Submittted by: AECOM
200 Indiana Avenue
Stevens Point, WI 54481
T 715.341.8110
F 715.341.7390
AECOM Project No. 60527087
August 2018

# Former Hoffman's Mobil

## Phase 4 Construction Remedial Action
## 646 Front Street (STH 13)
## Village of Cashton, Monroe County, Wisconsin

WisDOT Project ID No. 5100-08-72
WDNR BRRTS No. 03-42-001293

# Former Hoffman's Mobil

## Phase 4 Construction Remedial Action
## 646 Front Street (STH 33)
## Village of Cashton, Monroe County, Wisconsin

WisDOT Project No. 5100-08-72
WDNR BRRTS No. 03-42-001293
AECOM Project No. 60527087

August 9, 2018
Date

Prepared by:
Daniel Barton
Environmental Engineer
daniel.barton@aecom.com

August 9, 2018
Date

Reviewed by:
Kyle Wagoner, P.G., CHMM
Project Manager
kyle.wagoner@aecom.com

## Contents



## Figures



## Appendices



## Acronyms and Abbreviations

| | |
|---|---|
| BRRTS | Bureau for Remediation and Redevelopment Tracking System |
| DATCP | Wisconsin Department of Agriculture, Trade, and Consumer Protection |
| Gerke | Gerke Excavating Inc. |
| LUST | Leaking underground storage tank |
| Phase 1 | Phase 1 Environmental Sampling Investigation |
| Phase 2 | Phase 2 Environmental Sampling Investigation |
| Phase 2.5 | Phase 2.5 Environmental Sampling Investigation |
| Phase 4 | Phase 4 Construction Remedial Action |
| PID | Photoionization detector |
| ppm | Parts per million |
| STH | State highway |
| UST | Underground storage tank |
| VOC | Volatile organic compound |
| WDNR | Wisconsin Department of Natural Resources |
| WisDOT | Wisconsin Department of Transportation |

# 1.0 Executive Summary

This report summarizes the results of a Phase 4 Construction Remedial Action (Phase 4) associated with improvements of State Highway (STH) 33, in the Village of Cashton, Monroe County.

Between July 5, 2017, and July 10, 2017, AECOM provided oversight services for petroleum contaminated soil excavation adjacent to the Former Hoffman's Mobil. Petroleum contaminated soil was encountered at a depth of approximately 4 feet below grade within the project limits, adjacent to the Former Hoffman's Mobil site. The petroleum contaminated soil extended from approximately Station 99+30 to Station 100+10. A total of approximately 478 tons of the petroleum contaminated soil was excavated, loaded, and hauled by Gerke Excavating (Gerke) to the La Crosse County Landfill for disposal.

The following results and conclusions are based on the data and information collected during the Phase 4:

- Photoionization detector (PID) readings ranging from 5.0 parts per million (ppm) to 56.8 ppm were detected during field screening of soil samples collected from the excavations adjacent to the Former Hoffman's Mobil site.
- A total of approximately 478 tons of petroleum contaminated soil was excavated, loaded, and hauled from the Former Hoffman's Mobil site to the La Crosse County Landfill between July 5, 2017, and July 10, 2017.
- Residual petroleum contaminated soil exceeding Wisconsin Regulatory Standards remains at the Former Hoffman's Mobil site between Stations 99+25 to 101+00. The remaining residual soil contamination is capped by STH 33 pavement, is approximately 3 to 4 feet below clean construction fill, and does not likely pose a direct contact risk.
- Groundwater was not encountered during the construction excavation activities.

Based on the information obtained during the Phase 4, no additional site investigation or remedial action is recommended for the STH 33 right of way next to the Former Hoffman's Mobil site.

