95-2	
bis(2-Chloroethyl) ether	ND	ug/L	12.9	2.4	1	11/19/14 07:23	11/20/14 14:38	111-44-4	
2-Chlorophenol	ND	ug/L	12.9	2.5	1	11/19/14 07:23	11/20/14 14:38	95-57-8	
1,3-Dichlorobenzene	ND	ug/L	12.9	2.5	1	11/19/14 07:23	11/20/14 14:38	541-73-1	
1,4-Dichlorobenzene	ND	ug/L	12.9	2.5	1	11/19/14 07:23	11/20/14 14:38	106-46-7	
1,2-Dichlorobenzene	ND	ug/L	12.9	2.5	1	11/19/14 07:23	11/20/14 14:38	95-50-1	
2-Methylphenol(o-Cresol)	ND	ug/L	12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	95-48-7	
bis(2-Chloroisopropyl) ether	ND	ug/L	12.9	2.3	1	11/19/14 07:23	11/20/14 14:38	108-60-1	
3&4-Methylphenol	ND	ug/L	25.8	2.2	1	11/19/14 07:23	11/20/14 14:38		
N-Nitroso-di-n-propylamine	ND	ug/L	12.9	2.4	1	11/19/14 07:23	11/20/14 14:38	621-64-7	
Hexachloroethane	ND	ug/L	12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	67-72-1	
Nitrobenzene	ND	ug/L	12.9	2.5	1	11/19/14 07:23	11/20/14 14:38	98-95-3	
Isophorone	ND	ug/L	12.9	2.0	1	11/19/14 07:23	11/20/14 14:38	78-59-1	
2-Nitrophenol	ND	ug/L	12.9	2.4	1	11/19/14 07:23	11/20/14 14:38	88-75-5	
2,4-Dimethylphenol	ND	ug/L	64.5	9.4	1	11/19/14 07:23	11/20/14 14:38	105-67-9	
bis(2-Chloroethoxy)methane	ND	ug/L	12.9	2.0	1	11/19/14 07:23	11/20/14 14:38	111-91-1	
2,4-Dichlorophenol	ND	ug/L	12.9	2.2	1	11/19/14 07:23	11/20/14 14:38	120-83-2	
1,2,4-Trichlorobenzene	ND	ug/L	12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	120-82-1	
Naphthalene	ND	ug/L	12.9	2.0	1	11/19/14 07:23	11/20/14 14:38	91-20-3	
4-Chloroaniline	ND	ug/L	64.5	16.8	1	11/19/14 07:23	11/20/14 14:38	106-47-8	L2
Hexachloro-1,3-butadiene	ND	ug/L	12.9	2.3	1	11/19/14 07:23	11/20/14 14:38	87-68-3	
4-Chloro-3-methylphenol	ND	ug/L	12.9	2.0	1	11/19/14 07:23	11/20/14 14:38	59-50-7	
2-Methylnaphthalene	ND	ug/L	12.9	1.8	1	11/19/14 07:23	11/20/14 14:38	91-57-6	
2,4,6-Trichlorophenol	ND	ug/L	12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	88-06-2	
2,4,5-Trichlorophenol	ND	ug/L	12.9	3.7	1	11/19/14 07:23	11/20/14 14:38	95-95-4	
2-Chloronaphthalene	ND	ug/L	12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	91-58-7	
2-Nitroaniline	ND	ug/L	12.9	3.5	1	11/19/14 07:23	11/20/14 14:38	88-74-4	
Dimethylphthalate	ND	ug/L	12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	131-11-3	
Acenaphthylene	ND	ug/L	12.9	1.7	1	11/19/14 07:23	11/20/14 14:38	208-96-8	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-5B**      **Lab ID: 10288933005**      Collected: 11/14/14 12:10      Received: 11/14/14 16:38      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8270 MSSV</b>			Analytical Method: EPA 8270    Preparation Method: EPA 3520						
2,6-Dinitrotoluene	ND ug/L		12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	606-20-2	
3-Nitroaniline	ND ug/L		12.9	4.1	1	11/19/14 07:23	11/20/14 14:38	99-09-2	
Acenaphthene	ND ug/L		12.9	2.1	1	11/19/14 07:23	11/20/14 14:38	83-32-9	
2,4-Dinitrophenol	ND ug/L		12.9	3.5	1	11/19/14 07:23	11/20/14 14:38	51-28-5	
4-Nitrophenol	ND ug/L		12.9	5.9	1	11/19/14 07:23	11/20/14 14:38	100-02-7	
Dibenzofuran	ND ug/L		12.9	2.1	1	11/19/14 07:23	11/20/14 14:38	132-64-9	
2,4-Dinitrotoluene	ND ug/L		12.9	2.7	1	11/19/14 07:23	11/20/14 14:38	121-14-2	
Diethylphthalate	ND ug/L		12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	84-66-2	
4-Chlorophenylphenyl ether	ND ug/L		12.9	1.8	1	11/19/14 07:23	11/20/14 14:38	7005-72-3	
Fluorene	ND ug/L		12.9	1.7	1	11/19/14 07:23	11/20/14 14:38	86-73-7	
4-Nitroaniline	ND ug/L		12.9	3.6	1	11/19/14 07:23	11/20/14 14:38	100-01-6	
4,6-Dinitro-2-methylphenol	ND ug/L		12.9	4.5	1	11/19/14 07:23	11/20/14 14:38	534-52-1	
N-Nitrosodiphenylamine	ND ug/L		12.9	2.2	1	11/19/14 07:23	11/20/14 14:38	86-30-6	
4-Bromophenylphenyl ether	ND ug/L		12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	101-55-3	
Hexachlorobenzene	ND ug/L		12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	118-74-1	
Pentachlorophenol	ND ug/L		25.8	2.8	1	11/19/14 07:23	11/20/14 14:38	87-86-5	
Phenanthrene	ND ug/L		12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	85-01-8	
Anthracene	ND ug/L		12.9	3.0	1	11/19/14 07:23	11/20/14 14:38	120-12-7	
Di-n-butylphthalate	ND ug/L		12.9	2.1	1	11/19/14 07:23	11/20/14 14:38	84-74-2	
Fluoranthene	ND ug/L		12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	206-44-0	
Pyrene	ND ug/L		12.9	2.3	1	11/19/14 07:23	11/20/14 14:38	129-00-0	
Butylbenzylphthalate	ND ug/L		12.9	2.4	1	11/19/14 07:23	11/20/14 14:38	85-68-7	
3,3'-Dichlorobenzidine	ND ug/L		64.5	9.4	1	11/19/14 07:23	11/20/14 14:38	91-94-1	L2
Benzo(a)anthracene	ND ug/L		12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	56-55-3	
Chrysene	ND ug/L		12.9	2.7	1	11/19/14 07:23	11/20/14 14:38	218-01-9	
bis(2-Ethylhexyl)phthalate	ND ug/L		12.9	4.7	1	11/19/14 07:23	11/20/14 14:38	117-81-7	
Di-n-octylphthalate	ND ug/L		12.9	2.2	1	11/19/14 07:23	11/20/14 14:38	117-84-0	
Benzo(b)fluoranthene	ND ug/L		12.9	2.6	1	11/19/14 07:23	11/20/14 14:38	205-99-2	
Benzo(k)fluoranthene	ND ug/L		12.9	2.7	1	11/19/14 07:23	11/20/14 14:38	207-08-9	
Benzo(a)pyrene	ND ug/L		12.9	6.5	1	11/19/14 07:23	11/20/14 14:38	50-32-8	
Indeno(1,2,3-cd)pyrene	ND ug/L		12.9	2.3	1	11/19/14 07:23	11/20/14 14:38	193-39-5	
Dibenz(a,h)anthracene	ND ug/L		12.9	2.3	1	11/19/14 07:23	11/20/14 14:38	53-70-3	
Benzo(g,h,i)perylene	ND ug/L		12.9	2.2	1	11/19/14 07:23	11/20/14 14:38	191-24-2	
N-Nitrosodimethylamine	ND ug/L		12.9	4.0	1	11/19/14 07:23	11/20/14 14:38	62-75-9	
1,2-Diphenylhydrazine	ND ug/L		12.9	2.2	1	11/19/14 07:23	11/20/14 14:38	122-66-7	
Carbazole	ND ug/L		12.9	2.7	1	11/19/14 07:23	11/20/14 14:38	86-74-8	
1-Methylnaphthalene	ND ug/L		12.9	2.1	1	11/19/14 07:23	11/20/14 14:38	90-12-0	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	69 %.		60-125		1	11/19/14 07:23	11/20/14 14:38	4165-60-0	
2-Fluorobiphenyl (S)	72 %.		55-125		1	11/19/14 07:23	11/20/14 14:38	321-60-8	
Terphenyl-d14 (S)	78 %.		67-125		1	11/19/14 07:23	11/20/14 14:38	1718-51-0	
Phenol-d6 (S)	68 %.		59-125		1	11/19/14 07:23	11/20/14 14:38	13127-88-3	
2-Fluorophenol (S)	68 %.		53-125		1	11/19/14 07:23	11/20/14 14:38	367-12-4	
2,4,6-Tribromophenol (S)	82 %.		66-125		1	11/19/14 07:23	11/20/14 14:38	118-79-6	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288933

**Sample: DP-5B**      **Lab ID: 10288933005**      Collected: 11/14/14 12:10      Received: 11/14/14 16:38      Matrix: Water

Parameters	Results	Units	Report			Prepared	Analyzed	CAS No.	Qual
			Limit	MDL	DF				
<b>8260 VOC</b> Analytical Method: EPA 8260									
Acetone	ND ug/L		40.0	20.0	2		11/24/14 19:34	67-64-1	
Allyl chloride	ND ug/L		8.0	0.89	2		11/24/14 19:34	107-05-1	
Benzene	ND ug/L		2.0	0.30	2		11/24/14 19:34	71-43-2	
Bromobenzene	ND ug/L		2.0	0.26	2		11/24/14 19:34	108-86-1	
Bromochloromethane	ND ug/L		2.0	0.23	2		11/24/14 19:34	74-97-5	
Bromodichloromethane	ND ug/L		2.0	0.40	2		11/24/14 19:34	75-27-4	
Bromoform	ND ug/L		8.0	4.0	2		11/24/14 19:34	75-25-2	
Bromomethane	ND ug/L		8.0	4.0	2		11/24/14 19:34	74-83-9	
2-Butanone (MEK)	ND ug/L		10.0	5.0	2		11/24/14 19:34	78-93-3	
n-Butylbenzene	ND ug/L		2.0	1.0	2		11/24/14 19:34	104-51-8	
sec-Butylbenzene	ND ug/L		2.0	1.0	2		11/24/14 19:34	135-98-8	
tert-Butylbenzene	ND ug/L		2.0	1.0	2		11/24/14 19:34	98-06-6	
Carbon tetrachloride	ND ug/L		2.0	0.32	2		11/24/14 19:34	56-23-5	
Chlorobenzene	ND ug/L		2.0	0.13	2		11/24/14 19:34	108-90-7	
Chloroethane	ND ug/L		2.0	0.48	2		11/24/14 19:34	75-00-3	
Chloroform	ND ug/L		2.0	0.32	2		11/24/14 19:34	67-66-3	
Chloromethane	ND ug/L		8.0	0.68	2		11/24/14 19:34	74-87-3	
2-Chlorotoluene	ND ug/L		2.0	0.28	2		11/24/14 19:34	95-49-8	
4-Chlorotoluene	ND ug/L		2.0	0.17	2		11/24/14 19:34	106-43-4	
1,2-Dibromo-3-chloropropane	ND ug/L		8.0	4.0	2		11/24/14 19:34	96-12-8	
Dibromochloromethane	ND ug/L		2.0	1.0	2		11/24/14 19:34	124-48-1	
1,2-Dibromoethane (EDB)	ND ug/L		2.0	0.30	2		11/24/14 19:34	106-93-4	
Dibromomethane	ND ug/L		8.0	0.37	2		11/24/14 19:34	74-95-3	
1,2-Dichlorobenzene	ND ug/L		2.0	0.32	2		11/24/14 19:34	95-50-1	
1,3-Dichlorobenzene	ND ug/L		2.0	1.0	2		11/24/14 19:34	541-73-1	
1,4-Dichlorobenzene	ND ug/L		2.0	1.0	2		11/24/14 19:34	106-46-7	
Dichlorodifluoromethane	ND ug/L		2.0	1.0	2		11/24/14 19:34	75-71-8	
1,1-Dichloroethane	ND ug/L		2.0	0.32	2		11/24/14 19:34	75-34-3	
1,2-Dichloroethane	ND ug/L		2.0	0.26	2		11/24/14 19:34	107-06-2	
1,1-Dichloroethene	ND ug/L		2.0	0.40	2		11/24/14 19:34	75-35-4	
cis-1,2-Dichloroethene	ND ug/L		2.0	0.27	2		11/24/14 19:34	156-59-2	
trans-1,2-Dichloroethene	ND ug/L		2.0	0.46	2		11/24/14 19:34	156-60-5	
Dichlorofluoromethane	ND ug/L		2.0	0.40	2		11/24/14 19:34	75-43-4	
1,2-Dichloropropane	ND ug/L		8.0	0.28	2		11/24/14 19:34	78-87-5	
1,3-Dichloropropane	ND ug/L		2.0	1.0	2		11/24/14 19:34	142-28-9	
2,2-Dichloropropane	ND ug/L		8.0	0.35	2		11/24/14 19:34	594-20-7	
1,1-Dichloropropene	ND ug/L		2.0	1.0	2		11/24/14 19:34	563-58-6	
cis-1,3-Dichloropropene	ND ug/L		8.0	0.25	2		11/24/14 19:34	10061-01-5	
trans-1,3-Dichloropropene	ND ug/L		8.0	0.37	2		11/24/14 19:34	10061-02-6	
Diethyl ether (Ethyl ether)	ND ug/L		8.0	0.28	2		11/24/14 19:34	60-29-7	
Ethylbenzene	ND ug/L		2.0	0.33	2		11/24/14 19:34	100-41-4	
Hexachloro-1,3-butadiene	ND ug/L		2.0	1.0	2		11/24/14 19:34	87-68-3	
Isopropylbenzene (Cumene)	ND ug/L		2.0	1.0	2		11/24/14 19:34	98-82-8	
p-Isopropyltoluene	ND ug/L		2.0	1.0	2		11/24/14 19:34	99-87-6	
Methylene Chloride	ND ug/L		8.0	4.0	2		11/24/14 19:34	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND ug/L		10.0	5.0	2		11/24/14 19:34	108-10-1	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288933

**Sample: DP-5B**      **Lab ID: 10288933005**      Collected: 11/14/14 12:10      Received: 11/14/14 16:38      Matrix: Water