# 2.0 Introduction

## 2.1 General Information

The Former Hoffman's Mobil site is located along STH 33. The site location is identified on Figure 1. Project details include the following:

| | |
|---|---|
| Site Name and Address: | Former Hoffman's Mobil<br>BRRTS No. 03-42-001293 (Open LUST)<br>646 Front Street (STH 33)<br>Village of Cashton, Wisconsin |
| County: | Monroe |
| WisDOT Project ID No.: | 5100-08-72 |
| Station During Construction: | Soil Contamination Station 99+25 to 101+00 |
| Public Land Survey System: | SW ¼ of the SE ¼ of Section 30, Township 15 N, Range 03 W |
| GPS Coordinates: | Latitude: 43.7420491<br>Longitude: -90.779644 |
| WTM Coordinates | X: 457,222 meters<br>Y: 363,519 meters |
| Responsible Party: | Village of Cashton<br>811 Main Street<br>Cashton, WI 54619<br>Contact: David Bekkum, Director of Public Works<br>(608) 654-5160 |
| General Contractor: | Gerke Excavating, Inc.<br>15341 State Highway 131<br>Tomah, WI 54660<br>Contact: Ron Overlien, Superintendent<br>(608) 343-3025<br>Email: rdo@gerkeexcavating.com |
| Solid Waste Landfill | La Crosse County Landfill<br>6500 State Rd 16<br>La Crosse, WI 54601<br>Contact: Randy Nedrelo<br>(608) 789-7857 |

## 2.2 Background

Himalayan Consultants, LLC, completed a Phase 1 Hazardous Materials Assessment (Phase 1) for the project and documented the findings in a Phase 1 report, dated April 2014. Based on Phase 1 results, the Wisconsin Department of Transportation (WisDOT) requested that a Phase 2.5 Environmental Sampling Investigation (Phase 2.5) be performed at the Former Hoffman's Mobil site.

The Former Hoffman's Mobil is currently a vacant grass covered lot/park that was formerly used for retail fuel sales. The Wisconsin Department of Agriculture, Trade, and Consumer Protection (DATCP) petroleum tank database lists six underground storage tanks (USTs) that were closed/removed from the site. However, an interoffice communication provided in the Phase 1 report from Ronald Larson, then Village of Cashton Fire Chief and Underground Storage Tank (UST) Inspector, to the Department of Industry, Labor, and Human Relations, Bureau of Petroleum Inspection, dated December 27, 1990, stated that all tanks were removed from the site on December 1, 1990. The interoffice communication was amended by Mr. Larson on September 22, 1994, to specify that there were three USTs removed from the site and that all contained gasoline. The site is listed on the Wisconsin Department of Natural Resources (WDNR) Bureau of Remediation and Redevelopment Tracking Site (BRRTS) database as an open Leaking Underground Storage Tank (LUST) site (BRRTS No. 03-42-001293).

In 2015, AECOM performed a Phase 2 Environmental Sampling Investigation (Phase 2) and a Phase 2.5 at multiple sites for WisDOT for the STH 33 Improvement Project in the Village of Cashton, Wisconsin. The Former Hoffman's Mobil site was one of four sites identified during the investigation as having petroleum contaminated soil within the planned construction limits. Results of the Phase 2.5 were documented in AECOM's report, dated March 18, 2016.

## 2.3 Purpose and Scope of Services

The purpose of this project was to assist WisDOT with waste characterization, management, and off-site disposal of contaminated soil excavated during the STH 33 construction.

The Phase 4 scope of services included the following:

- Phil Eagan of AECOM attended the general contractor's preconstruction conference at WisDOT's Southwest Region office in La Crosse on April 11, 2017, to review and discuss the contaminated soil management plan for the STH 33 project.

- Prepared and submitted a Special Waste Disposal Application for the STH 33 project to the La Crosse County Landfill with a copy of the waste characterization analytical report obtained during the Phase 2.5. La Crosse County Landfill approved the application on April 20, 2017, and assigned Reference No. SW417-01 for all soil delivered to the landfill.

- Marked the location and limits of the contaminated soil that could be encountered during excavation adjacent to the Former Hoffman's Mobil site.

- Field screened soil samples collected from the excavation limits for volatile organic vapors (VOCs) using a PID. The PID is capable of detecting and measuring relative concentrations of VOCs in the soil gas.

- Evaluated excavated soil based on field screening results, visual, and olfactory evidence to determine the need for segregating and off-site disposal of contaminated soil.
- Documented the excavation and management of contaminated soil in conformance with the contaminated soil management methods as specified in the contract special provisions.
- Photographed the site activities during contaminated soil excavation adjacent to the Former Hoffman's Mobil.
- Preparation of this Phase 4 Report, documenting contaminated soil excavation and waste characterization; and the handling, management, and off-site disposal of contaminated soil.

# 3.0 Field Activities

## 3.1 Excavation and Field Screening

On multiple dates between July 5, 2017, and July 10, 2017, AECOM performed oversight and field screening while Gerke excavated soil adjacent to the Former Hoffman's Mobil site using a backhoe. Soil determined to be impacted by petroleum hydrocarbons was segregated, loaded, and hauled by Gerke to the La Crosse County Landfill for disposal. A photograph log documenting the excavation activities is provided as Appendix A.

Soil samples were taken from the backhoe bucket and field screened for soil vapors using a PID by AECOM staff during the excavation activities. Soil gas monitoring procedures are described in Appendix B.

## 3.2 Subsurface Conditions

Subsurface materials encountered within the STH 33 excavation limits generally included road base (sand) underlain by clay fill. Native clayey silt and sand was encountered below the clay fill during excavation.

Slight staining and petroleum odors were observed within the native clayey silt and sand encountered below STH 33. The petroleum staining and odors were observed between Station 99+30 and Station 100+10, and extended vertically from a depth of approximately 2 to 4 feet below grade. PID readings, ranging from 5.0 ppm to 56.8 ppm, were recorded during field screening of soil samples collected from the excavation.

## 3.3 Soil Disposal Summary

Between July 5, 2017 and July 10, 2017, a total of approximately 478 tons of petroleum contaminated soil was excavated from the STH 33 project limits adjacent to the Former Hoffman's Mobil site and transported to the La Crosse County Landfill for disposal. A disposal tally provided by the La Crosse County landfill is provided in Appendix C. A copy of the Special Waste Disposal application and landfill approval is provided in Appendix D.

# 4.0 Conclusions and Recommendation

The following results and conclusions are based on the data and information collected during the Phase 4:

- PID readings ranging from 5.0 ppm to 56.8 ppm were detected during field screening of soil samples collected from the excavations adjacent to the Former Hoffman's Mobil site.
- A total of approximately 478 tons of petroleum contaminated soil was excavated, loaded, and hauled from the Former Hoffman's Mobil site to the La Crosse County Landfill between July 5, 2017, and July 10, 2017.
- Residual petroleum contaminated soil exceeding Wisconsin Regulatory Standards remains at the Former Hoffman's Mobil site between Stations 99+25 to 101+00. The remaining residual soil contamination is capped by STH 33 pavement, is approximately 3 to 4 feet below clean construction fill, and does not likely pose a direct contact risk.
- Groundwater was not encountered during the construction excavation activities.

Based on the information obtained during the Phase 4, no additional site investigation or remedial action is recommended for the STH 33 right of way next to the Former Hoffman's Mobil site.

# 5.0 Limitations

AECOM's scope of services was limited to performing a Phase 4 associated with the STH 33 Improvement Project.

AECOM's opinion regarding existing conditions at the site does not constitute a guarantee or warranty as to the potential environmental liability associated with the site. Furthermore, the findings and conclusions given are not scientific certainties, but rather probabilities based on data obtained or activities performed during this assessment and professional judgment concerning the significance of this data. Information was collected in accordance with generally accepted professional standards and practices, accepted in good faith, and are assumed to be factual and accurate.

AECOM did not determine whether the site or adjoining land areas contain hazardous waste, oil, or other latent conditions beyond those detected or observed by AECOM at the time the investigation was conducted. The possibility exists for contaminants to migrate through the surface water, air, or groundwater. Detailed analysis and discussion of the environmental risk associated with contaminant transport in these media was beyond the scope of this assessment.