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 VOC</b> Analytical Method: EPA 8260									
Methyl-tert-butyl ether	ND	ug/L	2.0	0.34	2		11/24/14 19:34	1634-04-4	
Naphthalene	ND	ug/L	8.0	4.0	2		11/24/14 19:34	91-20-3	
n-Propylbenzene	ND	ug/L	2.0	1.0	2		11/24/14 19:34	103-65-1	
Styrene	ND	ug/L	2.0	0.13	2		11/24/14 19:34	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/L	2.0	1.0	2		11/24/14 19:34	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/L	2.0	1.0	2		11/24/14 19:34	79-34-5	
Tetrachloroethene	ND	ug/L	2.0	0.31	2		11/24/14 19:34	127-18-4	
Tetrahydrofuran	ND	ug/L	20.0	4.0	2		11/24/14 19:34	109-99-9	
Toluene	<b>0.24J</b>	ug/L	2.0	0.22	2		11/24/14 19:34	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/L	2.0	1.0	2		11/24/14 19:34	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/L	2.0	1.0	2		11/24/14 19:34	120-82-1	
1,1,1-Trichloroethane	ND	ug/L	2.0	0.53	2		11/24/14 19:34	71-55-6	
1,1,2-Trichloroethane	ND	ug/L	2.0	0.25	2		11/24/14 19:34	79-00-5	
Trichloroethene	ND	ug/L	0.80	0.18	2		11/24/14 19:34	79-01-6	
Trichlorofluoromethane	ND	ug/L	2.0	0.43	2		11/24/14 19:34	75-69-4	
1,2,3-Trichloropropane	ND	ug/L	8.0	2.4	2		11/24/14 19:34	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/L	2.0	1.0	2		11/24/14 19:34	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/L	2.0	1.0	2		11/24/14 19:34	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/L	2.0	1.0	2		11/24/14 19:34	108-67-8	
Vinyl chloride	ND	ug/L	0.80	0.39	2		11/24/14 19:34	75-01-4	
Xylene (Total)	ND	ug/L	6.0	0.81	2		11/24/14 19:34	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	99 %		75-125		2		11/24/14 19:34	17060-07-0	3M,pH
Toluene-d8 (S)	99 %		75-125		2		11/24/14 19:34	2037-26-5	
4-Bromofluorobenzene (S)	100 %		75-125		2		11/24/14 19:34	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-8**      **Lab ID: 10288933006**      Collected: 11/14/14 13:48      Received: 11/14/14 16:38      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	11.7	mg/kg	6.6	0.99	1	11/24/14 12:14	11/25/14 12:41		T6
<b>Surrogates</b>									
n-Triacontane (S)	95	%	50-150		1	11/24/14 12:14	11/25/14 12:41	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	11.9	5.9	1	11/22/14 09:02	11/27/14 14:42		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	75	%	80-125		1	11/22/14 09:02	11/27/14 14:42	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	2.8	mg/kg	0.89	0.26	1	11/20/14 15:02	11/24/14 16:01	7440-38-2	
Barium	61.0	mg/kg	0.44	0.049	1	11/20/14 15:02	11/24/14 16:01	7440-39-3	
Cadmium	0.20	mg/kg	0.13	0.015	1	11/20/14 15:02	11/24/14 16:01	7440-43-9	
Chromium	11.3	mg/kg	0.44	0.058	1	11/20/14 15:02	11/24/14 16:01	7440-47-3	
Lead	6.2	mg/kg	0.89	0.066	1	11/20/14 15:02	11/24/14 16:01	7439-92-1	
Selenium	0.78	mg/kg	0.67	0.30	1	11/20/14 15:02	11/24/14 16:01	7782-49-2	
Silver	ND	mg/kg	0.44	0.044	1	11/20/14 15:02	11/24/14 16:01	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	0.018J	mg/kg	0.022	0.0067	1	11/22/14 14:26	11/24/14 14:41	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	16.0	%	0.10	0.10	1		12/01/14 10:13		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	83-32-9	
Acenaphthylene	ND	ug/kg	393	76.8	1	11/20/14 07:00	11/21/14 11:35	208-96-8	
Anthracene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	120-12-7	
Benzo(a)anthracene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	56-55-3	
Benzo(a)pyrene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	50-32-8	
Benzo(b)fluoranthene	243J	ug/kg	393	49.8	1	11/20/14 07:00	11/21/14 11:35	205-99-2	
Benzo(g,h,i)perylene	119J	ug/kg	393	47.8	1	11/20/14 07:00	11/21/14 11:35	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	101-55-3	
Butylbenzylphthalate	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	85-68-7	
Carbazole	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	59-50-7	
4-Chloroaniline	ND	ug/kg	393	101	1	11/20/14 07:00	11/21/14 11:35	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	108-60-1	
2-Chloronaphthalene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	91-58-7	
2-Chlorophenol	ND	ug/kg	393	49.1	1	11/20/14 07:00	11/21/14 11:35	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	7005-72-3	
Chrysene	177J	ug/kg	393	52.8	1	11/20/14 07:00	11/21/14 11:35	218-01-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-8**      **Lab ID: 10288933006**      Collected: 11/14/14 13:48      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	53-70-3	
Dibenzofuran	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	393	45.9	1	11/20/14 07:00	11/21/14 11:35	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	393	111	1	11/20/14 07:00	11/21/14 11:35	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	120-83-2	
Diethylphthalate	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	393	69.0	1	11/20/14 07:00	11/21/14 11:35	105-67-9	
Dimethylphthalate	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	131-11-3	
Di-n-butylphthalate	ND	ug/kg	393	54.5	1	11/20/14 07:00	11/21/14 11:35	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	2020	1010	1	11/20/14 07:00	11/21/14 11:35	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	393	76.0	1	11/20/14 07:00	11/21/14 11:35	606-20-2	
Di-n-octylphthalate	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	393	67.2	1	11/20/14 07:00	11/21/14 11:35	117-81-7	
Fluoranthene	<b>345J</b>	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	206-44-0	
Fluorene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	393	39.8	1	11/20/14 07:00	11/21/14 11:35	87-68-3	
Hexachlorobenzene	ND	ug/kg	393	51.6	1	11/20/14 07:00	11/21/14 11:35	118-74-1	
Hexachloroethane	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	193-39-5	
Isophorone	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	78-59-1	
1-Methylnaphthalene	ND	ug/kg	393	46.1	1	11/20/14 07:00	11/21/14 11:35	90-12-0	
2-Methylnaphthalene	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	95-48-7	
3&4-Methylphenol	ND	ug/kg	786	196	1	11/20/14 07:00	11/21/14 11:35		
Naphthalene	ND	ug/kg	393	28.0	1	11/20/14 07:00	11/21/14 11:35	91-20-3	
2-Nitroaniline	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	88-74-4	
3-Nitroaniline	ND	ug/kg	393	87.2	1	11/20/14 07:00	11/21/14 11:35	99-09-2	
4-Nitroaniline	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	100-01-6	
Nitrobenzene	ND	ug/kg	393	44.3	1	11/20/14 07:00	11/21/14 11:35	98-95-3	
2-Nitrophenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	88-75-5	
4-Nitrophenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	86-30-6	
Pentachlorophenol	ND	ug/kg	798	196	1	11/20/14 07:00	11/21/14 11:35	87-86-5	
Phenanthrene	<b>131J</b>	ug/kg	393	56.2	1	11/20/14 07:00	11/21/14 11:35	85-01-8	
Phenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	108-95-2	
Pyrene	<b>266J</b>	ug/kg	393	49.6	1	11/20/14 07:00	11/21/14 11:35	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	393	42.9	1	11/20/14 07:00	11/21/14 11:35	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	393	43.6	1	11/20/14 07:00	11/21/14 11:35	95-95-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-8**      **Lab ID: 10288933006**      Collected: 11/14/14 13:48      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	393	196	1	11/20/14 07:00	11/21/14 11:35	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	53 %		30-125		1	11/20/14 07:00	11/21/14 11:35	4165-60-0	
2-Fluorobiphenyl (S)	66 %		46-125		1	11/20/14 07:00	11/21/14 11:35	321-60-8	
Terphenyl-d14 (S)	79 %		64-125		1	11/20/14 07:00	11/21/14 11:35	1718-51-0	
Phenol-d6 (S)	56 %		38-125		1	11/20/14 07:00	11/21/14 11:35	13127-88-3	
2-Fluorophenol (S)	53 %		31-125		1	11/20/14 07:00	11/21/14 11:35	367-12-4	
2,4,6-Tribromophenol (S)	78 %		41-125		1	11/20/14 07:00	11/21/14 11:35	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1320	659	1	11/21/14 18:19	11/23/14 00:08	67-64-1	CL
Allyl chloride	ND	ug/kg	264	8.6	1	11/21/14 18:19	11/23/14 00:08	107-05-1	
Benzene	ND	ug/kg	26.4	13.2	1	11/21/14 18:19	11/23/14 00:08	71-43-2	
Bromobenzene	ND	ug/kg	65.9	11.4	1	11/21/14 18:19	11/23/14 00:08	108-86-1	
Bromochloromethane	ND	ug/kg	65.9	9.0	1	11/21/14 18:19	11/23/14 00:08	74-97-5	
Bromodichloromethane	ND	ug/kg	65.9	11.7	1	11/21/14 18:19	11/23/14 00:08	75-27-4	
Bromoform	ND	ug/kg	264	132	1	11/21/14 18:19	11/23/14 00:08	75-25-2	
Bromomethane	ND	ug/kg	659	330	1	11/21/14 18:19	11/23/14 00:08	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1320	165	1	11/21/14 18:19	11/23/14 00:08	78-93-3	
n-Butylbenzene	ND	ug/kg	65.9	8.0	1	11/21/14 18:19	11/23/14 00:08	104-51-8	
sec-Butylbenzene	ND	ug/kg	65.9	7.8	1	11/21/14 18:19	11/23/14 00:08	135-98-8	
tert-Butylbenzene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	98-06-6	
Carbon tetrachloride	ND	ug/kg	65.9	10.7	1	11/21/14 18:19	11/23/14 00:08	56-23-5	
Chlorobenzene	ND	ug/kg	65.9	10.1	1	11/21/14 18:19	11/23/14 00:08	108-90-7	
Chloroethane	ND	ug/kg	659	16.6	1	11/21/14 18:19	11/23/14 00:08	75-00-3	
Chloroform	ND	ug/kg	65.9	10.0	1	11/21/14 18:19	11/23/14 00:08	67-66-3	
Chloromethane	ND	ug/kg	264	12.0	1	11/21/14 18:19	11/23/14 00:08	74-87-3	
2-Chlorotoluene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	95-49-8	
4-Chlorotoluene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	659	34.9	1	11/21/14 18:19	11/23/14 00:08	96-12-8	
Dibromochloromethane	ND	ug/kg	65.9	14.2	1	11/21/14 18:19	11/23/14 00:08	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	65.9	8.1	1	11/21/14 18:19	11/23/14 00:08	106-93-4	
Dibromomethane	ND	ug/kg	65.9	18.5	1	11/21/14 18:19	11/23/14 00:08	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	264	30.5	1	11/21/14 18:19	11/23/14 00:08	75-71-8	
1,1-Dichloroethane	ND	ug/kg	65.9	9.2	1	11/21/14 18:19	11/23/14 00:08	75-34-3	
1,2-Dichloroethane	ND	ug/kg	65.9	15.6	1	11/21/14 18:19	11/23/14 00:08	107-06-2	
1,1-Dichloroethene	ND	ug/kg	65.9	13.2	1	11/21/14 18:19	11/23/14 00:08	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	65.9	13.4	1	11/21/14 18:19	11/23/14 00:08	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	65.9	13.1	1	11/21/14 18:19	11/23/14 00:08	156-60-5	
Dichlorofluoromethane	ND	ug/kg	659	330	1	11/21/14 18:19	11/23/14 00:08	75-43-4	
1,2-Dichloropropane	ND	ug/kg	65.9	10.6	1	11/21/14 18:19	11/23/14 00:08	78-87-5	
1,3-Dichloropropane	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	142-28-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-8**      **Lab ID: 10288933006**      Collected: 11/14/14 13:48      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	264	8.8	1	11/21/14 18:19	11/23/14 00:08	594-20-7	
1,1-Dichloropropene	ND	ug/kg	65.9	10.8	1	11/21/14 18:19	11/23/14 00:08	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	65.9	8.3	1	11/21/14 18:19	11/23/14 00:08	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	65.9	9.3	1	11/21/14 18:19	11/23/14 00:08	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	264	14.0	1	11/21/14 18:19	11/23/14 00:08	60-29-7	L3
Ethylbenzene	ND	ug/kg	65.9	8.3	1	11/21/14 18:19	11/23/14 00:08	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	330	165	1	11/21/14 18:19	11/23/14 00:08	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	98-82-8	
p-Isopropyltoluene	ND	ug/kg	65.9	9.6	1	11/21/14 18:19	11/23/14 00:08	99-87-6	
Methylene Chloride	ND	ug/kg	264	132	1	11/21/14 18:19	11/23/14 00:08	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	330	165	1	11/21/14 18:19	11/23/14 00:08	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	1634-04-4	
Naphthalene	ND	ug/kg	264	132	1	11/21/14 18:19	11/23/14 00:08	91-20-3	
n-Propylbenzene	ND	ug/kg	65.9	8.0	1	11/21/14 18:19	11/23/14 00:08	103-65-1	
Styrene	ND	ug/kg	65.9	9.8	1	11/21/14 18:19	11/23/14 00:08	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	65.9	9.0	1	11/21/14 18:19	11/23/14 00:08	79-34-5	
Tetrachloroethene	ND	ug/kg	65.9	23.8	1	11/21/14 18:19	11/23/14 00:08	127-18-4	
Tetrahydrofuran	ND	ug/kg	2640	84.2	1	11/21/14 18:19	11/23/14 00:08	109-99-9	CL,L2
Toluene	ND	ug/kg	65.9	9.0	1	11/21/14 18:19	11/23/14 00:08	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	65.9	15.7	1	11/21/14 18:19	11/23/14 00:08	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	65.9	12.0	1	11/21/14 18:19	11/23/14 00:08	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	65.9	11.2	1	11/21/14 18:19	11/23/14 00:08	79-00-5	
Trichloroethene	ND	ug/kg	65.9	8.2	1	11/21/14 18:19	11/23/14 00:08	79-01-6	
Trichlorofluoromethane	ND	ug/kg	264	11.7	1	11/21/14 18:19	11/23/14 00:08	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	264	8.8	1	11/21/14 18:19	11/23/14 00:08	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	264	27.6	1	11/21/14 18:19	11/23/14 00:08	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	65.9	33.0	1	11/21/14 18:19	11/23/14 00:08	108-67-8	
Vinyl chloride	ND	ug/kg	26.4	9.8	1	11/21/14 18:19	11/23/14 00:08	75-01-4	
Xylene (Total)	ND	ug/kg	198	25.9	1	11/21/14 18:19	11/23/14 00:08	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	93 %		74-125		1	11/21/14 18:19	11/23/14 00:08	17060-07-0	
Toluene-d8 (S)	105 %		75-125		1	11/21/14 18:19	11/23/14 00:08	2037-26-5	
4-Bromofluorobenzene (S)	108 %		75-125		1	11/21/14 18:19	11/23/14 00:08	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-9**      **Lab ID: 10288933007**      Collected: 11/14/14 14:20      Received: 11/14/14 16:38      Matrix: Solid

**Results reported on a "dry-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	<b>316</b>	mg/kg	209	31.3	10	11/24/14 12:14	11/25/14 12:20		T6
<b>Surrogates</b>									
n-Triacontane (S)	0 %		50-150		10	11/24/14 12:14	11/25/14 12:20	638-68-6	S4
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	10.2	5.1	1	11/22/14 09:02	11/27/14 15:26		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	73 %		80-125		1	11/22/14 09:02	11/27/14 15:26	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	<b>3.1</b>	mg/kg	0.81	0.23	1	11/20/14 15:02	11/24/14 16:04	7440-38-2	
Barium	<b>52.4</b>	mg/kg	0.40	0.044	1	11/20/14 15:02	11/24/14 16:04	7440-39-3	
Cadmium	<b>0.077J</b>	mg/kg	0.12	0.014	1	11/20/14 15:02	11/24/14 16:04	7440-43-9	
Chromium	<b>7.6</b>	mg/kg	0.40	0.052	1	11/20/14 15:02	11/24/14 16:04	7440-47-3	
Lead	<b>5.4</b>	mg/kg	0.81	0.060	1	11/20/14 15:02	11/24/14 16:04	7439-92-1	
Selenium	<b>0.49J</b>	mg/kg	0.60	0.27	1	11/20/14 15:02	11/24/14 16:04	7782-49-2	
Silver	ND	mg/kg	0.40	0.040	1	11/20/14 15:02	11/24/14 16:04	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	<b>0.0079J</b>	mg/kg	0.020	0.0059	1	11/22/14 14:26	11/24/14 14:43	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	<b>4.6</b>	%	0.10	0.10	1		12/01/14 10:13		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	83-32-9	
Acenaphthylene	ND	ug/kg	1730	338	5	11/20/14 07:00	11/24/14 12:20	208-96-8	
Anthracene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	120-12-7	
Benzo(a)anthracene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	56-55-3	
Benzo(a)pyrene	<b>935J</b>	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	50-32-8	
Benzo(b)fluoranthene	<b>1150J</b>	ug/kg	1730	219	5	11/20/14 07:00	11/24/14 12:20	205-99-2	
Benzo(g,h,i)perylene	<b>674J</b>	ug/kg	1730	210	5	11/20/14 07:00	11/24/14 12:20	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	101-55-3	
Butylbenzylphthalate	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	85-68-7	
Carbazole	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	59-50-7	
4-Chloroaniline	ND	ug/kg	1730	443	5	11/20/14 07:00	11/24/14 12:20	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	108-60-1	
2-Chloronaphthalene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	91-58-7	
2-Chlorophenol	ND	ug/kg	1730	216	5	11/20/14 07:00	11/24/14 12:20	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	7005-72-3	
Chrysene	<b>779J</b>	ug/kg	1730	232	5	11/20/14 07:00	11/24/14 12:20	218-01-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W

Pace Project No.: 10288933

**Sample: DP-9**      **Lab ID: 10288933007**      Collected: 11/14/14 14:20      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>									
Analytical Method: EPA 8270    Preparation Method: EPA 3550									
Dibenz(a,h)anthracene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	53-70-3	
Dibenzofuran	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	1730	202	5	11/20/14 07:00	11/24/14 12:20	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	1730	490	5	11/20/14 07:00	11/24/14 12:20	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	120-83-2	
Diethylphthalate	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	1730	304	5	11/20/14 07:00	11/24/14 12:20	105-67-9	
Dimethylphthalate	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	131-11-3	
Di-n-butylphthalate	ND	ug/kg	1730	240	5	11/20/14 07:00	11/24/14 12:20	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	8910	4450	5	11/20/14 07:00	11/24/14 12:20	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	1730	334	5	11/20/14 07:00	11/24/14 12:20	606-20-2	
Di-n-octylphthalate	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	1730	296	5	11/20/14 07:00	11/24/14 12:20	117-81-7	
Fluoranthene	<b>1120J</b>	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	206-44-0	
Fluorene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	1730	175	5	11/20/14 07:00	11/24/14 12:20	87-68-3	
Hexachlorobenzene	ND	ug/kg	1730	227	5	11/20/14 07:00	11/24/14 12:20	118-74-1	
Hexachloroethane	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	193-39-5	
Isophorone	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	78-59-1	
1-Methylnaphthalene	ND	ug/kg	1730	203	5	11/20/14 07:00	11/24/14 12:20	90-12-0	
2-Methylnaphthalene	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	95-48-7	
3&4-Methylphenol	ND	ug/kg	3460	864	5	11/20/14 07:00	11/24/14 12:20		
Naphthalene	ND	ug/kg	1730	123	5	11/20/14 07:00	11/24/14 12:20	91-20-3	
2-Nitroaniline	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	88-74-4	
3-Nitroaniline	ND	ug/kg	1730	384	5	11/20/14 07:00	11/24/14 12:20	99-09-2	
4-Nitroaniline	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	100-01-6	
Nitrobenzene	ND	ug/kg	1730	195	5	11/20/14 07:00	11/24/14 12:20	98-95-3	
2-Nitrophenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	88-75-5	
4-Nitrophenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	86-30-6	
Pentachlorophenol	ND	ug/kg	3510	864	5	11/20/14 07:00	11/24/14 12:20	87-86-5	
Phenanthrene	<b>425J</b>	ug/kg	1730	247	5	11/20/14 07:00	11/24/14 12:20	85-01-8	
Phenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	108-95-2	
Pyrene	<b>987J</b>	ug/kg	1730	218	5	11/20/14 07:00	11/24/14 12:20	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	1730	189	5	11/20/14 07:00	11/24/14 12:20	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	1730	192	5	11/20/14 07:00	11/24/14 12:20	95-95-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-9**      **Lab ID: 10288933007**      Collected: 11/14/14 14:20      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	1730	864	5	11/20/14 07:00	11/24/14 12:20	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	62 %		30-125		5	11/20/14 07:00	11/24/14 12:20	4165-60-0	D3
2-Fluorobiphenyl (S)	67 %		46-125		5	11/20/14 07:00	11/24/14 12:20	321-60-8	
Terphenyl-d14 (S)	73 %		64-125		5	11/20/14 07:00	11/24/14 12:20	1718-51-0	
Phenol-d6 (S)	63 %		38-125		5	11/20/14 07:00	11/24/14 12:20	13127-88-3	
2-Fluorophenol (S)	65 %		31-125		5	11/20/14 07:00	11/24/14 12:20	367-12-4	
2,4,6-Tribromophenol (S)	59 %		41-125		5	11/20/14 07:00	11/24/14 12:20	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1060	531	1	11/21/14 18:19	11/23/14 00:25	67-64-1	CL
Allyl chloride	ND	ug/kg	212	7.0	1	11/21/14 18:19	11/23/14 00:25	107-05-1	
Benzene	ND	ug/kg	21.2	10.6	1	11/21/14 18:19	11/23/14 00:25	71-43-2	
Bromobenzene	ND	ug/kg	53.1	9.2	1	11/21/14 18:19	11/23/14 00:25	108-86-1	
Bromochloromethane	ND	ug/kg	53.1	7.2	1	11/21/14 18:19	11/23/14 00:25	74-97-5	
Bromodichloromethane	ND	ug/kg	53.1	9.4	1	11/21/14 18:19	11/23/14 00:25	75-27-4	
Bromoform	ND	ug/kg	212	106	1	11/21/14 18:19	11/23/14 00:25	75-25-2	
Bromomethane	ND	ug/kg	531	265	1	11/21/14 18:19	11/23/14 00:25	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1060	133	1	11/21/14 18:19	11/23/14 00:25	78-93-3	
n-Butylbenzene	ND	ug/kg	53.1	6.4	1	11/21/14 18:19	11/23/14 00:25	104-51-8	
sec-Butylbenzene	ND	ug/kg	53.1	6.3	1	11/21/14 18:19	11/23/14 00:25	135-98-8	
tert-Butylbenzene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	98-06-6	
Carbon tetrachloride	ND	ug/kg	53.1	8.6	1	11/21/14 18:19	11/23/14 00:25	56-23-5	
Chlorobenzene	ND	ug/kg	53.1	8.2	1	11/21/14 18:19	11/23/14 00:25	108-90-7	
Chloroethane	ND	ug/kg	531	13.4	1	11/21/14 18:19	11/23/14 00:25	75-00-3	
Chloroform	ND	ug/kg	53.1	8.1	1	11/21/14 18:19	11/23/14 00:25	67-66-3	
Chloromethane	ND	ug/kg	212	9.7	1	11/21/14 18:19	11/23/14 00:25	74-87-3	
2-Chlorotoluene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	95-49-8	
4-Chlorotoluene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	531	28.1	1	11/21/14 18:19	11/23/14 00:25	96-12-8	
Dibromochloromethane	ND	ug/kg	53.1	11.5	1	11/21/14 18:19	11/23/14 00:25	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	53.1	6.5	1	11/21/14 18:19	11/23/14 00:25	106-93-4	
Dibromomethane	ND	ug/kg	53.1	14.9	1	11/21/14 18:19	11/23/14 00:25	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	212	24.5	1	11/21/14 18:19	11/23/14 00:25	75-71-8	
1,1-Dichloroethane	ND	ug/kg	53.1	7.4	1	11/21/14 18:19	11/23/14 00:25	75-34-3	
1,2-Dichloroethane	ND	ug/kg	53.1	12.5	1	11/21/14 18:19	11/23/14 00:25	107-06-2	
1,1-Dichloroethene	ND	ug/kg	53.1	10.6	1	11/21/14 18:19	11/23/14 00:25	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	53.1	10.8	1	11/21/14 18:19	11/23/14 00:25	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	53.1	10.5	1	11/21/14 18:19	11/23/14 00:25	156-60-5	
Dichlorofluoromethane	ND	ug/kg	531	265	1	11/21/14 18:19	11/23/14 00:25	75-43-4	
1,2-Dichloropropane	ND	ug/kg	53.1	8.5	1	11/21/14 18:19	11/23/14 00:25	78-87-5	
1,3-Dichloropropane	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	142-28-9	

### REPORT OF LABORATORY ANALYSIS

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-9**      **Lab ID: 10288933007**      Collected: 11/14/14 14:20      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	212	7.1	1	11/21/14 18:19	11/23/14 00:25	594-20-7	
1,1-Dichloropropene	ND	ug/kg	53.1	8.7	1	11/21/14 18:19	11/23/14 00:25	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	53.1	6.7	1	11/21/14 18:19	11/23/14 00:25	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	53.1	7.5	1	11/21/14 18:19	11/23/14 00:25	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	212	11.3	1	11/21/14 18:19	11/23/14 00:25	60-29-7	L3
Ethylbenzene	ND	ug/kg	53.1	6.7	1	11/21/14 18:19	11/23/14 00:25	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	265	133	1	11/21/14 18:19	11/23/14 00:25	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	98-82-8	
p-Isopropyltoluene	ND	ug/kg	53.1	7.7	1	11/21/14 18:19	11/23/14 00:25	99-87-6	
Methylene Chloride	ND	ug/kg	212	106	1	11/21/14 18:19	11/23/14 00:25	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	265	133	1	11/21/14 18:19	11/23/14 00:25	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	1634-04-4	
Naphthalene	ND	ug/kg	212	106	1	11/21/14 18:19	11/23/14 00:25	91-20-3	
n-Propylbenzene	<b>13.9J</b>	ug/kg	53.1	6.4	1	11/21/14 18:19	11/23/14 00:25	103-65-1	
Styrene	ND	ug/kg	53.1	7.9	1	11/21/14 18:19	11/23/14 00:25	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	53.1	7.3	1	11/21/14 18:19	11/23/14 00:25	79-34-5	
Tetrachloroethene	ND	ug/kg	53.1	19.2	1	11/21/14 18:19	11/23/14 00:25	127-18-4	
Tetrahydrofuran	ND	ug/kg	2120	67.8	1	11/21/14 18:19	11/23/14 00:25	109-99-9	CL,L2
Toluene	ND	ug/kg	53.1	7.2	1	11/21/14 18:19	11/23/14 00:25	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	53.1	12.6	1	11/21/14 18:19	11/23/14 00:25	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	53.1	9.6	1	11/21/14 18:19	11/23/14 00:25	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	53.1	9.0	1	11/21/14 18:19	11/23/14 00:25	79-00-5	
Trichloroethene	ND	ug/kg	53.1	6.6	1	11/21/14 18:19	11/23/14 00:25	79-01-6	
Trichlorofluoromethane	ND	ug/kg	212	9.4	1	11/21/14 18:19	11/23/14 00:25	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	212	7.0	1	11/21/14 18:19	11/23/14 00:25	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	212	22.2	1	11/21/14 18:19	11/23/14 00:25	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	53.1	26.5	1	11/21/14 18:19	11/23/14 00:25	108-67-8	
Vinyl chloride	ND	ug/kg	21.2	7.9	1	11/21/14 18:19	11/23/14 00:25	75-01-4	
Xylene (Total)	ND	ug/kg	159	20.8	1	11/21/14 18:19	11/23/14 00:25	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	96 %		74-125		1	11/21/14 18:19	11/23/14 00:25	17060-07-0	
Toluene-d8 (S)	106 %		75-125		1	11/21/14 18:19	11/23/14 00:25	2037-26-5	
4-Bromofluorobenzene (S)	104 %		75-125		1	11/21/14 18:19	11/23/14 00:25	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-10**      **Lab ID: 10288933008**      Collected: 11/14/14 14:50      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>WIDRO GCS</b> Analytical Method: WI MOD DRO      Preparation Method: WI MOD DRO									
Diesel Range Organics	ND	mg/kg	3.9	0.59	1	11/24/14 12:14	11/25/14 13:10		
<b>Surrogates</b>									
n-Triacontane (S)	75 %		50-150		1	11/24/14 12:14	11/25/14 13:10	638-68-6	
<b>WIGRO GCV</b> Analytical Method: WI MOD GRO      Preparation Method: TPH GRO/PVOC WI ext.									
Gasoline Range Organics	ND	mg/kg	10.8	5.4	1	11/22/14 09:02	11/27/14 15:48		
<b>Surrogates</b>									
a,a,a-Trifluorotoluene (S)	73 %		80-125		1	11/22/14 09:02	11/27/14 15:48	98-08-8	CL,S0
<b>6010C MET ICP</b> Analytical Method: EPA 6010C      Preparation Method: EPA 3050									
Arsenic	3.3	mg/kg	0.78	0.23	1	11/20/14 15:02	11/24/14 16:07	7440-38-2	
Barium	53.2	mg/kg	0.39	0.043	1	11/20/14 15:02	11/24/14 16:07	7440-39-3	
Cadmium	0.094J	mg/kg	0.12	0.013	1	11/20/14 15:02	11/24/14 16:07	7440-43-9	
Chromium	7.5	mg/kg	0.39	0.050	1	11/20/14 15:02	11/24/14 16:07	7440-47-3	
Lead	3.5	mg/kg	0.78	0.057	1	11/20/14 15:02	11/24/14 16:07	7439-92-1	
Selenium	0.41J	mg/kg	0.58	0.26	1	11/20/14 15:02	11/24/14 16:07	7782-49-2	
Silver	ND	mg/kg	0.39	0.039	1	11/20/14 15:02	11/24/14 16:07	7440-22-4	
<b>7471B Mercury</b> Analytical Method: EPA 7471B      Preparation Method: EPA 7471B									
Mercury	0.0083J	mg/kg	0.021	0.0062	1	11/22/14 14:26	11/24/14 14:47	7439-97-6	
<b>Dry Weight</b> Analytical Method: ASTM D2974									
Percent Moisture	6.5 %		0.10	0.10	1		12/01/14 10:14		
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
Acenaphthene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	83-32-9	
Acenaphthylene	ND	ug/kg	352	68.8	1	11/20/14 07:00	11/21/14 12:04	208-96-8	
Anthracene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	120-12-7	
Benzo(a)anthracene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	56-55-3	
Benzo(a)pyrene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	50-32-8	
Benzo(b)fluoranthene	ND	ug/kg	352	44.6	1	11/20/14 07:00	11/21/14 12:04	205-99-2	
Benzo(g,h,i)perylene	ND	ug/kg	352	42.8	1	11/20/14 07:00	11/21/14 12:04	191-24-2	
Benzo(k)fluoranthene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	207-08-9	
4-Bromophenylphenyl ether	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	101-55-3	
Butylbenzylphthalate	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	85-68-7	
Carbazole	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	86-74-8	
4-Chloro-3-methylphenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	59-50-7	
4-Chloroaniline	ND	ug/kg	352	90.1	1	11/20/14 07:00	11/21/14 12:04	106-47-8	
bis(2-Chloroethoxy)methane	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	111-91-1	
bis(2-Chloroethyl) ether	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	111-44-4	
bis(2-Chloroisopropyl) ether	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	108-60-1	
2-Chloronaphthalene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	91-58-7	
2-Chlorophenol	ND	ug/kg	352	44.0	1	11/20/14 07:00	11/21/14 12:04	95-57-8	
4-Chlorophenylphenyl ether	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	7005-72-3	
Chrysene	ND	ug/kg	352	47.3	1	11/20/14 07:00	11/21/14 12:04	218-01-9	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-10**      **Lab ID: 10288933008**      Collected: 11/14/14 14:50      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b>		Analytical Method: EPA 8270 Preparation Method: EPA 3550							
Dibenz(a,h)anthracene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	53-70-3	
Dibenzofuran	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	132-64-9	
1,2-Dichlorobenzene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	352	41.1	1	11/20/14 07:00	11/21/14 12:04	106-46-7	
3,3'-Dichlorobenzidine	ND	ug/kg	352	99.7	1	11/20/14 07:00	11/21/14 12:04	91-94-1	
2,4-Dichlorophenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	120-83-2	
Diethylphthalate	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	84-66-2	
2,4-Dimethylphenol	ND	ug/kg	352	61.8	1	11/20/14 07:00	11/21/14 12:04	105-67-9	
Dimethylphthalate	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	131-11-3	
Di-n-butylphthalate	ND	ug/kg	352	48.8	1	11/20/14 07:00	11/21/14 12:04	84-74-2	
4,6-Dinitro-2-methylphenol	ND	ug/kg	1810	906	1	11/20/14 07:00	11/21/14 12:04	534-52-1	
2,4-Dinitrophenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	51-28-5	
2,4-Dinitrotoluene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	121-14-2	
2,6-Dinitrotoluene	ND	ug/kg	352	68.0	1	11/20/14 07:00	11/21/14 12:04	606-20-2	
Di-n-octylphthalate	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	117-84-0	
1,2-Diphenylhydrazine	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	122-66-7	
bis(2-Ethylhexyl)phthalate	ND	ug/kg	352	60.2	1	11/20/14 07:00	11/21/14 12:04	117-81-7	
Fluoranthene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	206-44-0	
Fluorene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	86-73-7	
Hexachloro-1,3-butadiene	ND	ug/kg	352	35.7	1	11/20/14 07:00	11/21/14 12:04	87-68-3	
Hexachlorobenzene	ND	ug/kg	352	46.2	1	11/20/14 07:00	11/21/14 12:04	118-74-1	
Hexachloroethane	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	67-72-1	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	193-39-5	
Isophorone	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	78-59-1	
1-Methylnaphthalene	ND	ug/kg	352	41.3	1	11/20/14 07:00	11/21/14 12:04	90-12-0	
2-Methylnaphthalene	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	91-57-6	
2-Methylphenol(o-Cresol)	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	95-48-7	
3&4-Methylphenol	ND	ug/kg	704	176	1	11/20/14 07:00	11/21/14 12:04		
Naphthalene	ND	ug/kg	352	25.1	1	11/20/14 07:00	11/21/14 12:04	91-20-3	
2-Nitroaniline	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	88-74-4	
3-Nitroaniline	ND	ug/kg	352	78.1	1	11/20/14 07:00	11/21/14 12:04	99-09-2	
4-Nitroaniline	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	100-01-6	
Nitrobenzene	ND	ug/kg	352	39.7	1	11/20/14 07:00	11/21/14 12:04	98-95-3	
2-Nitrophenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	88-75-5	
4-Nitrophenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	100-02-7	
N-Nitrosodimethylamine	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	62-75-9	
N-Nitroso-di-n-propylamine	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	621-64-7	
N-Nitrosodiphenylamine	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	86-30-6	
Pentachlorophenol	ND	ug/kg	714	176	1	11/20/14 07:00	11/21/14 12:04	87-86-5	
Phenanthrene	ND	ug/kg	352	50.3	1	11/20/14 07:00	11/21/14 12:04	85-01-8	
Phenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	108-95-2	
Pyrene	ND	ug/kg	352	44.4	1	11/20/14 07:00	11/21/14 12:04	129-00-0	
1,2,4-Trichlorobenzene	ND	ug/kg	352	38.4	1	11/20/14 07:00	11/21/14 12:04	120-82-1	
2,4,5-Trichlorophenol	ND	ug/kg	352	39.0	1	11/20/14 07:00	11/21/14 12:04	95-95-4	

### REPORT OF LABORATORY ANALYSIS

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-10**      **Lab ID: 10288933008**      Collected: 11/14/14 14:50      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8270 MSSV</b> Analytical Method: EPA 8270      Preparation Method: EPA 3550									
2,4,6-Trichlorophenol	ND	ug/kg	352	176	1	11/20/14 07:00	11/21/14 12:04	88-06-2	
<b>Surrogates</b>									
Nitrobenzene-d5 (S)	39 %		30-125		1	11/20/14 07:00	11/21/14 12:04	4165-60-0	
2-Fluorobiphenyl (S)	53 %		46-125		1	11/20/14 07:00	11/21/14 12:04	321-60-8	
Terphenyl-d14 (S)	81 %		64-125		1	11/20/14 07:00	11/21/14 12:04	1718-51-0	
Phenol-d6 (S)	43 %		38-125		1	11/20/14 07:00	11/21/14 12:04	13127-88-3	
2-Fluorophenol (S)	40 %		31-125		1	11/20/14 07:00	11/21/14 12:04	367-12-4	
2,4,6-Tribromophenol (S)	73 %		41-125		1	11/20/14 07:00	11/21/14 12:04	118-79-6	
<b>8260 MSV 5030 Med Level</b> Analytical Method: EPA 8260      Preparation Method: EPA 5035/5030B									
Acetone	ND	ug/kg	1080	538	1	11/21/14 18:19	11/23/14 00:42	67-64-1	CL
Allyl chloride	ND	ug/kg	215	7.1	1	11/21/14 18:19	11/23/14 00:42	107-05-1	
Benzene	ND	ug/kg	21.5	10.8	1	11/21/14 18:19	11/23/14 00:42	71-43-2	
Bromobenzene	ND	ug/kg	53.8	9.3	1	11/21/14 18:19	11/23/14 00:42	108-86-1	
Bromochloromethane	ND	ug/kg	53.8	7.3	1	11/21/14 18:19	11/23/14 00:42	74-97-5	
Bromodichloromethane	ND	ug/kg	53.8	9.6	1	11/21/14 18:19	11/23/14 00:42	75-27-4	
Bromoform	ND	ug/kg	215	108	1	11/21/14 18:19	11/23/14 00:42	75-25-2	
Bromomethane	ND	ug/kg	538	269	1	11/21/14 18:19	11/23/14 00:42	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1080	135	1	11/21/14 18:19	11/23/14 00:42	78-93-3	
n-Butylbenzene	ND	ug/kg	53.8	6.5	1	11/21/14 18:19	11/23/14 00:42	104-51-8	
sec-Butylbenzene	ND	ug/kg	53.8	6.3	1	11/21/14 18:19	11/23/14 00:42	135-98-8	
tert-Butylbenzene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	98-06-6	
Carbon tetrachloride	ND	ug/kg	53.8	8.7	1	11/21/14 18:19	11/23/14 00:42	56-23-5	
Chlorobenzene	ND	ug/kg	53.8	8.3	1	11/21/14 18:19	11/23/14 00:42	108-90-7	
Chloroethane	ND	ug/kg	538	13.6	1	11/21/14 18:19	11/23/14 00:42	75-00-3	
Chloroform	ND	ug/kg	53.8	8.2	1	11/21/14 18:19	11/23/14 00:42	67-66-3	
Chloromethane	ND	ug/kg	215	9.8	1	11/21/14 18:19	11/23/14 00:42	74-87-3	
2-Chlorotoluene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	95-49-8	
4-Chlorotoluene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	538	28.5	1	11/21/14 18:19	11/23/14 00:42	96-12-8	
Dibromochloromethane	ND	ug/kg	53.8	11.6	1	11/21/14 18:19	11/23/14 00:42	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	53.8	6.6	1	11/21/14 18:19	11/23/14 00:42	106-93-4	
Dibromomethane	ND	ug/kg	53.8	15.1	1	11/21/14 18:19	11/23/14 00:42	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	215	24.9	1	11/21/14 18:19	11/23/14 00:42	75-71-8	
1,1-Dichloroethane	ND	ug/kg	53.8	7.5	1	11/21/14 18:19	11/23/14 00:42	75-34-3	
1,2-Dichloroethane	ND	ug/kg	53.8	12.7	1	11/21/14 18:19	11/23/14 00:42	107-06-2	
1,1-Dichloroethene	ND	ug/kg	53.8	10.7	1	11/21/14 18:19	11/23/14 00:42	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	53.8	11.0	1	11/21/14 18:19	11/23/14 00:42	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	53.8	10.7	1	11/21/14 18:19	11/23/14 00:42	156-60-5	
Dichlorofluoromethane	ND	ug/kg	538	269	1	11/21/14 18:19	11/23/14 00:42	75-43-4	
1,2-Dichloropropane	ND	ug/kg	53.8	8.6	1	11/21/14 18:19	11/23/14 00:42	78-87-5	
1,3-Dichloropropane	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	142-28-9	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: DP-10**      **Lab ID: 10288933008**      Collected: 11/14/14 14:50      Received: 11/14/14 16:38      Matrix: Solid

*Results reported on a "dry-weight" basis*

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
2,2-Dichloropropane	ND	ug/kg	215	7.2	1	11/21/14 18:19	11/23/14 00:42	594-20-7	
1,1-Dichloropropene	ND	ug/kg	53.8	8.8	1	11/21/14 18:19	11/23/14 00:42	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	53.8	6.8	1	11/21/14 18:19	11/23/14 00:42	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	53.8	7.6	1	11/21/14 18:19	11/23/14 00:42	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	215	11.4	1	11/21/14 18:19	11/23/14 00:42	60-29-7	L3
Ethylbenzene	ND	ug/kg	53.8	6.8	1	11/21/14 18:19	11/23/14 00:42	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	269	135	1	11/21/14 18:19	11/23/14 00:42	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	98-82-8	
p-Isopropyltoluene	ND	ug/kg	53.8	7.8	1	11/21/14 18:19	11/23/14 00:42	99-87-6	
Methylene Chloride	ND	ug/kg	215	108	1	11/21/14 18:19	11/23/14 00:42	75-09-2	
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	269	135	1	11/21/14 18:19	11/23/14 00:42	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	1634-04-4	
Naphthalene	ND	ug/kg	215	108	1	11/21/14 18:19	11/23/14 00:42	91-20-3	
n-Propylbenzene	ND	ug/kg	53.8	6.5	1	11/21/14 18:19	11/23/14 00:42	103-65-1	
Styrene	ND	ug/kg	53.8	8.0	1	11/21/14 18:19	11/23/14 00:42	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	53.8	7.4	1	11/21/14 18:19	11/23/14 00:42	79-34-5	
Tetrachloroethene	ND	ug/kg	53.8	19.4	1	11/21/14 18:19	11/23/14 00:42	127-18-4	
Tetrahydrofuran	ND	ug/kg	2150	68.8	1	11/21/14 18:19	11/23/14 00:42	109-99-9	CL,L2
Toluene	ND	ug/kg	53.8	7.3	1	11/21/14 18:19	11/23/14 00:42	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	53.8	12.8	1	11/21/14 18:19	11/23/14 00:42	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	53.8	9.8	1	11/21/14 18:19	11/23/14 00:42	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	53.8	9.1	1	11/21/14 18:19	11/23/14 00:42	79-00-5	
Trichloroethene	ND	ug/kg	53.8	6.7	1	11/21/14 18:19	11/23/14 00:42	79-01-6	
Trichlorofluoromethane	ND	ug/kg	215	9.6	1	11/21/14 18:19	11/23/14 00:42	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	215	7.1	1	11/21/14 18:19	11/23/14 00:42	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	215	22.5	1	11/21/14 18:19	11/23/14 00:42	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	53.8	26.9	1	11/21/14 18:19	11/23/14 00:42	108-67-8	
Vinyl chloride	ND	ug/kg	21.5	8.0	1	11/21/14 18:19	11/23/14 00:42	75-01-4	
Xylene (Total)	ND	ug/kg	161	21.1	1	11/21/14 18:19	11/23/14 00:42	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	91 %		74-125		1	11/21/14 18:19	11/23/14 00:42	17060-07-0	
Toluene-d8 (S)	106 %		75-125		1	11/21/14 18:19	11/23/14 00:42	2037-26-5	
4-Bromofluorobenzene (S)	104 %		75-125		1	11/21/14 18:19	11/23/14 00:42	460-00-4	

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## ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

Sample: TB111414-A Lab ID: 10288933009 Collected: 11/14/14 00:00 Received: 11/14/14 16:38 Matrix: Solid

Results reported on a "wet-weight" basis

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
Acetone	ND	ug/kg	1000	500	1	11/21/14 18:19	11/22/14 19:26	67-64-1	CL
Allyl chloride	ND	ug/kg	200	6.6	1	11/21/14 18:19	11/22/14 19:26	107-05-1	
Benzene	ND	ug/kg	20.0	10.0	1	11/21/14 18:19	11/22/14 19:26	71-43-2	
Bromobenzene	ND	ug/kg	50.0	8.7	1	11/21/14 18:19	11/22/14 19:26	108-86-1	
Bromochloromethane	ND	ug/kg	50.0	6.8	1	11/21/14 18:19	11/22/14 19:26	74-97-5	
Bromodichloromethane	ND	ug/kg	50.0	8.9	1	11/21/14 18:19	11/22/14 19:26	75-27-4	
Bromoform	ND	ug/kg	200	100	1	11/21/14 18:19	11/22/14 19:26	75-25-2	
Bromomethane	ND	ug/kg	500	250	1	11/21/14 18:19	11/22/14 19:26	74-83-9	L3
2-Butanone (MEK)	ND	ug/kg	1000	125	1	11/21/14 18:19	11/22/14 19:26	78-93-3	
n-Butylbenzene	ND	ug/kg	50.0	6.1	1	11/21/14 18:19	11/22/14 19:26	104-51-8	
sec-Butylbenzene	ND	ug/kg	50.0	5.9	1	11/21/14 18:19	11/22/14 19:26	135-98-8	
tert-Butylbenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	98-06-6	
Carbon tetrachloride	ND	ug/kg	50.0	8.1	1	11/21/14 18:19	11/22/14 19:26	56-23-5	
Chlorobenzene	ND	ug/kg	50.0	7.7	1	11/21/14 18:19	11/22/14 19:26	108-90-7	
Chloroethane	ND	ug/kg	500	12.6	1	11/21/14 18:19	11/22/14 19:26	75-00-3	
Chloroform	ND	ug/kg	50.0	7.6	1	11/21/14 18:19	11/22/14 19:26	67-66-3	
Chloromethane	ND	ug/kg	200	9.1	1	11/21/14 18:19	11/22/14 19:26	74-87-3	
2-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	95-49-8	
4-Chlorotoluene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	106-43-4	
1,2-Dibromo-3-chloropropane	ND	ug/kg	500	26.5	1	11/21/14 18:19	11/22/14 19:26	96-12-8	
Dibromochloromethane	ND	ug/kg	50.0	10.8	1	11/21/14 18:19	11/22/14 19:26	124-48-1	
1,2-Dibromoethane (EDB)	ND	ug/kg	50.0	6.2	1	11/21/14 18:19	11/22/14 19:26	106-93-4	
Dibromomethane	ND	ug/kg	50.0	14.0	1	11/21/14 18:19	11/22/14 19:26	74-95-3	
1,2-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	95-50-1	
1,3-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	541-73-1	
1,4-Dichlorobenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	106-46-7	
Dichlorodifluoromethane	ND	ug/kg	200	23.1	1	11/21/14 18:19	11/22/14 19:26	75-71-8	
1,1-Dichloroethane	ND	ug/kg	50.0	7.0	1	11/21/14 18:19	11/22/14 19:26	75-34-3	
1,2-Dichloroethane	ND	ug/kg	50.0	11.8	1	11/21/14 18:19	11/22/14 19:26	107-06-2	
1,1-Dichloroethene	ND	ug/kg	50.0	10	1	11/21/14 18:19	11/22/14 19:26	75-35-4	
cis-1,2-Dichloroethene	ND	ug/kg	50.0	10.2	1	11/21/14 18:19	11/22/14 19:26	156-59-2	
trans-1,2-Dichloroethene	ND	ug/kg	50.0	9.9	1	11/21/14 18:19	11/22/14 19:26	156-60-5	
Dichlorofluoromethane	ND	ug/kg	500	250	1	11/21/14 18:19	11/22/14 19:26	75-43-4	
1,2-Dichloropropane	ND	ug/kg	50.0	8.0	1	11/21/14 18:19	11/22/14 19:26	78-87-5	
1,3-Dichloropropane	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	142-28-9	
2,2-Dichloropropane	ND	ug/kg	200	6.7	1	11/21/14 18:19	11/22/14 19:26	594-20-7	
1,1-Dichloropropene	ND	ug/kg	50.0	8.2	1	11/21/14 18:19	11/22/14 19:26	563-58-6	
cis-1,3-Dichloropropene	ND	ug/kg	50.0	6.3	1	11/21/14 18:19	11/22/14 19:26	10061-01-5	
trans-1,3-Dichloropropene	ND	ug/kg	50.0	7.0	1	11/21/14 18:19	11/22/14 19:26	10061-02-6	
Diethyl ether (Ethyl ether)	ND	ug/kg	200	10.6	1	11/21/14 18:19	11/22/14 19:26	60-29-7	L3
Ethylbenzene	ND	ug/kg	50.0	6.3	1	11/21/14 18:19	11/22/14 19:26	100-41-4	
Hexachloro-1,3-butadiene	ND	ug/kg	250	125	1	11/21/14 18:19	11/22/14 19:26	87-68-3	
Isopropylbenzene (Cumene)	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	98-82-8	
p-Isopropyltoluene	ND	ug/kg	50.0	7.2	1	11/21/14 18:19	11/22/14 19:26	99-87-6	
Methylene Chloride	ND	ug/kg	200	100	1	11/21/14 18:19	11/22/14 19:26	75-09-2	