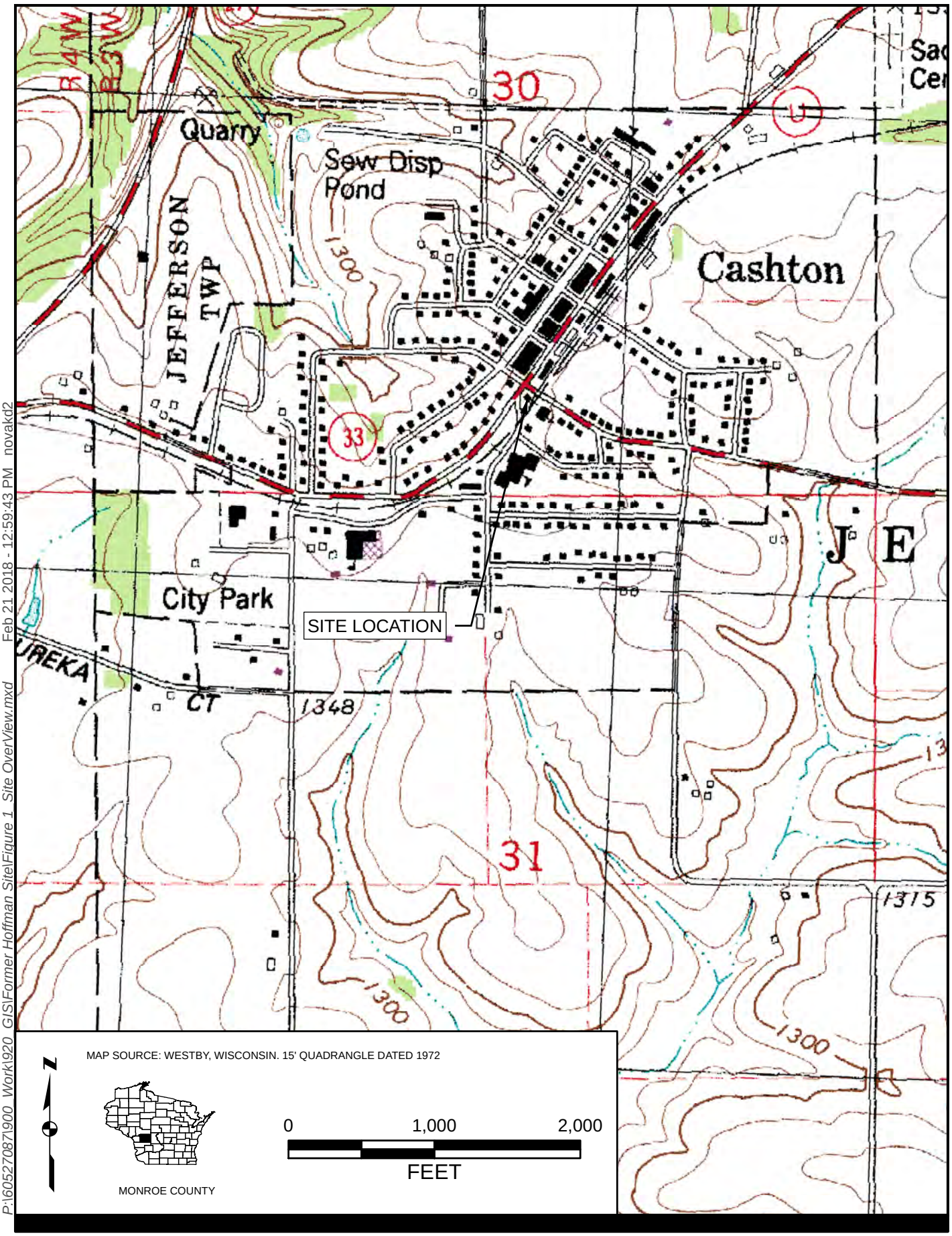
The findings, conclusions, and opinion contained in this report are intended for exclusive use by WisDOT and are applicable only to this Phase 4. AECOM has no obligations to other persons or organizations that may use or rely upon this information.

# 6.0 References

AECOM, March 18, 2016, *Phase 2.5 Environmental Sampling Investigation, Former Hoffman's Mobile (Site 17)*, Village of Cashton, Wisconsin, BRRTS No. 03-42-001293

USGS, 1972. *Westby, Wis.*7.5-Minute Quadrangle.

# Figures




P:\60527087\900 Work\920 GIS\Former Hoffman Site\Figure 1 Site OverView.mxd Feb 21 2018 - 12:59:43 PM novakd2