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### ANALYTICAL RESULTS

Project: MnDOT I35W  
Pace Project No.: 10288933

**Sample: TB111414-A**      **Lab ID: 10288933009**      Collected: 11/14/14 00:00      Received: 11/14/14 16:38      Matrix: Solid

**Results reported on a "wet-weight" basis**

Parameters	Results	Units	Report Limit	MDL	DF	Prepared	Analyzed	CAS No.	Qual
<b>8260 MSV 5030 Med Level</b>		Analytical Method: EPA 8260 Preparation Method: EPA 5035/5030B							
4-Methyl-2-pentanone (MIBK)	ND	ug/kg	250	125	1	11/21/14 18:19	11/22/14 19:26	108-10-1	
Methyl-tert-butyl ether	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	1634-04-4	
Naphthalene	ND	ug/kg	200	100	1	11/21/14 18:19	11/22/14 19:26	91-20-3	
n-Propylbenzene	ND	ug/kg	50.0	6.1	1	11/21/14 18:19	11/22/14 19:26	103-65-1	
Styrene	ND	ug/kg	50.0	7.5	1	11/21/14 18:19	11/22/14 19:26	100-42-5	
1,1,1,2-Tetrachloroethane	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	630-20-6	
1,1,2,2-Tetrachloroethane	ND	ug/kg	50.0	6.9	1	11/21/14 18:19	11/22/14 19:26	79-34-5	
Tetrachloroethene	ND	ug/kg	50.0	18.0	1	11/21/14 18:19	11/22/14 19:26	127-18-4	
Tetrahydrofuran	ND	ug/kg	2000	63.9	1	11/21/14 18:19	11/22/14 19:26	109-99-9	CL,L2
Toluene	ND	ug/kg	50.0	6.8	1	11/21/14 18:19	11/22/14 19:26	108-88-3	
1,2,3-Trichlorobenzene	ND	ug/kg	50.0	11.9	1	11/21/14 18:19	11/22/14 19:26	87-61-6	
1,2,4-Trichlorobenzene	ND	ug/kg	50.0	9.1	1	11/21/14 18:19	11/22/14 19:26	120-82-1	
1,1,1-Trichloroethane	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	71-55-6	
1,1,2-Trichloroethane	ND	ug/kg	50.0	8.5	1	11/21/14 18:19	11/22/14 19:26	79-00-5	
Trichloroethene	ND	ug/kg	50.0	6.2	1	11/21/14 18:19	11/22/14 19:26	79-01-6	
Trichlorofluoromethane	ND	ug/kg	200	8.9	1	11/21/14 18:19	11/22/14 19:26	75-69-4	L3
1,2,3-Trichloropropane	ND	ug/kg	200	6.6	1	11/21/14 18:19	11/22/14 19:26	96-18-4	
1,1,2-Trichlorotrifluoroethane	ND	ug/kg	200	20.9	1	11/21/14 18:19	11/22/14 19:26	76-13-1	
1,2,4-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	95-63-6	
1,3,5-Trimethylbenzene	ND	ug/kg	50.0	25.0	1	11/21/14 18:19	11/22/14 19:26	108-67-8	
Vinyl chloride	ND	ug/kg	20.0	7.4	1	11/21/14 18:19	11/22/14 19:26	75-01-4	
Xylene (Total)	ND	ug/kg	150	19.6	1	11/21/14 18:19	11/22/14 19:26	1330-20-7	
<b>Surrogates</b>									
1,2-Dichloroethane-d4 (S)	94 %		74-125		1	11/21/14 18:19	11/22/14 19:26	17060-07-0	
Toluene-d8 (S)	105 %		75-125		1	11/21/14 18:19	11/22/14 19:26	2037-26-5	
4-Bromofluorobenzene (S)	103 %		75-125		1	11/21/14 18:19	11/22/14 19:26	460-00-4	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: GCV/12976 Analysis Method: WI MOD GRO  
 QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV  
 Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

METHOD BLANK: 1851099 Matrix: Solid  
 Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	mg/kg	ND	10.0	11/27/14 09:32	
a,a,a-Trifluorotoluene (S)	%.	98	80-125	12/01/14 20:44	

LABORATORY CONTROL SAMPLE & LCSD: 1851100

Parameter	Units	1851101								
		Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	mg/kg	50	48.6	52.5	97	105	80-120	8	20	
a,a,a-Trifluorotoluene (S)	%.				97	98	80-125			

MATRIX SPIKE SAMPLE: 1851102

Parameter	Units	10288823001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers	
Gasoline Range Organics	mg/kg	ND	55.6	48.0	77	80-120	M0	
a,a,a-Trifluorotoluene (S)	%.				97	80-125		

SAMPLE DUPLICATE: 1851103

Parameter	Units	10288823003 Result	Dup Result	RPD	Max RPD	Qualifiers	
Gasoline Range Organics	mg/kg	ND	ND		20		
a,a,a-Trifluorotoluene (S)	%.	71	72	6		S0	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: GCV/12986 Analysis Method: WI MOD GRO  
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water  
Associated Lab Samples: 10288933003, 10288933005

METHOD BLANK: 1851892 Matrix: Water

Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Gasoline Range Organics	ug/L	ND	100	11/26/14 15:00	
a,a,a-Trifluorotoluene (S)	%.	88	80-125	11/26/14 15:00	

LABORATORY CONTROL SAMPLE & LCSD: 1851893 1851894

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Gasoline Range Organics	ug/L	1000	925	809	92	81	80-120	13	20	
a,a,a-Trifluorotoluene (S)	%.				91	79	80-125			2M, S0

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1853783 1853784

Parameter	Units	10288827006 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Gasoline Range Organics	ug/L	50800	50000	50000	97100	93800	93	86	80-120	3	20	
a,a,a-Trifluorotoluene (S)	%.						95	94	80-125			1M

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**QUALITY CONTROL DATA**

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: MERP/12186

Analysis Method: EPA 7470A

QC Batch Method: EPA 7470A

Analysis Description: 7470A Mercury Water

Associated Lab Samples: 10288933003, 10288933005

METHOD BLANK: 1847372

Matrix: Water

Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	ug/L	ND	0.20	11/24/14 11:58	

LABORATORY CONTROL SAMPLE: 1847373

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	ug/L	5	5.0	100	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1847374 1847375

Parameter	Units	10288480002		MS		MSD		MS		MSD		% Rec Limits	RPD	Max RPD	Qual
		Result	Conc.	Spike Conc.	Spike Conc.	Result	Result	% Rec	% Rec						
Mercury	ug/L	ND	5	5	5	3.3	3.3	65	65	75-125	1	20	M1		

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: MERP/12185      Analysis Method: EPA 7471B  
 QC Batch Method: EPA 7471B      Analysis Description: 7471B Mercury Solids  
 Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

METHOD BLANK: 1847368      Matrix: Solid  
 Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Mercury	mg/kg	ND	0.019	11/24/14 13:58	

LABORATORY CONTROL SAMPLE: 1847369

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Mercury	mg/kg	.45	0.43	94	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1847370      1847371

Parameter	Units	10288823001 Result	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
Mercury	mg/kg	0.021	.47	.48	0.48	0.49	97	97	75-125	3	20	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

QC Batch: MPRP/50715 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3050 Analysis Description: 6010C Solids  
Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

METHOD BLANK: 1846530 Matrix: Solid  
Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	mg/kg	ND	0.96	11/24/14 14:44	
Barium	mg/kg	ND	0.48	11/24/14 14:44	
Cadmium	mg/kg	ND	0.14	11/24/14 14:44	
Chromium	mg/kg	ND	0.48	11/24/14 14:44	
Lead	mg/kg	0.099J	0.96	11/24/14 14:44	
Selenium	mg/kg	ND	0.72	11/24/14 14:44	
Silver	mg/kg	ND	0.48	11/24/14 14:44	

LABORATORY CONTROL SAMPLE: 1846531

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	mg/kg	49	47.5	97	80-120	
Barium	mg/kg	49	53.3	109	80-120	
Cadmium	mg/kg	49	48.5	99	80-120	
Chromium	mg/kg	49	49.4	101	80-120	
Lead	mg/kg	49	49.5	101	80-120	
Selenium	mg/kg	49	47.4	97	80-120	
Silver	mg/kg	24.5	24.1	98	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1846532 1846533

Parameter	Units	10288969022		1846533		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result						
Arsenic	mg/kg	5.1	54.1	44.5	52.6	44.4	88	88	75-125	17	20
Barium	mg/kg	60.9	54.1	44.5	109	99.1	88	86	75-125	9	20
Cadmium	mg/kg	0.22	54.1	44.5	50.2	41.6	92	93	75-125	19	20
Chromium	mg/kg	9.8	54.1	44.5	61.1	52.5	95	96	75-125	15	20
Lead	mg/kg	16.5	54.1	44.5	71.5	53.0	102	82	75-125	30	20 R1
Selenium	mg/kg	ND	54.1	44.5	49.6	41.1	90	91	75-125	19	20
Silver	mg/kg	ND	27.1	22.3	25.4	21.2	94	95	75-125	18	20

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

QC Batch: MPRP/50743 Analysis Method: EPA 6010C  
QC Batch Method: EPA 3010 Analysis Description: 6010C Water  
Associated Lab Samples: 10288933003, 10288933005

METHOD BLANK: 1847298 Matrix: Water  
Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Arsenic	ug/L	ND	20.0	11/24/14 21:16	
Barium	ug/L	ND	10.0	11/24/14 21:16	
Cadmium	ug/L	ND	3.0	11/24/14 21:16	
Chromium	ug/L	ND	10.0	11/24/14 21:16	
Lead	ug/L	ND	10.0	11/24/14 21:16	
Selenium	ug/L	ND	20.0	11/24/14 21:16	
Silver	ug/L	ND	10.0	11/24/14 21:16	

LABORATORY CONTROL SAMPLE: 1847299

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Arsenic	ug/L	1000	997	100	80-120	
Barium	ug/L	1000	1050	105	80-120	
Cadmium	ug/L	1000	1020	102	80-120	
Chromium	ug/L	1000	999	100	80-120	
Lead	ug/L	1000	985	99	80-120	
Selenium	ug/L	1000	1020	102	80-120	
Silver	ug/L	500	503	101	80-120	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1847300 1847301

Parameter	Units	10288823004		1847300		1847301		% Rec	% Rec	% Rec	Limits	RPD	Max RPD	Qual
		MS Result	MSD Spike Conc.	MS Spike Conc.	MSD Spike Conc.	MS Result	MSD Result							
Arsenic	ug/L	ND	1000	1000	1000	1020	1030	102	103	75-125	1	20		
Barium	ug/L	122	1000	1000	1000	1180	1190	106	107	75-125	1	20		
Cadmium	ug/L	ND	1000	1000	1000	1020	1040	102	104	75-125	1	20		
Chromium	ug/L	ND	1000	1000	1000	991	998	99	99	75-125	1	20		
Lead	ug/L	ND	1000	1000	1000	961	967	96	96	75-125	1	20		
Selenium	ug/L	ND	1000	1000	1000	1020	1040	102	103	75-125	1	20		
Silver	ug/L	ND	500	500	500	518	521	104	104	75-125	1	20		

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: MPRP/50924

Analysis Method: ASTM D2974

QC Batch Method: ASTM D2974

Analysis Description: Dry Weight/Percent Moisture

Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

SAMPLE DUPLICATE: 1854979

Parameter	Units	10288902008 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	4.5	4.2	9	30	

SAMPLE DUPLICATE: 1854980

Parameter	Units	10289113009 Result	Dup Result	RPD	Max RPD	Qualifiers
Percent Moisture	%	26.5	28.1	6	30	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

QC Batch: MSV/29469 Analysis Method: EPA 8260  
QC Batch Method: EPA 5035/5030B Analysis Description: 8260 MSV 5030 Med Level  
Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008, 10288933009

METHOD BLANK: 1850240 Matrix: Solid  
Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008, 10288933009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	50.0	11/22/14 18:53	
1,1,1-Trichloroethane	ug/kg	ND	50.0	11/22/14 18:53	
1,1,2,2-Tetrachloroethane	ug/kg	ND	50.0	11/22/14 18:53	
1,1,2-Trichloroethane	ug/kg	ND	50.0	11/22/14 18:53	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	200	11/22/14 18:53	
1,1-Dichloroethane	ug/kg	ND	50.0	11/22/14 18:53	
1,1-Dichloroethene	ug/kg	ND	50.0	11/22/14 18:53	
1,1-Dichloropropene	ug/kg	ND	50.0	11/22/14 18:53	
1,2,3-Trichlorobenzene	ug/kg	20.5J	50.0	11/22/14 18:53	
1,2,3-Trichloropropane	ug/kg	ND	200	11/22/14 18:53	
1,2,4-Trichlorobenzene	ug/kg	10.1J	50.0	11/22/14 18:53	
1,2,4-Trimethylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
1,2-Dibromo-3-chloropropane	ug/kg	ND	500	11/22/14 18:53	
1,2-Dibromoethane (EDB)	ug/kg	ND	50.0	11/22/14 18:53	
1,2-Dichlorobenzene	ug/kg	ND	50.0	11/22/14 18:53	
1,2-Dichloroethane	ug/kg	ND	50.0	11/22/14 18:53	
1,2-Dichloropropane	ug/kg	ND	50.0	11/22/14 18:53	
1,3,5-Trimethylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
1,3-Dichlorobenzene	ug/kg	ND	50.0	11/22/14 18:53	
1,3-Dichloropropane	ug/kg	ND	50.0	11/22/14 18:53	
1,4-Dichlorobenzene	ug/kg	ND	50.0	11/22/14 18:53	
2,2-Dichloropropane	ug/kg	ND	200	11/22/14 18:53	
2-Butanone (MEK)	ug/kg	ND	1000	11/22/14 18:53	
2-Chlorotoluene	ug/kg	ND	50.0	11/22/14 18:53	
4-Chlorotoluene	ug/kg	ND	50.0	11/22/14 18:53	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	250	11/22/14 18:53	
Acetone	ug/kg	ND	1000	11/22/14 18:53	CL
Allyl chloride	ug/kg	ND	200	11/22/14 18:53	
Benzene	ug/kg	ND	20.0	11/22/14 18:53	
Bromobenzene	ug/kg	ND	50.0	11/22/14 18:53	
Bromochloromethane	ug/kg	ND	50.0	11/22/14 18:53	
Bromodichloromethane	ug/kg	ND	50.0	11/22/14 18:53	
Bromoform	ug/kg	ND	200	11/22/14 18:53	
Bromomethane	ug/kg	ND	500	11/22/14 18:53	
Carbon tetrachloride	ug/kg	ND	50.0	11/22/14 18:53	
Chlorobenzene	ug/kg	ND	50.0	11/22/14 18:53	
Chloroethane	ug/kg	ND	500	11/22/14 18:53	
Chloroform	ug/kg	ND	50.0	11/22/14 18:53	
Chloromethane	ug/kg	ND	200	11/22/14 18:53	
cis-1,2-Dichloroethene	ug/kg	ND	50.0	11/22/14 18:53	
cis-1,3-Dichloropropene	ug/kg	ND	50.0	11/22/14 18:53	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

METHOD BLANK: 1850240

Matrix: Solid

Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008, 10288933009

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/kg	ND	50.0	11/22/14 18:53	
Dibromomethane	ug/kg	ND	50.0	11/22/14 18:53	
Dichlorodifluoromethane	ug/kg	ND	200	11/22/14 18:53	
Dichlorofluoromethane	ug/kg	ND	500	11/22/14 18:53	
Diethyl ether (Ethyl ether)	ug/kg	ND	200	11/22/14 18:53	
Ethylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
Hexachloro-1,3-butadiene	ug/kg	ND	250	11/22/14 18:53	
Isopropylbenzene (Cumene)	ug/kg	ND	50.0	11/22/14 18:53	
Methyl-tert-butyl ether	ug/kg	ND	50.0	11/22/14 18:53	
Methylene Chloride	ug/kg	ND	200	11/22/14 18:53	
n-Butylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
n-Propylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
Naphthalene	ug/kg	ND	200	11/22/14 18:53	
p-Isopropyltoluene	ug/kg	ND	50.0	11/22/14 18:53	
sec-Butylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
Styrene	ug/kg	ND	50.0	11/22/14 18:53	
tert-Butylbenzene	ug/kg	ND	50.0	11/22/14 18:53	
Tetrachloroethene	ug/kg	ND	50.0	11/22/14 18:53	
Tetrahydrofuran	ug/kg	ND	2000	11/22/14 18:53	CL
Toluene	ug/kg	ND	50.0	11/22/14 18:53	
trans-1,2-Dichloroethene	ug/kg	ND	50.0	11/22/14 18:53	
trans-1,3-Dichloropropene	ug/kg	ND	50.0	11/22/14 18:53	
Trichloroethene	ug/kg	ND	50.0	11/22/14 18:53	
Trichlorofluoromethane	ug/kg	ND	200	11/22/14 18:53	
Vinyl chloride	ug/kg	ND	20.0	11/22/14 18:53	
Xylene (Total)	ug/kg	ND	150	11/22/14 18:53	
1,2-Dichloroethane-d4 (S)	%	95	74-125	11/22/14 18:53	
4-Bromofluorobenzene (S)	%	103	75-125	11/22/14 18:53	
Toluene-d8 (S)	%	104	75-125	11/22/14 18:53	

LABORATORY CONTROL SAMPLE: 1850241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	1000	1010	101	68-125	
1,1,1-Trichloroethane	ug/kg	1000	1040	104	62-125	
1,1,2,2-Tetrachloroethane	ug/kg	1000	1040	104	61-127	
1,1,2-Trichloroethane	ug/kg	1000	1020	102	70-125	
1,1,2-Trichlorotrifluoroethane	ug/kg	1000	1080	108	56-149	
1,1-Dichloroethane	ug/kg	1000	1130	113	60-127	
1,1-Dichloroethene	ug/kg	1000	1020	102	63-125	
1,1-Dichloropropene	ug/kg	1000	1210	121	67-125	
1,2,3-Trichlorobenzene	ug/kg	1000	737	74	63-132	
1,2,3-Trichloropropane	ug/kg	1000	904	90	67-125	
1,2,4-Trichlorobenzene	ug/kg	1000	1010	101	64-132	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE: 1850241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/kg	1000	1020	102	64-125	
1,2-Dibromo-3-chloropropane	ug/kg	2500	2560	102	56-132	
1,2-Dibromoethane (EDB)	ug/kg	1000	990	99	72-125	
1,2-Dichlorobenzene	ug/kg	1000	989	99	68-125	
1,2-Dichloroethane	ug/kg	1000	1060	106	69-125	
1,2-Dichloropropane	ug/kg	1000	1010	101	73-125	
1,3,5-Trimethylbenzene	ug/kg	1000	987	99	64-125	
1,3-Dichlorobenzene	ug/kg	1000	968	97	67-125	
1,3-Dichloropropane	ug/kg	1000	1080	108	71-125	
1,4-Dichlorobenzene	ug/kg	1000	966	97	69-125	
2,2-Dichloropropane	ug/kg	1000	1170	117	53-131	
2-Butanone (MEK)	ug/kg	5000	3990	80	52-131	
2-Chlorotoluene	ug/kg	1000	1020	102	66-125	
4-Chlorotoluene	ug/kg	1000	992	99	52-131	
4-Methyl-2-pentanone (MIBK)	ug/kg	5000	4640	93	64-125	
Acetone	ug/kg	5000	2280	46	42-150	CL
Allyl chloride	ug/kg	1000	1050	105	58-128	
Benzene	ug/kg	1000	1140	114	71-125	
Bromobenzene	ug/kg	1000	1030	103	69-125	
Bromochloromethane	ug/kg	1000	970	97	75-125	
Bromodichloromethane	ug/kg	1000	1070	107	69-125	
Bromoform	ug/kg	1000	1110	111	62-125	
Bromomethane	ug/kg	1000	1470	147	62-125	L0,SS
Carbon tetrachloride	ug/kg	1000	1180	118	66-125	
Chlorobenzene	ug/kg	1000	1000	100	75-125	
Chloroethane	ug/kg	1000	1040	104	61-125	
Chloroform	ug/kg	1000	1080	108	72-125	
Chloromethane	ug/kg	1000	868	87	59-125	
cis-1,2-Dichloroethene	ug/kg	1000	1120	112	74-125	
cis-1,3-Dichloropropene	ug/kg	1000	1040	104	68-125	
Dibromochloromethane	ug/kg	1000	1130	113	65-125	
Dibromomethane	ug/kg	1000	1020	102	72-125	
Dichlorodifluoromethane	ug/kg	1000	1110	111	39-125	
Dichlorofluoromethane	ug/kg	1000	675	68	64-127	
Diethyl ether (Ethyl ether)	ug/kg	1000	1470	147	66-125	CH,L0
Ethylbenzene	ug/kg	1000	1030	103	69-125	
Hexachloro-1,3-butadiene	ug/kg	1000	1100	110	53-150	
Isopropylbenzene (Cumene)	ug/kg	1000	924	92	70-125	
Methyl-tert-butyl ether	ug/kg	1000	1130	113	69-125	
Methylene Chloride	ug/kg	1000	1070	107	71-125	
n-Butylbenzene	ug/kg	1000	940	94	59-133	
n-Propylbenzene	ug/kg	1000	1030	103	64-125	
Naphthalene	ug/kg	1000	732	73	61-131	
p-Isopropyltoluene	ug/kg	1000	951	95	63-127	
sec-Butylbenzene	ug/kg	1000	994	99	64-125	
Styrene	ug/kg	1000	1120	112	74-125	
tert-Butylbenzene	ug/kg	1000	1020	102	66-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE: 1850241

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethene	ug/kg	1000	1030	103	68-125	
Tetrahydrofuran	ug/kg	10000	5390	54	68-125	CL,L0
Toluene	ug/kg	1000	1100	110	70-125	
trans-1,2-Dichloroethene	ug/kg	1000	1070	107	68-125	
trans-1,3-Dichloropropene	ug/kg	1000	983	98	70-125	
Trichloroethene	ug/kg	1000	954	95	71-125	
Trichlorofluoromethane	ug/kg	1000	2000	200	62-132	CH,L0
Vinyl chloride	ug/kg	1000	895	90	55-125	
Xylene (Total)	ug/kg	3000	2980	99	74-125	
1,2-Dichloroethane-d4 (S)	%			96	74-125	
4-Bromofluorobenzene (S)	%			101	75-125	
Toluene-d8 (S)	%			104	75-125	

MATRIX SPIKE SAMPLE: 1850242

Parameter	Units	10288933001 Result	Spike Conc.	MS Result	MS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	1380	1580	115	63-140	
1,1,1-Trichloroethane	ug/kg	ND	1380	1560	113	54-149	
1,1,2,2-Tetrachloroethane	ug/kg	ND	1380	1710	124	46-150	
1,1,2-Trichloroethane	ug/kg	ND	1380	1490	108	62-141	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	1380	1540	112	65-150	
1,1-Dichloroethane	ug/kg	ND	1380	1670	121	57-145	
1,1-Dichloroethene	ug/kg	ND	1380	1530	111	58-137	
1,1-Dichloropropene	ug/kg	ND	1380	1840	133	61-141	
1,2,3-Trichlorobenzene	ug/kg	ND	1380	1400	101	62-147	
1,2,3-Trichloropropane	ug/kg	ND	1380	1380	100	65-141	
1,2,4-Trichlorobenzene	ug/kg	ND	1380	1630	118	64-147	
1,2,4-Trimethylbenzene	ug/kg	ND	1380	1650	119	59-144	
1,2-Dibromo-3-chloropropane	ug/kg	ND	3440	4160	121	56-147	
1,2-Dibromoethane (EDB)	ug/kg	ND	1380	1480	107	66-135	
1,2-Dichlorobenzene	ug/kg	ND	1380	1650	120	63-143	
1,2-Dichloroethane	ug/kg	ND	1380	1550	112	57-145	
1,2-Dichloropropane	ug/kg	ND	1380	1550	113	62-139	
1,3,5-Trimethylbenzene	ug/kg	ND	1380	1580	115	60-144	
1,3-Dichlorobenzene	ug/kg	ND	1380	1530	111	61-146	
1,3-Dichloropropane	ug/kg	ND	1380	1570	114	63-138	
1,4-Dichlorobenzene	ug/kg	ND	1380	1520	110	60-145	
2,2-Dichloropropane	ug/kg	ND	1380	1780	129	54-143	
2-Butanone (MEK)	ug/kg	ND	6900	5790	84	45-150	
2-Chlorotoluene	ug/kg	ND	1380	1610	117	62-140	
4-Chlorotoluene	ug/kg	ND	1380	1570	114	60-143	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	6900	7090	103	58-146	
Acetone	ug/kg	ND	6900	3110	45	30-150	CL
Allyl chloride	ug/kg	ND	1380	1500	109	55-142	
Benzene	ug/kg	ND	1380	1740	126	61-134	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

MATRIX SPIKE SAMPLE:	1850242	10288933001	Spike	MS	MS	% Rec	
Parameter	Units	Result	Conc.	Result	% Rec	Limits	Qualifiers
Bromobenzene	ug/kg	ND	1380	1600	116	64-143	
Bromochloromethane	ug/kg	ND	1380	1400	102	62-141	
Bromodichloromethane	ug/kg	ND	1380	1660	121	57-146	
Bromoform	ug/kg	ND	1380	1550	113	60-136	
Bromomethane	ug/kg	ND	1380	2330	169	54-141	M0,SS
Carbon tetrachloride	ug/kg	ND	1380	1750	127	50-150	
Chlorobenzene	ug/kg	ND	1380	1520	110	67-135	
Chloroethane	ug/kg	ND	1380	1180	85	46-150	
Chloroform	ug/kg	ND	1380	1610	117	60-141	
Chloromethane	ug/kg	ND	1380	1200	87	46-133	
cis-1,2-Dichloroethene	ug/kg	ND	1380	1590	115	64-138	
cis-1,3-Dichloropropene	ug/kg	ND	1380	1610	117	64-138	
Dibromochloromethane	ug/kg	ND	1380	1760	128	56-145	
Dibromomethane	ug/kg	ND	1380	1560	113	62-138	
Dichlorodifluoromethane	ug/kg	ND	1380	1100	80	30-136	
Dichlorofluoromethane	ug/kg	ND	1380	1420	103	47-150	
Diethyl ether (Ethyl ether)	ug/kg	ND	1380	1340	97	59-137	CH
Ethylbenzene	ug/kg	ND	1380	1550	112	63-135	
Hexachloro-1,3-butadiene	ug/kg	ND	1380	1820	132	65-150	
Isopropylbenzene (Cumene)	ug/kg	ND	1380	1450	105	65-137	
Methyl-tert-butyl ether	ug/kg	ND	1380	1810	131	56-143	
Methylene Chloride	ug/kg	ND	1380	1550	113	62-133	
n-Butylbenzene	ug/kg	ND	1380	1510	110	58-148	
n-Propylbenzene	ug/kg	ND	1380	1640	119	60-142	
Naphthalene	ug/kg	ND	1380	1280	93	61-146	
p-Isopropyltoluene	ug/kg	ND	1380	1560	113	61-145	
sec-Butylbenzene	ug/kg	ND	1380	1570	114	57-147	
Styrene	ug/kg	ND	1380	1660	121	67-137	
tert-Butylbenzene	ug/kg	ND	1380	1640	119	57-149	
Tetrachloroethene	ug/kg	ND	1380	1500	109	66-138	
Tetrahydrofuran	ug/kg	ND	13800	7470	54	53-145	CL
Toluene	ug/kg	ND	1380	1680	122	67-132	
trans-1,2-Dichloroethene	ug/kg	ND	1380	1630	118	61-136	
trans-1,3-Dichloropropene	ug/kg	ND	1380	1480	108	60-140	
Trichloroethene	ug/kg	ND	1380	1530	111	58-150	
Trichlorofluoromethane	ug/kg	ND	1380	2670	194	53-150	CH,M0
Vinyl chloride	ug/kg	ND	1380	1250	91	45-139	
Xylene (Total)	ug/kg	ND	4140	4520	109	66-136	
1,2-Dichloroethane-d4 (S)	%.				95	74-125	
4-Bromofluorobenzene (S)	%.				105	75-125	
Toluene-d8 (S)	%.				102	75-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

SAMPLE DUPLICATE: 1850243

Parameter	Units	10288933002 Result	Dup Result	RPD	Max RPD	Qualifiers
1,1,1,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,1-Trichloroethane	ug/kg	ND	ND		30	
1,1,2,2-Tetrachloroethane	ug/kg	ND	ND		30	
1,1,2-Trichloroethane	ug/kg	ND	ND		30	
1,1,2-Trichlorotrifluoroethane	ug/kg	ND	ND		30	
1,1-Dichloroethane	ug/kg	ND	ND		30	
1,1-Dichloroethene	ug/kg	ND	ND		30	
1,1-Dichloropropene	ug/kg	ND	ND		30	
1,2,3-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,3-Trichloropropane	ug/kg	ND	ND		30	
1,2,4-Trichlorobenzene	ug/kg	ND	ND		30	
1,2,4-Trimethylbenzene	ug/kg	ND	ND		30	
1,2-Dibromo-3-chloropropane	ug/kg	ND	ND		30	
1,2-Dibromoethane (EDB)	ug/kg	ND	ND		30	
1,2-Dichlorobenzene	ug/kg	ND	ND		30	
1,2-Dichloroethane	ug/kg	ND	ND		30	
1,2-Dichloropropane	ug/kg	ND	ND		30	
1,3,5-Trimethylbenzene	ug/kg	ND	ND		30	
1,3-Dichlorobenzene	ug/kg	ND	ND		30	
1,3-Dichloropropane	ug/kg	ND	ND		30	
1,4-Dichlorobenzene	ug/kg	ND	ND		30	
2,2-Dichloropropane	ug/kg	ND	ND		30	
2-Butanone (MEK)	ug/kg	ND	ND		30	
2-Chlorotoluene	ug/kg	ND	ND		30	
4-Chlorotoluene	ug/kg	ND	ND		30	
4-Methyl-2-pentanone (MIBK)	ug/kg	ND	ND		30	
Acetone	ug/kg	ND	ND		30	CL
Allyl chloride	ug/kg	ND	ND		30	
Benzene	ug/kg	ND	ND		30	
Bromobenzene	ug/kg	ND	ND		30	
Bromochloromethane	ug/kg	ND	ND		30	
Bromodichloromethane	ug/kg	ND	ND		30	
Bromoform	ug/kg	ND	ND		30	
Bromomethane	ug/kg	ND	ND		30	
Carbon tetrachloride	ug/kg	ND	ND		30	
Chlorobenzene	ug/kg	ND	ND		30	
Chloroethane	ug/kg	ND	ND		30	
Chloroform	ug/kg	ND	ND		30	
Chloromethane	ug/kg	ND	ND		30	
cis-1,2-Dichloroethene	ug/kg	ND	ND		30	
cis-1,3-Dichloropropene	ug/kg	ND	ND		30	
Dibromochloromethane	ug/kg	ND	ND		30	
Dibromomethane	ug/kg	ND	ND		30	
Dichlorodifluoromethane	ug/kg	ND	ND		30	
Dichlorofluoromethane	ug/kg	ND	ND		30	
Diethyl ether (Ethyl ether)	ug/kg	ND	ND		30	
Ethylbenzene	ug/kg	ND	ND		30	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

SAMPLE DUPLICATE: 1850243

Parameter	Units	10288933002 Result	Dup Result	RPD	Max RPD	Qualifiers
Hexachloro-1,3-butadiene	ug/kg	ND	ND		30	
Isopropylbenzene (Cumene)	ug/kg	ND	ND		30	
Methyl-tert-butyl ether	ug/kg	ND	ND		30	
Methylene Chloride	ug/kg	ND	ND		30	
n-Butylbenzene	ug/kg	ND	ND		30	
n-Propylbenzene	ug/kg	ND	ND		30	
Naphthalene	ug/kg	ND	ND		30	
p-Isopropyltoluene	ug/kg	ND	ND		30	
sec-Butylbenzene	ug/kg	ND	ND		30	
Styrene	ug/kg	ND	ND		30	
tert-Butylbenzene	ug/kg	ND	ND		30	
Tetrachloroethene	ug/kg	ND	ND		30	
Tetrahydrofuran	ug/kg	ND	ND		30	CL
Toluene	ug/kg	ND	ND		30	
trans-1,2-Dichloroethene	ug/kg	ND	ND		30	
trans-1,3-Dichloropropene	ug/kg	ND	ND		30	
Trichloroethene	ug/kg	ND	ND		30	
Trichlorofluoromethane	ug/kg	ND	ND		30	
Vinyl chloride	ug/kg	ND	ND		30	
Xylene (Total)	ug/kg	ND	ND		30	
1,2-Dichloroethane-d4 (S)	%.	93	95	3		
4-Bromofluorobenzene (S)	%.	106	106	5		
Toluene-d8 (S)	%.	104	105	5		

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: MSV/29497

Analysis Method: EPA 8260

QC Batch Method: EPA 8260

Analysis Description: 8260 MSV 465 W

Associated Lab Samples: 10288933003, 10288933005

METHOD BLANK: 1851785

Matrix: Water

Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	ND	1.0	11/24/14 14:43	
1,1,1-Trichloroethane	ug/L	ND	1.0	11/24/14 14:43	
1,1,2,2-Tetrachloroethane	ug/L	ND	1.0	11/24/14 14:43	
1,1,2-Trichloroethane	ug/L	ND	1.0	11/24/14 14:43	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	1.0	11/24/14 14:43	
1,1-Dichloroethane	ug/L	ND	1.0	11/24/14 14:43	
1,1-Dichloroethene	ug/L	ND	1.0	11/24/14 14:43	
1,1-Dichloropropene	ug/L	ND	1.0	11/24/14 14:43	
1,2,3-Trichlorobenzene	ug/L	ND	1.0	11/24/14 14:43	
1,2,3-Trichloropropane	ug/L	ND	4.0	11/24/14 14:43	
1,2,4-Trichlorobenzene	ug/L	ND	1.0	11/24/14 14:43	
1,2,4-Trimethylbenzene	ug/L	ND	1.0	11/24/14 14:43	
1,2-Dibromo-3-chloropropane	ug/L	ND	4.0	11/24/14 14:43	
1,2-Dibromoethane (EDB)	ug/L	ND	1.0	11/24/14 14:43	
1,2-Dichlorobenzene	ug/L	ND	1.0	11/24/14 14:43	
1,2-Dichloroethane	ug/L	ND	1.0	11/24/14 14:43	
1,2-Dichloropropane	ug/L	ND	4.0	11/24/14 14:43	
1,3,5-Trimethylbenzene	ug/L	ND	1.0	11/24/14 14:43	
1,3-Dichlorobenzene	ug/L	ND	1.0	11/24/14 14:43	
1,3-Dichloropropane	ug/L	ND	1.0	11/24/14 14:43	
1,4-Dichlorobenzene	ug/L	ND	1.0	11/24/14 14:43	
2,2-Dichloropropane	ug/L	ND	4.0	11/24/14 14:43	
2-Butanone (MEK)	ug/L	ND	5.0	11/24/14 14:43	
2-Chlorotoluene	ug/L	ND	1.0	11/24/14 14:43	
4-Chlorotoluene	ug/L	ND	1.0	11/24/14 14:43	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	5.0	11/24/14 14:43	
Acetone	ug/L	ND	20.0	11/24/14 14:43	
Allyl chloride	ug/L	ND	4.0	11/24/14 14:43	
Benzene	ug/L	ND	1.0	11/24/14 14:43	
Bromobenzene	ug/L	ND	1.0	11/24/14 14:43	
Bromochloromethane	ug/L	ND	1.0	11/24/14 14:43	
Bromodichloromethane	ug/L	ND	1.0	11/24/14 14:43	
Bromoform	ug/L	ND	4.0	11/24/14 14:43	
Bromomethane	ug/L	ND	4.0	11/24/14 14:43	
Carbon tetrachloride	ug/L	ND	1.0	11/24/14 14:43	
Chlorobenzene	ug/L	ND	1.0	11/24/14 14:43	
Chloroethane	ug/L	ND	1.0	11/24/14 14:43	
Chloroform	ug/L	ND	1.0	11/24/14 14:43	
Chloromethane	ug/L	ND	4.0	11/24/14 14:43	
cis-1,2-Dichloroethene	ug/L	ND	1.0	11/24/14 14:43	
cis-1,3-Dichloropropene	ug/L	ND	4.0	11/24/14 14:43	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

METHOD BLANK: 1851785

Matrix: Water

Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Dibromochloromethane	ug/L	ND	1.0	11/24/14 14:43	
Dibromomethane	ug/L	ND	4.0	11/24/14 14:43	
Dichlorodifluoromethane	ug/L	ND	1.0	11/24/14 14:43	
Dichlorofluoromethane	ug/L	ND	1.0	11/24/14 14:43	
Diethyl ether (Ethyl ether)	ug/L	ND	4.0	11/24/14 14:43	
Ethylbenzene	ug/L	ND	1.0	11/24/14 14:43	
Hexachloro-1,3-butadiene	ug/L	ND	1.0	11/24/14 14:43	
Isopropylbenzene (Cumene)	ug/L	ND	1.0	11/24/14 14:43	
Methyl-tert-butyl ether	ug/L	ND	1.0	11/24/14 14:43	
Methylene Chloride	ug/L	ND	4.0	11/24/14 14:43	
n-Butylbenzene	ug/L	ND	1.0	11/24/14 14:43	
n-Propylbenzene	ug/L	ND	1.0	11/24/14 14:43	
Naphthalene	ug/L	ND	4.0	11/24/14 14:43	
p-Isopropyltoluene	ug/L	ND	1.0	11/24/14 14:43	
sec-Butylbenzene	ug/L	ND	1.0	11/24/14 14:43	
Styrene	ug/L	ND	1.0	11/24/14 14:43	
tert-Butylbenzene	ug/L	ND	1.0	11/24/14 14:43	
Tetrachloroethene	ug/L	ND	1.0	11/24/14 14:43	
Tetrahydrofuran	ug/L	ND	10.0	11/24/14 14:43	
Toluene	ug/L	ND	1.0	11/24/14 14:43	
trans-1,2-Dichloroethene	ug/L	ND	1.0	11/24/14 14:43	
trans-1,3-Dichloropropene	ug/L	ND	4.0	11/24/14 14:43	
Trichloroethene	ug/L	ND	0.40	11/24/14 14:43	
Trichlorofluoromethane	ug/L	ND	1.0	11/24/14 14:43	
Vinyl chloride	ug/L	ND	0.40	11/24/14 14:43	
Xylene (Total)	ug/L	ND	3.0	11/24/14 14:43	
1,2-Dichloroethane-d4 (S)	%	100	75-125	11/24/14 14:43	
4-Bromofluorobenzene (S)	%	99	75-125	11/24/14 14:43	
Toluene-d8 (S)	%	99	75-125	11/24/14 14:43	

LABORATORY CONTROL SAMPLE: 1851786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,1,1,2-Tetrachloroethane	ug/L	20	20.9	105	75-125	
1,1,1-Trichloroethane	ug/L	20	20.7	104	73-125	
1,1,2,2-Tetrachloroethane	ug/L	20	21.1	106	74-125	
1,1,2-Trichloroethane	ug/L	20	20.8	104	75-125	
1,1,2-Trichlorotrifluoroethane	ug/L	20	19.1	95	56-133	
1,1-Dichloroethane	ug/L	20	21.0	105	75-125	
1,1-Dichloroethene	ug/L	20	20.5	103	70-125	
1,1-Dichloropropene	ug/L	20	20.3	102	73-125	
1,2,3-Trichlorobenzene	ug/L	20	22.0	110	75-125	
1,2,3-Trichloropropane	ug/L	20	21.4	107	75-125	
1,2,4-Trichlorobenzene	ug/L	20	20.8	104	75-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE: 1851786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trimethylbenzene	ug/L	20	20.4	102	75-125	
1,2-Dibromo-3-chloropropane	ug/L	50	55.8	112	70-125	
1,2-Dibromoethane (EDB)	ug/L	20	21.0	105	75-125	
1,2-Dichlorobenzene	ug/L	20	20.6	103	75-125	
1,2-Dichloroethane	ug/L	20	20.9	104	75-125	
1,2-Dichloropropane	ug/L	20	21.2	106	75-125	
1,3,5-Trimethylbenzene	ug/L	20	20.2	101	75-125	
1,3-Dichlorobenzene	ug/L	20	19.8	99	75-125	
1,3-Dichloropropane	ug/L	20	20.3	102	75-125	
1,4-Dichlorobenzene	ug/L	20	19.1	95	75-125	
2,2-Dichloropropane	ug/L	20	20.5	103	66-130	
2-Butanone (MEK)	ug/L	100	113	113	64-126	
2-Chlorotoluene	ug/L	20	20.1	100	73-125	
4-Chlorotoluene	ug/L	20	20.4	102	75-125	
4-Methyl-2-pentanone (MIBK)	ug/L	100	116	116	71-125	
Acetone	ug/L	100	102	102	66-131	
Allyl chloride	ug/L	20	20.1	100	70-129	
Benzene	ug/L	20	19.7	98	75-125	
Bromobenzene	ug/L	20	20.7	104	75-125	
Bromochloromethane	ug/L	20	20.9	104	75-125	
Bromodichloromethane	ug/L	20	20.6	103	75-125	
Bromoform	ug/L	20	20.1	100	70-125	
Bromomethane	ug/L	20	16.9	84	30-150	
Carbon tetrachloride	ug/L	20	19.8	99	68-129	
Chlorobenzene	ug/L	20	19.7	98	75-125	
Chloroethane	ug/L	20	21.9	109	68-133	
Chloroform	ug/L	20	20.7	104	75-125	
Chloromethane	ug/L	20	23.4	117	57-140	
cis-1,2-Dichloroethene	ug/L	20	20.8	104	75-125	
cis-1,3-Dichloropropene	ug/L	20	21.2	106	75-125	
Dibromochloromethane	ug/L	20	19.0	95	75-125	
Dibromomethane	ug/L	20	20.4	102	75-125	
Dichlorodifluoromethane	ug/L	20	21.1	105	50-134	
Dichlorofluoromethane	ug/L	20	20.4	102	74-125	
Diethyl ether (Ethyl ether)	ug/L	20	20.0	100	75-125	
Ethylbenzene	ug/L	20	18.8	94	75-125	
Hexachloro-1,3-butadiene	ug/L	20	22.7	114	74-128	
Isopropylbenzene (Cumene)	ug/L	20	20.7	103	73-125	
Methyl-tert-butyl ether	ug/L	20	21.8	109	75-125	
Methylene Chloride	ug/L	20	18.1	91	75-125	
n-Butylbenzene	ug/L	20	20.4	102	73-125	
n-Propylbenzene	ug/L	20	20.9	104	72-125	
Naphthalene	ug/L	20	22.6	113	74-125	
p-Isopropyltoluene	ug/L	20	20.9	104	74-125	
sec-Butylbenzene	ug/L	20	21.3	107	74-125	
Styrene	ug/L	20	21.0	105	75-125	
tert-Butylbenzene	ug/L	20	20.4	102	74-125	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE: 1851786