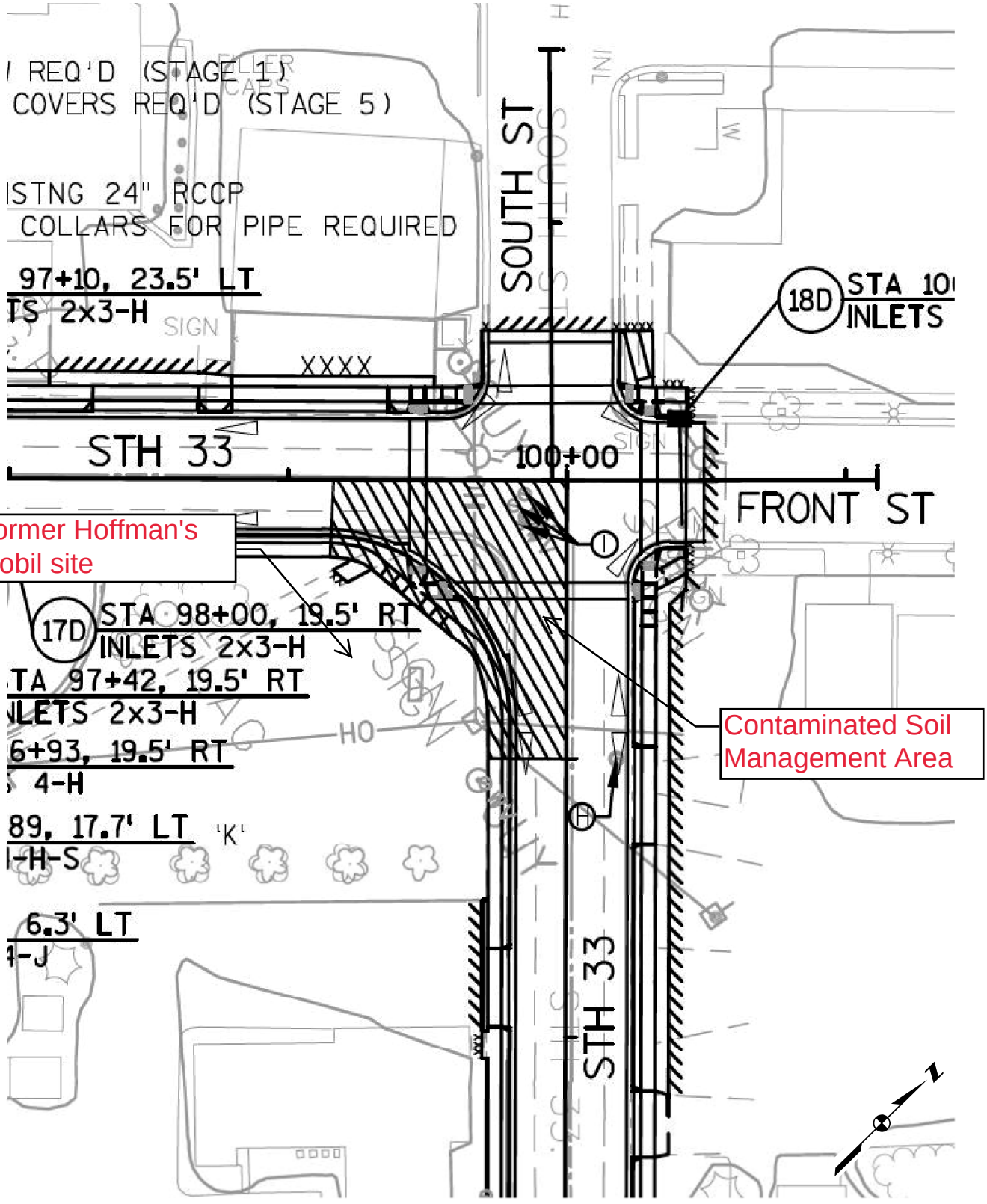
**SITE LOCATION MAP**

WisDOT Project NO. 5100-08-72
WDNR BRRTS No. 03-42-242013
Date: 2018/01

**PHASE 4 CONSTRUCTION REMEDIAL ACTION**
**FORMER HOFFMAN MOBIL**
**646 FRONT STREET (STH 33) VILLAGE OF CASHTON**
**MONROE COUNTY, WISCONSIN**

AECOM

**Figure: 1**




P:\605270871900 Work\920 GIS\Former Hoffman Site\Figure 2 Site Location.mxd Jan 31 2018 - 1:37:42 PM novakd2

**Site Plan**
WisDOT Project No. 5100-08-72
WDNR BRRTS No. 03-42-001293
Date: 2018/01

**Phase 4 Construction Remedial Action**
**Former Hoffman's Mobil**
**646 Front Street (STH 33), Village of Cashton**
**Monore County, Wisconsin**

AECOM

**Figure: 2**

# Appendices

# Appendix A

## Photograph Log

AECOM

# PHOTOGRAPH LOG

| **Site Name:** Former Hoffman's Mobil | **Site Location:** 646 Front Street (STH 33), Village of Cashton, Monroe County, Wisconsin | **Project No.** 60527087 |
|---|---|---|

| **Photo No.** 1 | **Date:** 7/10/17 |
|---|---|

**Direction Photo Taken:**

Northwest

**Description:**

Photo of excavation activities adjacent to the Former Hoffman's Mobil site.


| **Photo No.** 2 | **Date:** 7/10/17 |
|---|---|

**Direction Photo Taken:**

Northeast

**Description:**

Photo of excavation activities adjacent to the Former Hoffman's Mobil site.

AECOM

# PHOTOGRAPH LOG

| | | |
|---|---|---|
| **Site Name:** Former Hoffman's Mobil | **Site Location:** 191 Front Street (STH 33), Village of Cashton, Monroe County, Wisconsin | **Project No.** 60527087 |

| **Photo No.** | **Date:** |
|---|---|
| **3** | 7/10/17 |

**Direction Photo Taken:**

East

**Description:**

Photo of excavation activities adjacent to the Former Hoffman's Mobil site.


| **Photo No.** | **Date:** |
|---|---|
| **4** | 7/10/17 |

**Direction Photo Taken:**

Northeast

**Description:**

Photo of excavation activities adjacent to the Former Hoffman's Mobil site.

# Appendix B

## Soil Gas Monitoring

# Soil Gas Monitoring

| | |
|---|---|
| PID Model: | Process Analyzers DL-102 |
| Probe: | 10.2 eV Lamp |
| Calibration Gas: | 100 parts per million Isobutylene/Air |

The PID was calibrated before and after sampling was conducted.

Soil gas readings for representative samples taken from the excavator bucket were obtained using the headspace method. Soil samples were placed in plastic Ziploc bags and the air in each bag was allowed to equilibrate with the soil sample for up to 30 minutes. If the outside air temperature was below 70 degrees Fahrenheit, the soil samples were heated. The PID probe was then inserted into the bag headspace and the instrument reading was recorded in field notes.