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Tetrachloroethane	ug/L	20	16.8	84	71-125	
Tetrahydrofuran	ug/L	200	197	98	70-125	
Toluene	ug/L	20	19.5	98	75-125	
trans-1,2-Dichloroethene	ug/L	20	20.2	101	73-125	
trans-1,3-Dichloropropene	ug/L	20	20.4	102	75-125	
Trichloroethene	ug/L	20	19.8	99	75-125	
Trichlorofluoromethane	ug/L	20	22.6	113	70-128	
Vinyl chloride	ug/L	20	18.9	94	70-130	
Xylene (Total)	ug/L	60	60.5	101	75-125	
1,2-Dichloroethane-d4 (S)	%			102	75-125	
4-Bromofluorobenzene (S)	%			99	75-125	
Toluene-d8 (S)	%			99	75-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1852769 1852770

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		10288597005 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
1,1,1,2-Tetrachloroethane	ug/L	ND	100	100	99.7	99.8	100	100	74-131	0	30	
1,1,1-Trichloroethane	ug/L	ND	100	100	90.9	92.6	91	93	73-139	2	30	
1,1,2,2-Tetrachloroethane	ug/L	ND	100	100	96.8	101	97	101	72-125	4	30	
1,1,2-Trichloroethane	ug/L	ND	100	100	101	103	101	103	75-125	2	30	
1,1,2-Trichlorotrifluoroethane	ug/L	ND	100	100	91.1	89.9	91	90	68-150	1	30	
1,1-Dichloroethane	ug/L	ND	100	100	92.3	93.9	92	94	73-132	2	30	
1,1-Dichloroethene	ug/L	ND	100	100	92.4	88.6	92	89	71-142	4	30	
1,1-Dichloropropene	ug/L	ND	100	100	89.7	88.7	90	89	73-139	1	30	
1,2,3-Trichlorobenzene	ug/L	ND	100	100	103	111	103	111	70-129	8	30	
1,2,3-Trichloropropane	ug/L	ND	100	100	98.2	99.4	98	99	74-125	1	30	
1,2,4-Trichlorobenzene	ug/L	ND	100	100	102	111	102	111	70-129	9	30	
1,2,4-Trimethylbenzene	ug/L	ND	100	100	105	110	105	110	72-136	4	30	
1,2-Dibromo-3-chloropropane	ug/L	ND	250	250	261	285	105	114	66-127	9	30	
1,2-Dibromoethane (EDB)	ug/L	ND	100	100	104	107	104	107	75-125	3	30	
1,2-Dichlorobenzene	ug/L	ND	100	100	102	105	102	105	75-125	3	30	
1,2-Dichloroethane	ug/L	40.7	100	100	135	135	94	95	68-128	0	30	
1,2-Dichloropropane	ug/L	ND	100	100	98.0	104	98	104	74-131	6	30	
1,3,5-Trimethylbenzene	ug/L	ND	100	100	100	103	100	103	75-131	3	30	
1,3-Dichlorobenzene	ug/L	ND	100	100	95.7	100	96	100	73-125	5	30	
1,3-Dichloropropane	ug/L	ND	100	100	99.1	102	99	102	75-125	3	30	
1,4-Dichlorobenzene	ug/L	ND	100	100	95.8	99.8	96	100	73-125	4	30	
2,2-Dichloropropane	ug/L	ND	100	100	95.8	95.3	96	95	58-150	1	30	
2-Butanone (MEK)	ug/L	ND	500	500	548	581	110	116	56-140	6	30	
2-Chlorotoluene	ug/L	ND	100	100	97.3	101	97	101	70-130	4	30	
4-Chlorotoluene	ug/L	ND	100	100	97.6	102	98	102	73-126	4	30	
4-Methyl-2-pentanone (MIBK)	ug/L	ND	500	500	557	592	111	118	69-128	6	30	
Acetone	ug/L	ND	500	500	537	584	106	115	57-143	8	30	

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1852769 1852770													
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max RPD	RPD	Qual
		10288597005 Result	Spike Conc.	Spike Conc.	MS Conc.								
Allyl chloride	ug/L	ND	100	100	100	98.1	94.7	98	95	65-146	4	30	
Benzene	ug/L	346	100	100	100	418	425	73	79	75-129	2	30	M1
Bromobenzene	ug/L	ND	100	100	100	101	105	101	105	74-125	4	30	
Bromochloromethane	ug/L	ND	100	100	100	101	98.6	101	99	75-126	3	30	
Bromodichloromethane	ug/L	ND	100	100	100	97.5	104	98	104	75-128	6	30	
Bromoform	ug/L	ND	100	100	100	98.8	99.2	99	99	66-130	0	30	
Bromomethane	ug/L	ND	100	100	100	78.7	89.5	79	90	30-150	13	30	
Carbon tetrachloride	ug/L	ND	100	100	100	93.5	94.7	94	95	69-148	1	30	
Chlorobenzene	ug/L	ND	100	100	100	93.3	97.8	93	98	75-125	5	30	
Chloroethane	ug/L	ND	100	100	100	101	114	101	114	71-143	12	30	
Chloroform	ug/L	ND	100	100	100	102	104	102	104	75-126	2	30	
Chloromethane	ug/L	ND	100	100	100	104	101	104	101	55-150	3	30	
cis-1,2-Dichloroethene	ug/L	ND	100	100	100	103	105	103	105	75-130	2	30	
cis-1,3-Dichloropropene	ug/L	ND	100	100	100	94.7	97.7	95	98	72-129	3	30	
Dibromochloromethane	ug/L	ND	100	100	100	91.9	97.9	92	98	73-129	6	30	
Dibromomethane	ug/L	ND	100	100	100	99.7	102	100	102	75-125	2	30	
Dichlorodifluoromethane	ug/L	ND	100	100	100	82.4	78.8	82	79	70-150	4	30	
Dichlorofluoromethane	ug/L	ND	100	100	100	98.9	101	99	101	75-135	2	30	
Diethyl ether (Ethyl ether)	ug/L	ND	100	100	100	92.4	96.3	92	96	72-126	4	30	
Ethylbenzene	ug/L	ND	100	100	100	88.5	90.1	88	89	75-128	2	30	
Hexachloro-1,3-butadiene	ug/L	ND	100	100	100	102	112	102	112	65-144	9	30	
Isopropylbenzene (Cumene)	ug/L	ND	100	100	100	107	109	105	106	75-131	1	30	
Methyl-tert-butyl ether	ug/L	ND	100	100	100	107	110	107	110	74-128	3	30	
Methylene Chloride	ug/L	ND	100	100	100	88.2	89.6	88	90	69-125	1	30	
n-Butylbenzene	ug/L	ND	100	100	100	106	110	106	110	70-137	4	30	
n-Propylbenzene	ug/L	ND	100	100	100	100	104	100	104	72-131	4	30	
Naphthalene	ug/L	ND	100	100	100	108	120	108	120	70-132	10	30	
p-Isopropyltoluene	ug/L	ND	100	100	100	102	107	102	107	73-133	5	30	
sec-Butylbenzene	ug/L	ND	100	100	100	109	114	109	114	74-133	4	30	
Styrene	ug/L	ND	100	100	100	108	110	108	110	75-128	2	30	
tert-Butylbenzene	ug/L	ND	100	100	100	93.8	101	94	101	74-130	7	30	
Tetrachloroethene	ug/L	ND	100	100	100	79.2	78.9	79	79	68-140	0	30	
Tetrahydrofuran	ug/L	ND	1000	1000	1000	1030	1080	103	108	65-131	5	30	
Toluene	ug/L	ND	100	100	100	96.7	95.9	94	93	75-129	1	30	
trans-1,2-Dichloroethene	ug/L	ND	100	100	100	92.6	91.7	93	92	70-136	1	30	
trans-1,3-Dichloropropene	ug/L	ND	100	100	100	100	99.3	100	99	71-125	1	30	
Trichloroethene	ug/L	ND	100	100	100	84.9	87.3	85	87	72-135	3	30	
Trichlorofluoromethane	ug/L	ND	100	100	100	109	111	109	111	75-150	2	30	
Vinyl chloride	ug/L	ND	100	100	100	75.3	77.0	75	77	73-150	2	30	
Xylene (Total)	ug/L	ND	300	300	300	285	290	95	97	75-129	2	30	
1,2-Dichloroethane-d4 (S)	%							105	99	75-125			
4-Bromofluorobenzene (S)	%							99	100	75-125			
Toluene-d8 (S)	%							99	99	75-125			

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

QC Batch: OEXT/27335 Analysis Method: EPA 8270  
QC Batch Method: EPA 3550 Analysis Description: 8270 Solid MSSV  
Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

METHOD BLANK: 1848894 Matrix: Solid  
Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	ND	330	11/21/14 08:35	
1,2-Dichlorobenzene	ug/kg	ND	330	11/21/14 08:35	
1,2-Diphenylhydrazine	ug/kg	ND	330	11/21/14 08:35	
1,3-Dichlorobenzene	ug/kg	ND	330	11/21/14 08:35	
1,4-Dichlorobenzene	ug/kg	ND	330	11/21/14 08:35	
1-Methylnaphthalene	ug/kg	ND	330	11/21/14 08:35	
2,4,5-Trichlorophenol	ug/kg	ND	330	11/21/14 08:35	
2,4,6-Trichlorophenol	ug/kg	ND	330	11/21/14 08:35	
2,4-Dichlorophenol	ug/kg	ND	330	11/21/14 08:35	
2,4-Dimethylphenol	ug/kg	ND	330	11/21/14 08:35	
2,4-Dinitrophenol	ug/kg	ND	330	11/21/14 08:35	
2,4-Dinitrotoluene	ug/kg	ND	330	11/21/14 08:35	
2,6-Dinitrotoluene	ug/kg	ND	330	11/21/14 08:35	
2-Chloronaphthalene	ug/kg	ND	330	11/21/14 08:35	
2-Chlorophenol	ug/kg	ND	330	11/21/14 08:35	
2-Methylnaphthalene	ug/kg	ND	330	11/21/14 08:35	
2-Methylphenol(o-Cresol)	ug/kg	ND	330	11/21/14 08:35	
2-Nitroaniline	ug/kg	ND	330	11/21/14 08:35	
2-Nitrophenol	ug/kg	ND	330	11/21/14 08:35	
3&4-Methylphenol	ug/kg	ND	660	11/21/14 08:35	
3,3'-Dichlorobenzidine	ug/kg	ND	330	11/21/14 08:35	
3-Nitroaniline	ug/kg	ND	330	11/21/14 08:35	
4,6-Dinitro-2-methylphenol	ug/kg	ND	1700	11/21/14 08:35	
4-Bromophenylphenyl ether	ug/kg	ND	330	11/21/14 08:35	
4-Chloro-3-methylphenol	ug/kg	ND	330	11/21/14 08:35	
4-Chloroaniline	ug/kg	ND	330	11/21/14 08:35	
4-Chlorophenylphenyl ether	ug/kg	ND	330	11/21/14 08:35	
4-Nitroaniline	ug/kg	ND	330	11/21/14 08:35	
4-Nitrophenol	ug/kg	ND	330	11/21/14 08:35	
Acenaphthene	ug/kg	ND	330	11/21/14 08:35	
Acenaphthylene	ug/kg	ND	330	11/21/14 08:35	
Anthracene	ug/kg	ND	330	11/21/14 08:35	
Benzo(a)anthracene	ug/kg	ND	330	11/21/14 08:35	
Benzo(a)pyrene	ug/kg	ND	330	11/21/14 08:35	
Benzo(b)fluoranthene	ug/kg	ND	330	11/21/14 08:35	
Benzo(g,h,i)perylene	ug/kg	ND	330	11/21/14 08:35	
Benzo(k)fluoranthene	ug/kg	ND	330	11/21/14 08:35	
bis(2-Chloroethoxy)methane	ug/kg	ND	330	11/21/14 08:35	
bis(2-Chloroethyl) ether	ug/kg	ND	330	11/21/14 08:35	
bis(2-Chloroisopropyl) ether	ug/kg	ND	330	11/21/14 08:35	
bis(2-Ethylhexyl)phthalate	ug/kg	ND	330	11/21/14 08:35	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

METHOD BLANK: 1848894

Matrix: Solid

Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/kg	ND	330	11/21/14 08:35	
Carbazole	ug/kg	ND	330	11/21/14 08:35	
Chrysene	ug/kg	ND	330	11/21/14 08:35	
Di-n-butylphthalate	ug/kg	ND	330	11/21/14 08:35	
Di-n-octylphthalate	ug/kg	ND	330	11/21/14 08:35	
Dibenz(a,h)anthracene	ug/kg	ND	330	11/21/14 08:35	
Dibenzofuran	ug/kg	ND	330	11/21/14 08:35	
Diethylphthalate	ug/kg	ND	330	11/21/14 08:35	
Dimethylphthalate	ug/kg	ND	330	11/21/14 08:35	
Fluoranthene	ug/kg	ND	330	11/21/14 08:35	
Fluorene	ug/kg	ND	330	11/21/14 08:35	
Hexachloro-1,3-butadiene	ug/kg	ND	330	11/21/14 08:35	
Hexachlorobenzene	ug/kg	ND	330	11/21/14 08:35	
Hexachloroethane	ug/kg	ND	330	11/21/14 08:35	
Indeno(1,2,3-cd)pyrene	ug/kg	ND	330	11/21/14 08:35	
Isophorone	ug/kg	ND	330	11/21/14 08:35	
N-Nitroso-di-n-propylamine	ug/kg	ND	330	11/21/14 08:35	
N-Nitrosodimethylamine	ug/kg	ND	330	11/21/14 08:35	
N-Nitrosodiphenylamine	ug/kg	ND	330	11/21/14 08:35	
Naphthalene	ug/kg	ND	330	11/21/14 08:35	
Nitrobenzene	ug/kg	ND	330	11/21/14 08:35	
Pentachlorophenol	ug/kg	ND	670	11/21/14 08:35	
Phenanthrene	ug/kg	ND	330	11/21/14 08:35	
Phenol	ug/kg	ND	330	11/21/14 08:35	
Pyrene	ug/kg	ND	330	11/21/14 08:35	
2,4,6-Tribromophenol (S)	%	79	41-125	11/21/14 08:35	
2-Fluorobiphenyl (S)	%	77	46-125	11/21/14 08:35	
2-Fluorophenol (S)	%	77	31-125	11/21/14 08:35	
Nitrobenzene-d5 (S)	%	74	30-125	11/21/14 08:35	
Phenol-d6 (S)	%	75	38-125	11/21/14 08:35	
Terphenyl-d14 (S)	%	91	64-125	11/21/14 08:35	

LABORATORY CONTROL SAMPLE: 1848895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
1,2,4-Trichlorobenzene	ug/kg	1670	1290	77	40-125	
1,2-Dichlorobenzene	ug/kg	1670	1260	76	32-125	
1,2-Diphenylhydrazine	ug/kg	1670	1360	82	63-125	
1,3-Dichlorobenzene	ug/kg	1670	1250	75	31-125	
1,4-Dichlorobenzene	ug/kg	1670	1260	76	30-125	
1-Methylnaphthalene	ug/kg	1670	1350	81	54-125	
2,4,5-Trichlorophenol	ug/kg	1670	1500	90	63-125	
2,4,6-Trichlorophenol	ug/kg	1670	1470	88	62-125	
2,4-Dichlorophenol	ug/kg	1670	1390	84	56-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE: 1848895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
2,4-Dimethylphenol	ug/kg	1670	1340	81	55-125	
2,4-Dinitrophenol	ug/kg	1670	1200	72	30-129	
2,4-Dinitrotoluene	ug/kg	1670	1530	92	61-125	
2,6-Dinitrotoluene	ug/kg	1670	1500	90	63-125	
2-Chloronaphthalene	ug/kg	1670	1370	82	60-125	
2-Chlorophenol	ug/kg	1670	1260	75	37-125	
2-Methylnaphthalene	ug/kg	1670	1350	81	56-125	
2-Methylphenol(o-Cresol)	ug/kg	1670	1290	78	45-125	
2-Nitroaniline	ug/kg	1670	1400	84	63-125	
2-Nitrophenol	ug/kg	1670	1340	81	47-125	
3&4-Methylphenol	ug/kg	1670	1310	79	50-125	
3,3'-Dichlorobenzidine	ug/kg	1670	1020	61	49-125	
3-Nitroaniline	ug/kg	1670	1130	68	48-125	
4,6-Dinitro-2-methylphenol	ug/kg	1670	1270J	76	39-125	
4-Bromophenylphenyl ether	ug/kg	1670	1460	88	65-125	
4-Chloro-3-methylphenol	ug/kg	1670	1410	85	63-125	
4-Chloroaniline	ug/kg	1670	744	45	30-125	
4-Chlorophenylphenyl ether	ug/kg	1670	1470	88	66-125	
4-Nitroaniline	ug/kg	1670	1390	83	60-125	
4-Nitrophenol	ug/kg	1670	1360	82	59-125	
Acenaphthene	ug/kg	1670	1420	85	62-125	
Acenaphthylene	ug/kg	1670	1410	84	64-125	
Anthracene	ug/kg	1670	1490	89	66-125	
Benzo(a)anthracene	ug/kg	1670	1500	90	66-125	
Benzo(a)pyrene	ug/kg	1670	1510	91	66-125	
Benzo(b)fluoranthene	ug/kg	1670	1480	89	65-125	
Benzo(g,h,i)perylene	ug/kg	1670	1520	91	67-125	
Benzo(k)fluoranthene	ug/kg	1670	1560	94	66-125	
bis(2-Chloroethoxy)methane	ug/kg	1670	1280	77	51-125	
bis(2-Chloroethyl) ether	ug/kg	1670	1160	70	30-125	
bis(2-Chloroisopropyl) ether	ug/kg	1670	1040	62	30-125	
bis(2-Ethylhexyl)phthalate	ug/kg	1670	1480	89	68-125	
Butylbenzylphthalate	ug/kg	1670	1510	91	67-125	
Carbazole	ug/kg	1670	1510	90	63-125	
Chrysene	ug/kg	1670	1510	90	67-125	
Di-n-butylphthalate	ug/kg	1670	1490	89	68-125	
Di-n-octylphthalate	ug/kg	1670	1490	90	65-125	
Dibenz(a,h)anthracene	ug/kg	1670	1520	91	67-125	
Dibenzofuran	ug/kg	1670	1440	86	64-125	
Diethylphthalate	ug/kg	1670	1490	89	65-125	
Dimethylphthalate	ug/kg	1670	1480	89	63-125	
Fluoranthene	ug/kg	1670	1520	91	66-125	
Fluorene	ug/kg	1670	1460	87	64-125	
Hexachloro-1,3-butadiene	ug/kg	1670	1260	75	33-125	
Hexachlorobenzene	ug/kg	1670	1430	86	65-125	
Hexachloroethane	ug/kg	1670	1210	72	30-125	
Indeno(1,2,3-cd)pyrene	ug/kg	1670	1520	91	67-125	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE: 1848895

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Isophorone	ug/kg	1670	1280	77	56-125	
N-Nitroso-di-n-propylamine	ug/kg	1670	1200	72	45-125	
N-Nitrosodimethylamine	ug/kg	1670	1150	69	30-125	
N-Nitrosodiphenylamine	ug/kg	1670	1470	88	65-125	
Naphthalene	ug/kg	1670	1270	76	44-125	
Nitrobenzene	ug/kg	1670	1210	73	39-125	
Pentachlorophenol	ug/kg	1670	1430	86	45-125	
Phenanthrene	ug/kg	1670	1490	89	66-125	
Phenol	ug/kg	1670	1270	76	44-125	
Pyrene	ug/kg	1670	1530	92	67-125	
2,4,6-Tribromophenol (S)	%			89	41-125	
2-Fluorobiphenyl (S)	%			81	46-125	
2-Fluorophenol (S)	%			75	31-125	
Nitrobenzene-d5 (S)	%			74	30-125	
Phenol-d6 (S)	%			76	38-125	
Terphenyl-d14 (S)	%			90	64-125	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1848896 1848897

Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10288933001 Result	Spike Conc.	Spike Conc.	Result								
1,2,4-Trichlorobenzene	ug/kg	ND	2030	2040	1470	1340	72	66	38-125	10	30		
1,2-Dichlorobenzene	ug/kg	ND	2030	2040	1430	1260	70	62	42-125	12	30		
1,2-Diphenylhydrazine	ug/kg	ND	2030	2040	1600	1490	79	73	58-125	7	30		
1,3-Dichlorobenzene	ug/kg	ND	2030	2040	1420	1260	70	62	32-125	11	30		
1,4-Dichlorobenzene	ug/kg	ND	2030	2040	1420	1250	70	62	31-125	13	30		
1-Methylnaphthalene	ug/kg	ND	2030	2040	1540	1420	76	70	56-125	8	30		
2,4,5-Trichlorophenol	ug/kg	ND	2030	2040	1760	1590	87	78	56-125	10	30		
2,4,6-Trichlorophenol	ug/kg	ND	2030	2040	1730	1580	86	78	57-125	9	30		
2,4-Dichlorophenol	ug/kg	ND	2030	2040	1590	1470	78	72	55-125	8	30		
2,4-Dimethylphenol	ug/kg	ND	2030	2040	1540	1410	76	69	55-125	9	30		
2,4-Dinitrophenol	ug/kg	ND	2030	2040	1310	1270	65	62	30-127	3	30		
2,4-Dinitrotoluene	ug/kg	ND	2030	2040	1810	1720	89	85	36-129	5	30		
2,6-Dinitrotoluene	ug/kg	ND	2030	2040	1760	1650	87	81	37-127	7	30		
2-Chloronaphthalene	ug/kg	ND	2030	2040	1600	1430	79	70	56-125	11	30		
2-Chlorophenol	ug/kg	ND	2030	2040	1490	1340	73	66	46-125	11	30		
2-Methylnaphthalene	ug/kg	ND	2030	2040	1540	1410	76	70	54-125	9	30		
2-Methylphenol(o-Cresol)	ug/kg	ND	2030	2040	1490	1370	74	67	53-125	9	30		
2-Nitroaniline	ug/kg	ND	2030	2040	1620	1490	80	73	59-125	9	30		
2-Nitrophenol	ug/kg	ND	2030	2040	1560	1420	77	70	30-125	10	30		
3&4-Methylphenol	ug/kg	ND	2030	2040	1520	1370	75	67	54-125	10	30		
3,3'-Dichlorobenzidine	ug/kg	ND	2030	2040	1370	1330	67	65	30-148	3	30		
3-Nitroaniline	ug/kg	ND	2030	2040	1410	1250	70	61	31-125	12	30		
4,6-Dinitro-2-methylphenol	ug/kg	ND	2030	2040	1520J	1540J	75	76	30-150		30		
4-Bromophenylphenyl ether	ug/kg	ND	2030	2040	1740	1620	86	79	59-125	7	30		