# Appendix C

## Soil Disposal Tally

# La Crosse County Solid Waste - Current

## Detailed Tonnage and Charge Report

**Order: by Job (sw417-01) Type: All**

**From 04/07/2017 to 10/18/2017**

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 867067 | 06/23/2017 | 745 | 27 | 13U | 19.54 | 24.00 | 0.00 | $0.00 | $0.00 | $468.96 | $0.00 |
| A | 867075 | 06/23/2017 | 745 | 39 | 13U | 19.50 | 24.00 | 0.00 | $0.00 | $0.00 | $468.00 | $0.00 |
| A | 867076 | 06/23/2017 | 745 | 44 | 13U | 18.56 | 24.00 | 0.00 | $0.00 | $0.00 | $445.44 | $0.00 |
| A | 867078 | 06/23/2017 | 745 | 46 | 13U | 20.39 | 24.00 | 0.00 | $0.00 | $0.00 | $489.36 | $0.00 |
| A | 867081 | 06/23/2017 | 745 | 35 | 13U | 20.68 | 24.00 | 0.00 | $0.00 | $0.00 | $496.32 | $0.00 |
| A | 867087 | 06/23/2017 | 745 | 48 | 13U | 20.00 | 24.00 | 0.00 | $0.00 | $0.00 | $480.00 | $0.00 |
| A | 867090 | 06/23/2017 | 745 | 50 | 13U | 19.54 | 24.00 | 0.00 | $0.00 | $0.00 | $468.96 | $0.00 |
| A | 867093 | 06/23/2017 | 745 | 6 | 13U | 19.03 | 24.00 | 0.00 | $0.00 | $0.00 | $456.72 | $0.00 |
| A | 867100 | 06/23/2017 | 745 | 11 | 13U | 21.47 | 24.00 | 0.00 | $0.00 | $0.00 | $515.28 | $0.00 |
| A | 867103 | 06/23/2017 | 745 | 32 | 13U | 20.40 | 24.00 | 0.00 | $0.00 | $0.00 | $489.60 | $0.00 |
| A | 867109 | 06/23/2017 | 745 | 23 | 13U | 19.95 | 24.00 | 0.00 | $0.00 | $0.00 | $478.80 | $0.00 |
| A | 867114 | 06/23/2017 | 745 | 14 | 13U | 18.49 | 24.00 | 0.00 | $0.00 | $0.00 | $443.76 | $0.00 |
| A | 867116 | 06/23/2017 | 745 | 27 | 13U | 20.02 | 24.00 | 0.00 | $0.00 | $0.00 | $480.48 | $0.00 |
| A | 867119 | 06/23/2017 | 745 | 39 | 13U | 20.23 | 24.00 | 0.00 | $0.00 | $0.00 | $485.52 | $0.00 |
| A | 867120 | 06/23/2017 | 745 | 44 | 13U | 19.55 | 24.00 | 0.00 | $0.00 | $0.00 | $469.20 | $0.00 |
| A | 867121 | 06/23/2017 | 745 | 46 | 13U | 20.84 | 24.00 | 0.00 | $0.00 | $0.00 | $500.16 | $0.00 |
| A | 867125 | 06/23/2017 | 745 | 35 | 13U | 20.08 | 24.00 | 0.00 | $0.00 | $0.00 | $481.92 | $0.00 |
| A | 867133 | 06/23/2017 | 745 | 48 | 13U | 21.66 | 24.00 | 0.00 | $0.00 | $0.00 | $519.84 | $0.00 |
| A | 867134 | 06/23/2017 | 745 | 50 | 13U | 19.83 | 24.00 | 0.00 | $0.00 | $0.00 | $475.92 | $0.00 |
| A | 867138 | 06/23/2017 | 745 | 6 | 13U | 21.41 | 24.00 | 0.00 | $0.00 | $0.00 | $513.84 | $0.00 |
| A | 867142 | 06/23/2017 | 745 | 11 | 13U | 21.17 | 24.00 | 0.00 | $0.00 | $0.00 | $508.08 | $0.00 |
| A | 867147 | 06/23/2017 | 745 | 23 | 13U | 19.87 | 24.00 | 0.00 | $0.00 | $0.00 | $476.88 | $0.00 |
| A | 867148 | 06/23/2017 | 745 | 14 | 13U | 20.59 | 24.00 | 0.00 | $0.00 | $0.00 | $494.16 | $0.00 |
| A | 867156 | 06/23/2017 | 745 | 27 | 13U | 21.16 | 24.00 | 0.00 | $0.00 | $0.00 | $507.84 | $0.00 |
| A | 868589 | 07/05/2017 | 745 | 3 | 13U | 22.29 | 24.00 | 0.00 | $0.00 | $0.00 | $534.96 | $0.00 |
| A | 868589 | 07/05/2017 | 745 | 3 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868597 | 07/05/2017 | 745 | 50 | 13U | 23.27 | 24.00 | 0.00 | $0.00 | $0.00 | $558.48 | $0.00 |
| A | 868597 | 07/05/2017 | 745 | 50 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868599 | 07/05/2017 | 745 | 32 | 13U | 22.36 | 24.00 | 0.00 | $0.00 | $0.00 | $536.64 | $0.00 |
| A | 868599 | 07/05/2017 | 745 | 32 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868618 | 07/05/2017 | 745 | 3 | 13U | 23.63 | 24.00 | 0.00 | $0.00 | $0.00 | $567.12 | $0.00 |
| A | 868646 | 07/06/2017 | 745 | 28 | 13U | 21.43 | 24.00 | 0.00 | $0.00 | $0.00 | $514.32 | $0.00 |
| A | 868646 | 07/06/2017 | 745 | 28 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868652 | 07/06/2017 | 745 | 31 | 13U | 22.18 | 24.00 | 0.00 | $0.00 | $0.00 | $532.32 | $0.00 |
| A | 868652 | 07/06/2017 | 745 | 31 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868655 | 07/06/2017 | 745 | 50 | 13U | 23.22 | 24.00 | 0.00 | $0.00 | $0.00 | $557.28 | $0.00 |
| A | 868657 | 07/06/2017 | 745 | 48 | 13U | 21.52 | 24.00 | 0.00 | $0.00 | $0.00 | $516.48 | $0.00 |