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
 Pace Project No.: 10288933

MATRIX SPIKE & MATRIX SPIKE DUPLICATE:		1848896		1848897									
Parameter	Units	MS		MSD		MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		10288933001 Result	Spike Conc.	Spike Conc.	MSD Conc.								
4-Chloro-3-methylphenol	ug/kg	ND	2030	2040	1670	1560	82	77	62-125	7	30		
4-Chloroaniline	ug/kg	ND	2030	2040	1020	873	51	43	30-125	16	30		
4-Chlorophenylphenyl ether	ug/kg	ND	2030	2040	1700	1580	84	78	61-125	8	30		
4-Nitroaniline	ug/kg	ND	2030	2040	1660	1570	82	77	53-125	5	30		
4-Nitrophenol	ug/kg	ND	2030	2040	1620	1520	80	75	45-125	6	30		
Acenaphthene	ug/kg	ND	2030	2040	1660	1510	82	74	58-125	9	30		
Acenaphthylene	ug/kg	ND	2030	2040	1660	1480	82	73	59-125	11	30		
Anthracene	ug/kg	ND	2030	2040	1750	1670	86	82	54-125	5	30		
Benzo(a)anthracene	ug/kg	ND	2030	2040	1720	1670	85	82	61-125	3	30		
Benzo(a)pyrene	ug/kg	ND	2030	2040	1790	1710	88	84	41-129	4	30		
Benzo(b)fluoranthene	ug/kg	ND	2030	2040	1730	1650	85	81	43-129	5	30		
Benzo(g,h,i)perylene	ug/kg	ND	2030	2040	1780	1720	88	84	55-125	4	30		
Benzo(k)fluoranthene	ug/kg	ND	2030	2040	1820	1760	90	87	53-125	3	30		
bis(2-Chloroethoxy)methane	ug/kg	ND	2030	2040	1450	1350	71	66	52-125	7	30		
bis(2-Chloroethyl) ether	ug/kg	ND	2030	2040	1330	1190	66	58	30-125	12	30		
bis(2-Chloroisopropyl) ether	ug/kg	ND	2030	2040	1190	1040	58	51	30-127	13	30		
bis(2-Ethylhexyl)phthalate	ug/kg	ND	2030	2040	1710	1660	85	82	67-125	3	30		
Butylbenzylphthalate	ug/kg	ND	2030	2040	1760	1700	87	84	63-125	3	30		
Carbazole	ug/kg	ND	2030	2040	1780	1690	88	83	58-125	5	30		
Chrysene	ug/kg	ND	2030	2040	1730	1660	85	82	39-133	4	30		
Di-n-butylphthalate	ug/kg	ND	2030	2040	1750	1660	86	82	64-125	5	30		
Di-n-octylphthalate	ug/kg	ND	2030	2040	1740	1680	86	82	64-125	4	30		
Dibenz(a,h)anthracene	ug/kg	ND	2030	2040	1780	1710	88	84	58-125	4	30		
Dibenzofuran	ug/kg	ND	2030	2040	1680	1540	83	76	60-125	9	30		
Diethylphthalate	ug/kg	ND	2030	2040	1750	1650	86	81	63-125	6	30		
Dimethylphthalate	ug/kg	ND	2030	2040	1750	1600	86	79	63-125	9	30		
Fluoranthene	ug/kg	ND	2030	2040	1770	1710	87	84	54-125	4	30		
Fluorene	ug/kg	ND	2030	2040	1740	1580	86	78	60-125	9	30		
Hexachloro-1,3-butadiene	ug/kg	ND	2030	2040	1440	1300	71	64	35-125	10	30		
Hexachlorobenzene	ug/kg	ND	2030	2040	1690	1590	83	78	58-125	6	30		
Hexachloroethane	ug/kg	ND	2030	2040	1380	1220	68	60	30-125	12	30		
Indeno(1,2,3-cd)pyrene	ug/kg	ND	2030	2040	1800	1720	89	84	51-125	5	30		
Isophorone	ug/kg	ND	2030	2040	1450	1320	72	65	54-125	9	30		
N-Nitroso-di-n-propylamine	ug/kg	ND	2030	2040	1380	1260	68	62	51-125	9	30		
N-Nitrosodimethylamine	ug/kg	ND	2030	2040	1270	1110	63	54	30-130	14	30		
N-Nitrosodiphenylamine	ug/kg	ND	2030	2040	1730	1630	85	80	61-125	6	30		
Naphthalene	ug/kg	ND	2030	2040	1470	1330	73	65	46-125	10	30		
Nitrobenzene	ug/kg	ND	2030	2040	1420	1270	70	62	41-125	12	30		
Pentachlorophenol	ug/kg	ND	2030	2040	1700	1630	84	80	30-136	4	30		
Phenanthrene	ug/kg	ND	2030	2040	1750	1660	86	82	55-125	5	30		
Phenol	ug/kg	ND	2030	2040	1470	1330	72	66	49-125	10	30		
Pyrene	ug/kg	ND	2030	2040	1770	1700	87	83	43-129	4	30		
2,4,6-Tribromophenol (S)	%						85	79	41-125				
2-Fluorobiphenyl (S)	%						77	69	46-125				
2-Fluorophenol (S)	%						71	63	31-125				
Nitrobenzene-d5 (S)	%						69	62	30-125				

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1848896												1848897	
Parameter	Units	10288933001 Result	MS	MSD	MS Result	MSD Result	MS % Rec	MSD % Rec	% Rec Limits	Max		Qual	
			Spike Conc.	Spike Conc.						RPD	RPD		
Phenol-d6 (S)	%.						71	64	38-125				
Terphenyl-d14 (S)	%.						83	81	64-125				

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: OEXT/27317

Analysis Method: EPA 8270

QC Batch Method: EPA 3520

Analysis Description: 8270 Water MSSV

Associated Lab Samples: 10288933003, 10288933005

METHOD BLANK: 1847316

Matrix: Water

Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
1,2,4-Trichlorobenzene	ug/L	ND	10.0	11/20/14 09:06	
1,2-Dichlorobenzene	ug/L	ND	10.0	11/20/14 09:06	
1,2-Diphenylhydrazine	ug/L	ND	10.0	11/20/14 09:06	
1,3-Dichlorobenzene	ug/L	ND	10.0	11/20/14 09:06	
1,4-Dichlorobenzene	ug/L	ND	10.0	11/20/14 09:06	
1-Methylnaphthalene	ug/L	ND	10.0	11/20/14 09:06	
2,4,5-Trichlorophenol	ug/L	ND	10.0	11/20/14 09:06	
2,4,6-Trichlorophenol	ug/L	ND	10.0	11/20/14 09:06	
2,4-Dichlorophenol	ug/L	ND	10.0	11/20/14 09:06	
2,4-Dimethylphenol	ug/L	ND	50.0	11/20/14 09:06	
2,4-Dinitrophenol	ug/L	ND	10.0	11/20/14 09:06	
2,4-Dinitrotoluene	ug/L	ND	10.0	11/20/14 09:06	
2,6-Dinitrotoluene	ug/L	ND	10.0	11/20/14 09:06	
2-Chloronaphthalene	ug/L	ND	10.0	11/20/14 09:06	
2-Chlorophenol	ug/L	ND	10.0	11/20/14 09:06	
2-Methylnaphthalene	ug/L	ND	10.0	11/20/14 09:06	
2-Methylphenol(o-Cresol)	ug/L	ND	10.0	11/20/14 09:06	
2-Nitroaniline	ug/L	ND	10.0	11/20/14 09:06	
2-Nitrophenol	ug/L	ND	10.0	11/20/14 09:06	
3&4-Methylphenol	ug/L	ND	20.0	11/20/14 09:06	
3,3'-Dichlorobenzidine	ug/L	ND	50.0	11/20/14 09:06	
3-Nitroaniline	ug/L	ND	10.0	11/20/14 09:06	
4,6-Dinitro-2-methylphenol	ug/L	ND	10.0	11/20/14 09:06	
4-Bromophenylphenyl ether	ug/L	ND	10.0	11/20/14 09:06	
4-Chloro-3-methylphenol	ug/L	ND	10.0	11/20/14 09:06	
4-Chloroaniline	ug/L	ND	50.0	11/20/14 09:06	
4-Chlorophenylphenyl ether	ug/L	ND	10.0	11/20/14 09:06	
4-Nitroaniline	ug/L	ND	10.0	11/20/14 09:06	
4-Nitrophenol	ug/L	ND	10.0	11/20/14 09:06	
Acenaphthene	ug/L	ND	10.0	11/20/14 09:06	
Acenaphthylene	ug/L	ND	10.0	11/20/14 09:06	
Anthracene	ug/L	ND	10.0	11/20/14 09:06	
Benzo(a)anthracene	ug/L	ND	10.0	11/20/14 09:06	
Benzo(a)pyrene	ug/L	ND	10.0	11/20/14 09:06	
Benzo(b)fluoranthene	ug/L	ND	10.0	11/20/14 09:06	
Benzo(g,h,i)perylene	ug/L	ND	10.0	11/20/14 09:06	
Benzo(k)fluoranthene	ug/L	ND	10.0	11/20/14 09:06	
bis(2-Chloroethoxy)methane	ug/L	ND	10.0	11/20/14 09:06	
bis(2-Chloroethyl) ether	ug/L	ND	10.0	11/20/14 09:06	
bis(2-Chloroisopropyl) ether	ug/L	ND	10.0	11/20/14 09:06	
bis(2-Ethylhexyl)phthalate	ug/L	ND	10.0	11/20/14 09:06	

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

METHOD BLANK: 1847316

Matrix: Water

Associated Lab Samples: 10288933003, 10288933005

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butylbenzylphthalate	ug/L	ND	10.0	11/20/14 09:06	
Carbazole	ug/L	ND	10.0	11/20/14 09:06	
Chrysene	ug/L	ND	10.0	11/20/14 09:06	
Di-n-butylphthalate	ug/L	ND	10.0	11/20/14 09:06	
Di-n-octylphthalate	ug/L	ND	10.0	11/20/14 09:06	
Dibenz(a,h)anthracene	ug/L	ND	10.0	11/20/14 09:06	
Dibenzofuran	ug/L	ND	10.0	11/20/14 09:06	
Diethylphthalate	ug/L	ND	10.0	11/20/14 09:06	
Dimethylphthalate	ug/L	ND	10.0	11/20/14 09:06	
Fluoranthene	ug/L	ND	10.0	11/20/14 09:06	
Fluorene	ug/L	ND	10.0	11/20/14 09:06	
Hexachloro-1,3-butadiene	ug/L	ND	10.0	11/20/14 09:06	
Hexachlorobenzene	ug/L	ND	10.0	11/20/14 09:06	
Hexachloroethane	ug/L	ND	10.0	11/20/14 09:06	
Indeno(1,2,3-cd)pyrene	ug/L	ND	10.0	11/20/14 09:06	
Isophorone	ug/L	ND	10.0	11/20/14 09:06	
N-Nitroso-di-n-propylamine	ug/L	ND	10.0	11/20/14 09:06	
N-Nitrosodimethylamine	ug/L	ND	10.0	11/20/14 09:06	
N-Nitrosodiphenylamine	ug/L	ND	10.0	11/20/14 09:06	
Naphthalene	ug/L	ND	10.0	11/20/14 09:06	
Nitrobenzene	ug/L	ND	10.0	11/20/14 09:06	
Pentachlorophenol	ug/L	ND	20.0	11/20/14 09:06	
Phenanthrene	ug/L	ND	10.0	11/20/14 09:06	
Phenol	ug/L	ND	10.0	11/20/14 09:06	
Pyrene	ug/L	ND	10.0	11/20/14 09:06	
2,4,6-Tribromophenol (S)	%	84	66-125	11/20/14 09:06	
2-Fluorobiphenyl (S)	%	58	55-125	11/20/14 09:06	
2-Fluorophenol (S)	%	74	53-125	11/20/14 09:06	
Nitrobenzene-d5 (S)	%	74	60-125	11/20/14 09:06	
Phenol-d6 (S)	%	75	59-125	11/20/14 09:06	
Terphenyl-d14 (S)	%	93	67-125	11/20/14 09:06	

LABORATORY CONTROL SAMPLE & LCSD: 1847317

1847318

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
1,2,4-Trichlorobenzene	ug/L	50	40.6	42.2	81	84	60-125	4	20	
1,2-Dichlorobenzene	ug/L	50	34.9	37.6	70	75	59-125	7	20	
1,2-Diphenylhydrazine	ug/L	50	43.7	46.0	87	92	71-125	5	20	
1,3-Dichlorobenzene	ug/L	50	33.3	36.9	67	74	56-125	10	20	
1,4-Dichlorobenzene	ug/L	50	33.9	37.1	68	74	57-125	9	20	
1-Methylnaphthalene	ug/L	50	43.0	44.7	86	89	69-125	4	20	
2,4,5-Trichlorophenol	ug/L	50	46.6	48.6	93	97	75-125	4	20	
2,4,6-Trichlorophenol	ug/L	50	45.7	48.5	91	97	74-125	6	20	
2,4-Dichlorophenol	ug/L	50	43.7	44.9	87	90	68-125	3	20	

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### QUALITY CONTROL DATA

Project: MnDOT I35W  
Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE & LCSD:		1847317	1847318								
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers	
2,4-Dimethylphenol	ug/L	50	37.9J	36.6J	76	73	45-125		20		
2,4-Dinitrophenol	ug/L	50	45.0	45.9	90	92	30-142	2	20		
2,4-Dinitrotoluene	ug/L	50	47.2	50.1	94	100	75-125	6	20		
2,6-Dinitrotoluene	ug/L	50	47.0	49.1	94	98	75-125	4	20		
2-Chloronaphthalene	ug/L	50	44.2	46.4	88	93	72-125	5	20		
2-Chlorophenol	ug/L	50	41.2	41.7	82	83	57-125	1	20		
2-Methylnaphthalene	ug/L	50	43.1	44.0	86	88	70-125	2	20		
2-Methylphenol(o-Cresol)	ug/L	50	41.0	41.3	82	83	61-125	1	20		
2-Nitroaniline	ug/L	50	43.6	45.4	87	91	74-125	4	20		
2-Nitrophenol	ug/L	50	44.0	44.9	88	90	65-125	2	20		
3&4-Methylphenol	ug/L	50	41.4	41.5	83	83	65-125	0	20		
3,3'-Dichlorobenzidine	ug/L	50	31.1J	47.6J	62	95	65-129		20	L0	
3-Nitroaniline	ug/L	50	35.0	54.4	70	109	70-127	43	20	R1	
4,6-Dinitro-2-methylphenol	ug/L	50	46.9	49.2	94	98	45-134	5	20		
4-Bromophenylphenyl ether	ug/L	50	46.3	48.4	93	97	75-125	4	20		
4-Chloro-3-methylphenol	ug/L	50	44.4	46.0	89	92	75-125	4	20		
4-Chloroaniline	ug/L	50	21.1J	44.9J	42	90	45-125		20	L0	
4-Chlorophenylphenyl ether	ug/L	50	45.7	48.3	91	97	75-125	5	20		
4-Nitroaniline	ug/L	50	43.8	48.4	88	97	71-125	10	20		
4-Nitrophenol	ug/L	50	42.9	47.0	86	94	65-126	9	20		
Acenaphthene	ug/L	50	45.7	47.8	91	96	75-125	5	20		
Acenaphthylene	ug/L	50	44.8	47.2	90	94	75-125	5	20		
Anthracene	ug/L	50	46.9	48.8	94	98	75-125	4	20		
Benzo(a)anthracene	ug/L	50	45.7	48.3	91	97	75-125	5	20		
Benzo(a)pyrene	ug/L	50	46.7	48.7	93	97	75-125	4	20		
Benzo(b)fluoranthene	ug/L	50	47.6	49.5	95	99	75-125	4	20		
Benzo(g,h,i)perylene	ug/L	50	47.2	49.7	94	99	75-125	5	20		
Benzo(k)fluoranthene	ug/L	50	46.8	49.0	94	98	75-125	5	20		
bis(2-Chloroethoxy)methane	ug/L	50	42.0	43.7	84	87	66-125	4	20		
bis(2-Chloroethyl) ether	ug/L	50	39.0	39.1	78	78	54-125	0	20		
bis(2-Chloroisopropyl) ether	ug/L	50	35.4	35.0	71	70	51-125	1	20		
bis(2-Ethylhexyl)phthalate	ug/L	50	46.2	48.3	92	97	75-125	5	20		
Butylbenzylphthalate	ug/L	50	46.4	49.0	93	98	75-125	6	20		
Carbazole	ug/L	50	47.1	48.8	94	98	75-125	4	20		
Chrysene	ug/L	50	45.9	48.7	92	97	75-125	6	20		
Di-n-butylphthalate	ug/L	50	46.5	48.2	93	96	75-125	4	20		
Di-n-octylphthalate	ug/L	50	47.2	48.6	94	97	75-125	3	20		
Dibenz(a,h)anthracene	ug/L	50	47.2	49.9	94	100	75-125	6	20		
Dibenzofuran	ug/L	50	45.4	48.2	91	96	75-125	6	20		
Diethylphthalate	ug/L	50	46.0	48.4	92	97	75-125	5	20		
Dimethylphthalate	ug/L	50	46.3	48.4	93	97	75-125	5	20		
Fluoranthene	ug/L	50	46.6	49.0	93	98	75-125	5	20		
Fluorene	ug/L	50	45.6	48.6	91	97	75-125	6	20		
Hexachloro-1,3-butadiene	ug/L	50	38.6	41.0	77	82	56-125	6	20		
Hexachlorobenzene	ug/L	50	45.4	46.8	91	94	75-125	3	20		
Hexachloroethane	ug/L	50	32.9	35.8	66	72	52-125	8	20		
Indeno(1,2,3-cd)pyrene	ug/L	50	47.6	50.1	95	100	75-125	5	20		

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

LABORATORY CONTROL SAMPLE & LCSD:		1847317	1847318		LCS	LCSD	% Rec		Max	
Parameter	Units	Spike Conc.	LCS Result	LCSD Result	% Rec	% Rec	% Rec Limits	RPD	RPD	Qualifiers
Isophorone	ug/L	50	42.1	44.0	84	88	71-125	4	20	
N-Nitroso-di-n-propylamine	ug/L	50	39.2	40.1	78	80	65-125	2	20	
N-Nitrosodimethylamine	ug/L	50	37.6	37.5	75	75	54-125	0	20	
N-Nitrosodiphenylamine	ug/L	50	45.5	46.9	91	94	75-125	3	20	
Naphthalene	ug/L	50	40.8	42.4	82	85	65-125	4	20	
Nitrobenzene	ug/L	50	41.0	41.6	82	83	61-125	2	20	
Pentachlorophenol	ug/L	50	46.1	48.7	92	97	46-128	6	20	
Phenanthrene	ug/L	50	46.4	48.5	93	97	75-125	4	20	
Phenol	ug/L	50	40.9	40.7	82	81	60-125	0	20	
Pyrene	ug/L	50	46.9	48.8	94	98	75-125	4	20	
2,4,6-Tribromophenol (S)	%				93	96	66-125			
2-Fluorobiphenyl (S)	%				73	80	55-125			
2-Fluorophenol (S)	%				80	79	53-125			
Nitrobenzene-d5 (S)	%				80	81	60-125			
Phenol-d6 (S)	%				81	80	59-125			
Terphenyl-d14 (S)	%				92	96	67-125			

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: OEXT/27387 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

METHOD BLANK: 1851759

Matrix: Solid

Associated Lab Samples: 10288933001, 10288933002, 10288933006, 10288933007, 10288933008

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/kg	ND	10.0	11/25/14 10:47	
n-Triacontane (S)	%.	76	50-150	11/25/14 10:47	

LABORATORY CONTROL SAMPLE & LCSD: 1851760

1851761

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/kg	80	64.1	64.4	80	81	70-120	0	20	
n-Triacontane (S)	%.				86	87	50-150			

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### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA

Project: MnDOT I35W

Pace Project No.: 10288933

QC Batch: OEXT/27321 Analysis Method: WI MOD DRO

QC Batch Method: WI MOD DRO Analysis Description: WIDRO GCS

Associated Lab Samples: 10288933003, 10288933004

METHOD BLANK: 1847613 Matrix: Water

Associated Lab Samples: 10288933003, 10288933004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Diesel Range Organics	mg/L	ND	0.10	11/20/14 12:11	
n-Triacontane (S)	%.	72	50-150	11/20/14 12:11	

LABORATORY CONTROL SAMPLE & LCSD: 1847614 1847615

Parameter	Units	Spike Conc.	LCS Result	LCSD Result	LCS % Rec	LCSD % Rec	% Rec Limits	RPD	Max RPD	Qualifiers
Diesel Range Organics	mg/L	2	1.7	1.8	86	88	75-115	2	20	
n-Triacontane (S)	%.				87	91	50-150			

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

### REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: MnDOT I35W  
Pace Project No.: 10288933

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### DEFINITIONS

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

ND - Not Detected at or above adjusted reporting limit.

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

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit.

S - Surrogate

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

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

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

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

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

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

### BATCH QUALIFIERS

Batch: MSSV/11460

[M5] A matrix spike/matrix spike duplicate was not performed for this batch due to insufficient sample volume.

### ANALYTE QUALIFIERS

1M The continuing calibration for the PVOC compounds are outside of Pace Analytical acceptance limits. All associated samples were reanalyzed under compliant conditions, outside of method holding time

2M The continuing calibration for the PVOC compounds are outside of Pace Analytical acceptance limits. All associated samples were reanalyzed under compliant conditions, outside of method holding time.

3M The sample was analyzed at a dilution due to a large amount of sediment in the vials.

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

CL The continuing calibration for this compound is outside of Pace Analytical acceptance limits. The results may be biased low.

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

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.

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

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

M1 Matrix spike recovery exceeded QC limits. Batch accepted based on laboratory control sample (LCS) recovery.

## REPORT OF LABORATORY ANALYSIS

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## QUALIFIERS

Project: MnDOT I35W

Pace Project No.: 10288933

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### ANALYTE QUALIFIERS

P4	Sample field preservation does not meet EPA or method recommendations for this analysis.
R1	RPD value was outside control limits.
S0	Surrogate recovery outside laboratory control limits.
S1	Surrogate recovery outside laboratory control limits (confirmed by re-analysis).
S4	Surrogate recovery not evaluated against control limits due to sample dilution.
SS	This analyte did not meet the secondary source verification criteria for the initial calibration. The reported result should be considered an estimated value.
T6	High boiling point hydrocarbons are present in the sample.
pH	Post-analysis pH measurement indicates insufficient VOA sample preservation.

## REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MnDOT I35W  
Pace Project No.: 10288933

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10288933001	DP-1	WI MOD DRO	OEXT/27387	WI MOD DRO	GCSV/14564
10288933002	DP-2	WI MOD DRO	OEXT/27387	WI MOD DRO	GCSV/14564
10288933006	DP-8	WI MOD DRO	OEXT/27387	WI MOD DRO	GCSV/14564
10288933007	DP-9	WI MOD DRO	OEXT/27387	WI MOD DRO	GCSV/14564
10288933008	DP-10	WI MOD DRO	OEXT/27387	WI MOD DRO	GCSV/14564
10288933003	DP-2	WI MOD DRO	OEXT/27321	WI MOD DRO	GCSV/14532
10288933004	DP-5	WI MOD DRO	OEXT/27321	WI MOD DRO	GCSV/14532
10288933001	DP-1	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288933002	DP-2	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288933006	DP-8	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288933007	DP-9	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288933008	DP-10	TPH GRO/PVOC WI ext.	GCV/12976	WI MOD GRO	GCV/13012
10288933003	DP-2	WI MOD GRO	GCV/12986		
10288933005	DP-5B	WI MOD GRO	GCV/12986		
10288933001	DP-1	EPA 3050	MPRP/50715	EPA 6010C	ICP/21810
10288933002	DP-2	EPA 3050	MPRP/50715	EPA 6010C	ICP/21810
10288933006	DP-8	EPA 3050	MPRP/50715	EPA 6010C	ICP/21810
10288933007	DP-9	EPA 3050	MPRP/50715	EPA 6010C	ICP/21810
10288933008	DP-10	EPA 3050	MPRP/50715	EPA 6010C	ICP/21810
10288933003	DP-2	EPA 3010	MPRP/50743	EPA 6010C	ICP/21825
10288933005	DP-5B	EPA 3010	MPRP/50743	EPA 6010C	ICP/21825
10288933003	DP-2	EPA 7470A	MERP/12186	EPA 7470A	MERC/14117
10288933005	DP-5B	EPA 7470A	MERP/12186	EPA 7470A	MERC/14117
10288933001	DP-1	EPA 7471B	MERP/12185	EPA 7471B	MERC/14115
10288933002	DP-2	EPA 7471B	MERP/12185	EPA 7471B	MERC/14115
10288933006	DP-8	EPA 7471B	MERP/12185	EPA 7471B	MERC/14115
10288933007	DP-9	EPA 7471B	MERP/12185	EPA 7471B	MERC/14115
10288933008	DP-10	EPA 7471B	MERP/12185	EPA 7471B	MERC/14115
10288933001	DP-1	ASTM D2974	MPRP/50924		
10288933002	DP-2	ASTM D2974	MPRP/50924		
10288933006	DP-8	ASTM D2974	MPRP/50924		
10288933007	DP-9	ASTM D2974	MPRP/50924		
10288933008	DP-10	ASTM D2974	MPRP/50924		
10288933001	DP-1	EPA 3550	OEXT/27335	EPA 8270	MSSV/11464
10288933002	DP-2	EPA 3550	OEXT/27335	EPA 8270	MSSV/11464
10288933006	DP-8	EPA 3550	OEXT/27335	EPA 8270	MSSV/11464
10288933007	DP-9	EPA 3550	OEXT/27335	EPA 8270	MSSV/11464
10288933008	DP-10	EPA 3550	OEXT/27335	EPA 8270	MSSV/11464
10288933003	DP-2	EPA 3520	OEXT/27317	EPA 8270	MSSV/11460
10288933005	DP-5B	EPA 3520	OEXT/27317	EPA 8270	MSSV/11460
10288933001	DP-1	EPA 5035/5030B	MSV/29469	EPA 8260	MSV/29478
10288933002	DP-2	EPA 5035/5030B	MSV/29469	EPA 8260	MSV/29478
10288933006	DP-8	EPA 5035/5030B	MSV/29469	EPA 8260	MSV/29478

### REPORT OF LABORATORY ANALYSIS

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### QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: MnDOT I35W

Pace Project No.: 10288933

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
10288933007	DP-9	EPA 5035/5030B	MSV/29469	EPA 8260	MSV/29478
10288933008	DP-10	EPA 5035/5030B	MSV/29469	EPA 8260	MSV/29478
10288933009	TB111414-A	EPA 5035/5030B	MSV/29469	EPA 8260	MSV/29478
10288933003	DP-2	EPA 8260	MSV/29497		
10288933005	DP-5B	EPA 8260	MSV/29497		

### REPORT OF LABORATORY ANALYSIS

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**CHAIN-OF-CUSTODY / Analytical Request Document**  
The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Page: 1 of 1  
10288973

**Section A** Required Client Information:  
Company: WSP  
Address: 123 N 3rd St, Ste 507  
Phone: Minneapolis MN 55401  
Email To: Paula Berger  
Phone: 612 3430510 Fax:  
Requested Due Date/TAT: Standard

**Section B** Required Project Information:  
Report To: Paula Berger  
Copy To: JUDY ANDREWS  
Purchase Order No.: 1402370-01  
Project Name: MNDOT I35W  
Project Number:

**Section C** Invoice Information:  
Attention: Accounting  
Company Name: WSP  
Address: Syracuse, NY  
Pace Quote Reference:  
Pace Project Manager: Kabor King  
Pace Profile #:

REGULATORY AGENCY  
 NPDES  GROUND WATER  DRINKING WATER  
 UST  RCRA  OTHER

Site Location STATE: MN

ITEM #	Section D Required Client Information	Matrix Codes MATRIX / CODE DW Drinking Water WT Waste Water WW Waste Water Product P Soil/Solid SL Oil OL Wipe WP Air AR Tissue TS Other	MATRIX CODE (see valid codes to left)	SAMPLE TYPE (G=GRAB C=COMP)	COLLECTED		SAMPLE TEMP AT COLLECTION	# OF CONTAINERS	Preservatives Unpreserved H <sub>2</sub> SO <sub>4</sub> HNO <sub>3</sub> HCl NaOH Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> Methanol Other	Analysis Test ↑ Y/N	Requested Analysis Filtered (Y/N)												Pace Project No. / Lab I.D.				
					COMPOSITE START DATE TIME	COMPOSITE END/GRAB DATE TIME					VOLCS (8210)	STOCS (8210)	GR0 (MI Mod)	DR0 (MI Mod)	RCRA Metals												
1	DP-1	SL	SL		2014	11-14 0840	11-14 1042	8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	001
2	DP-2	SL	SL			11-14 1115	11-13 1535	8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	002
3	DP-2	WT	WT			11-14 1115	11-14 1210	10	1	18	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	003
4	DP-5	WT	WT			11-14 1115	11-14 1348	1	1	16	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	004
5	DP-5B	WT	WT			11-14 1115	11-14 1420	8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	005
6	DP-8	SL	SL			11-14 1115	11-14 1450	8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	006
7	DP-9	SL	SL			11-14 1115	11-14 1450	8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	007
8	DP-10	SL	SL			11-14 1115	11-14 1450	8	4		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	008
9	TB111414A	WT	WT			11-14 1115	11-14 1450	1	1		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Trip Blanks 11/14/14
10	TB111414B	WT	WT			11-14 1115	11-14 1450	2	2		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Trip Blank WD 11/14/14
11																											
12																											

**ADDITIONAL COMMENTS**  
Judy Andrews WSP 11-14-14 1638  
Eric Pace 11/14/14 1638  
2.7  
3.9

**RELINQUISHED BY / AFFILIATION** DATE TIME  
Judy Andrews WSP 11-14-14 1638  
Eric Pace 11/14/14 1638

**ACCEPTED BY / AFFILIATION** DATE TIME  
Eric Pace 11/14/14 1638

**SAMPLE CONDITIONS**  
Received on Ice (Y/N) Y  
Custody Sealed Cooler (Y/N) N  
Samples Intact (Y/N) Y

Temp in °C 2.7  
3.9


**SAMPLER NAME AND SIGNATURE**  
PRINT Name of SAMPLER: Judy Andrews  
SIGNATURE OF SAMPLER: Judy Andrews  
DATE Signed (MM/DD/YY): 11/14/14

ORIGINAL

**Sample Condition Upon Receipt**

**Client Name:** WSP **Project #:** \_\_\_\_\_

WO# : 10288933



10288933

**Courier:**  Fed Ex  UPS  USPS  Client  
 Commercial  Pace  SpeedDee  Other: \_\_\_\_\_  
**Tracking Number:** \_\_\_\_\_

**Custody Seal on Cooler/Box Present?**  Yes  No **Seals Intact?**  Yes  No **Optional:** Proj. Due Date: \_\_\_\_\_ Proj. Name: \_\_\_\_\_  
**Packing Material:**  Bubble Wrap  Bubble Bags  None  Other: \_\_\_\_\_ **Temp Blank?**  Yes  No  
**Thermom. Used:**  B88A9130516413  B88A912167504  B88A9132521491 **Type of Ice:**  Wet  Blue  None  Samples on ice, cooling process has begun  
**Cooler Temp Read (°C):** 2.4, 3.1 **Cooler Temp Corrected (°C):** 2.7, 3.4 **Biological Tissue Frozen?**  Yes  No  N/A  
**Temp should be above freezing to 6°C** **Correction Factor:** +0.3 **Date and Initials of Person Examining Contents:** 11/11/14

Chain of Custody Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	1.
Chain of Custody Filled Out?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	2.
Chain of Custody Relinquished?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	3.
Sampler Name and/or Signature on COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	4.
Samples Arrived within Hold Time?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	5.
<b>Short Hold Time Analysis (&lt;72 hr)?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	6.
<b>Rush Turn Around Time Requested?</b>	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	7.
Sufficient Volume?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	8.
Correct Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	9. >5% sediment in AGLUs.
-Pace Containers Used?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Containers Intact?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	10.
Filtered Volume Received for Dissolved Tests?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No	<input type="checkbox"/> N/A	11.
Sample Labels Match COC?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	12.
-Includes Date/Time/ID/Analysis Matrix: <u>SL, AB</u>				
All containers needing acid/base preservation have been checked?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	13. <input type="checkbox"/> HNO <sub>3</sub> <input type="checkbox"/> H <sub>2</sub> SO <sub>4</sub> <input type="checkbox"/> NaOH <input type="checkbox"/> HCl Sample # Initial when completed: _____ Lot # of added preservative: _____
All containers needing preservation are found to be in compliance with EPA recommendation? (HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , HCl < 2; NaOH > 9 Sulfide, NaOH > 12 Cyanide)	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input checked="" type="checkbox"/> N/A	
Exceptions: <u>VOA</u> , Coliform, TOC, Oil and Grease, DRO/8015 (water) DOC	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No		
Headspace in VOA Vials (>6mm)?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	14. <u>1/6 DP-2, 2/6 DP-5B</u>
Trip Blank Present?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	15.
Trip Blank Custody Seals Present? <u>090814-3</u>	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> N/A	
Pace Trip Blank Lot # (if purchased): <u>02114-01</u>				

**CLIENT NOTIFICATION/RESOLUTION**

**Field Data Required?**  Yes  No

Person Contacted: \_\_\_\_\_ Date/Time: \_\_\_\_\_

Comments/Resolution: \_\_\_\_\_

**Project Manager Review:** Karla Xiang **Date:** Nov. 18, 2014

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)

Data File: \\192.168.10.12\chem\10gcs9.i\112014dro.b\112014000057.D

Report Date: 11/21/2014

Sample ID: 10288933003

Client ID:

Instrument: 10gcs9.i

HP7890 GC Data, FID1A.ch

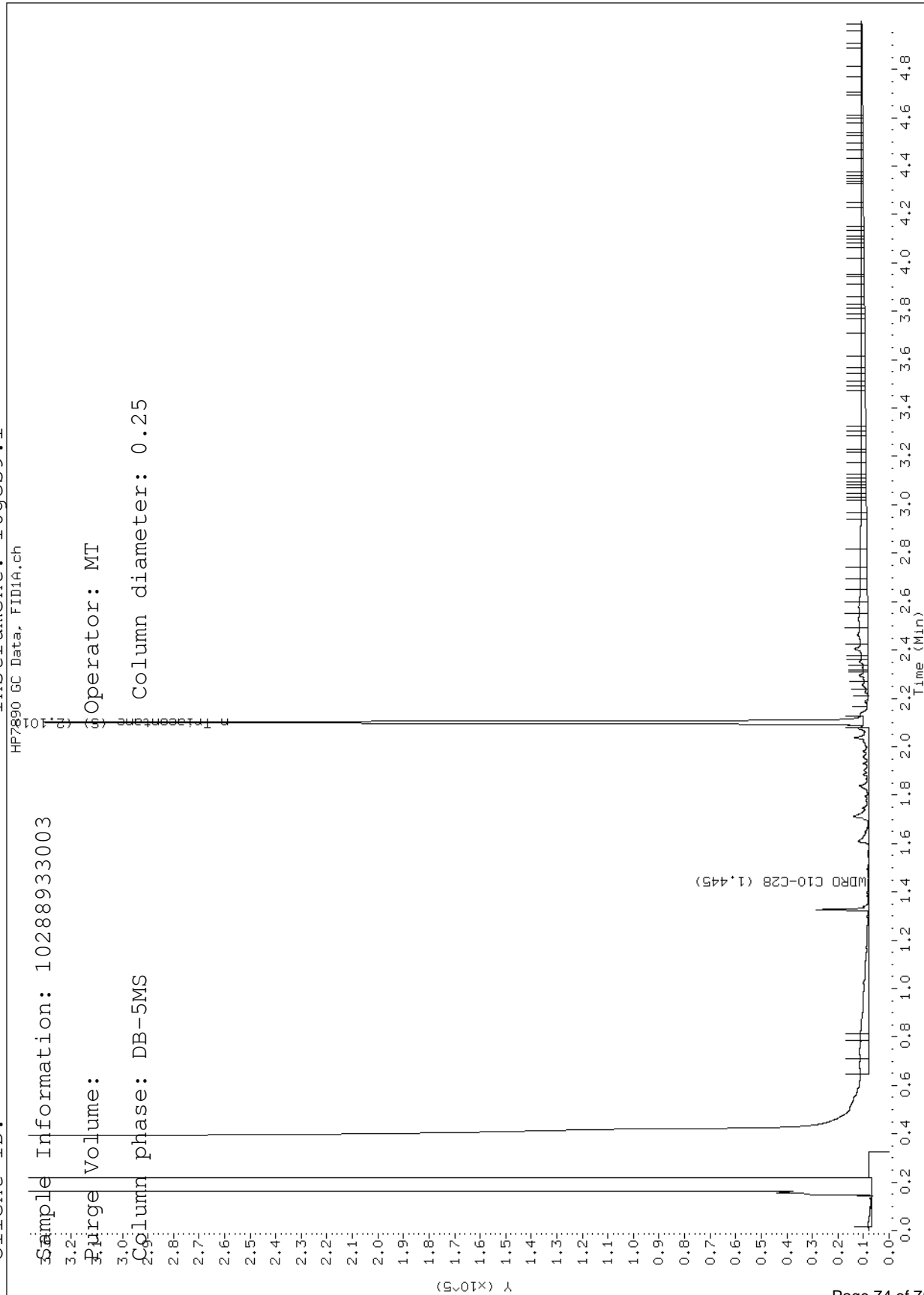
Sample Information: 10288933003

Purge Volume:

Operator: MT

Column phase: DB-5MS

Column diameter: 0.25





Data File: \\192.168.10.12\chem\10gcs9.i\112014dro.b\112014000054.D

Report Date: 11/21/2014

Sample ID: 10288933004

Client ID:

Instrument: 10gcs9.i

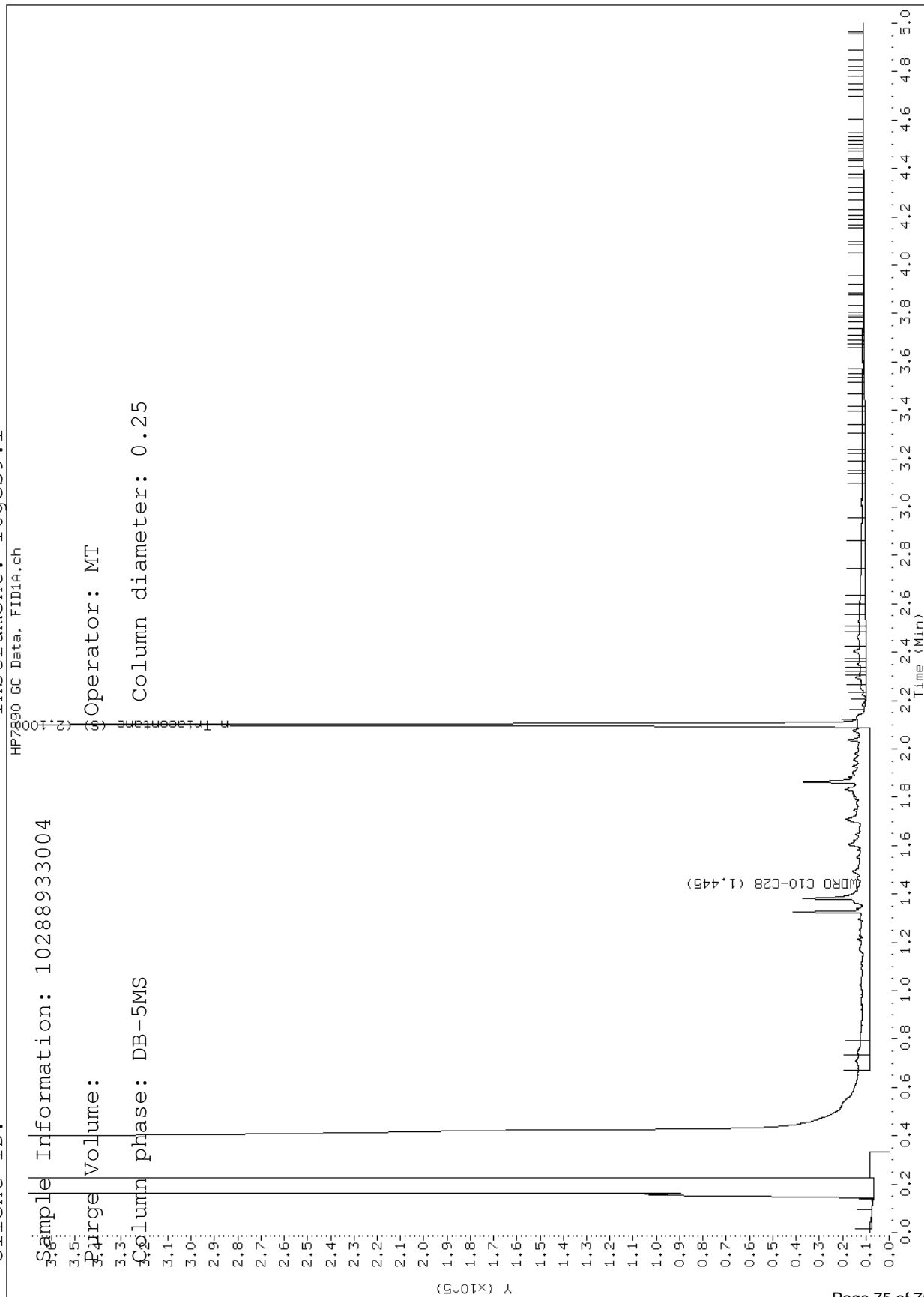
Sample Information: 10288933004

Purge Volume:

Operator: MT

Column phase: DB-5MS

Column diameter: 0.25



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