184.9

# La Crosse County Solid Waste - Current

## Detailed Tonnage and Charge Report

**Order: by Job (sw417-01) Type: All**

**From 04/07/2017 to 10/18/2017**

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 868657 | 07/06/2017 | 745 | 48 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868661 | 07/06/2017 | 745 | 3 | 13U | 23.63 | 24.00 | 0.00 | $0.00 | $0.00 | $567.12 | $0.00 |
| A | 868662 | 07/06/2017 | 745 | 11 | 13U | 22.52 | 24.00 | 0.00 | $0.00 | $0.00 | $540.48 | $0.00 |
| A | 868662 | 07/06/2017 | 745 | 11 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 868665 | 07/06/2017 | 745 | 32 | 13U | 23.75 | 24.00 | 0.00 | $0.00 | $0.00 | $570.00 | $0.00 |
| A | 868674 | 07/06/2017 | 745 | 28 | 13U | 22.20 | 24.00 | 0.00 | $0.00 | $0.00 | $532.80 | $0.00 |
| A | 868677 | 07/06/2017 | 745 | 31 | 13U | 23.87 | 24.00 | 0.00 | $0.00 | $0.00 | $572.88 | $0.00 |
| A | 868685 | 07/06/2017 | 745 | 50 | 13U | 23.61 | 24.00 | 0.00 | $0.00 | $0.00 | $566.64 | $0.00 |
| A | 868689 | 07/06/2017 | 745 | 48 | 13U | 23.74 | 24.00 | 0.00 | $0.00 | $0.00 | $569.76 | $0.00 |
| A | 868696 | 07/06/2017 | 745 | 11 | 13U | 24.65 | 24.00 | 0.00 | $0.00 | $0.00 | $591.60 | $0.00 |
| A | 868945 | 07/07/2017 | 745 | 28 | 13U | 24.36 | 24.00 | 0.00 | $0.00 | $0.00 | $584.64 | $0.00 |
| A | 869070 | 07/10/2017 | 745 | 31 | 13U | 25.07 | 24.00 | 0.00 | $0.00 | $0.00 | $601.68 | $0.00 |
| A | 869076 | 07/10/2017 | 745 | 3 | 13U | 24.88 | 24.00 | 0.00 | $0.00 | $0.00 | $597.12 | $0.00 |
| A | 869076 | 07/10/2017 | 745 | 3 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 869114 | 07/10/2017 | 745 | 31 | 13U | 24.36 | 24.00 | 0.00 | $0.00 | $0.00 | $584.64 | $0.00 |
| A | 869121 | 07/10/2017 | 745 | 3 | 13U | 28.04 | 24.00 | 0.00 | $0.00 | $0.00 | $672.96 | $0.00 |
| A | 872710 | 08/07/2017 | 745 | 31 | 13U | 25.85 | 24.00 | 0.00 | $0.00 | $0.00 | $620.40 | $0.00 |
| A | 872710 | 08/07/2017 | 745 | 31 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872715 | 08/07/2017 | 745 | 18 | 13U | 26.49 | 24.00 | 0.00 | $0.00 | $0.00 | $635.76 | $0.00 |
| A | 872715 | 08/07/2017 | 745 | 18 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872717 | 08/07/2017 | 745 | 3 | 13U | 27.99 | 24.00 | 0.00 | $0.00 | $0.00 | $671.76 | $0.00 |
| A | 872717 | 08/07/2017 | 745 | 3 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872724 | 08/07/2017 | 745 | 33 | 13U | 27.51 | 24.00 | 0.00 | $0.00 | $0.00 | $660.24 | $0.00 |
| A | 872724 | 08/07/2017 | 745 | 33 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872731 | 08/07/2017 | 745 | 32 | 13U | 24.73 | 24.00 | 0.00 | $0.00 | $0.00 | $593.52 | $0.00 |
| A | 872731 | 08/07/2017 | 745 | 32 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872733 | 08/07/2017 | 745 | 48 | 13U | 23.98 | 24.00 | 0.00 | $0.00 | $0.00 | $575.52 | $0.00 |
| A | 872733 | 08/07/2017 | 745 | 48 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872737 | 08/07/2017 | 745 | 44 | 13U | 23.54 | 24.00 | 0.00 | $0.00 | $0.00 | $564.96 | $0.00 |
| A | 872737 | 08/07/2017 | 745 | 44 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872740 | 08/07/2017 | 745 | 23 | 13U | 23.28 | 24.00 | 0.00 | $0.00 | $0.00 | $558.72 | $0.00 |
| A | 872740 | 08/07/2017 | 745 | 23 | P3 | 1.00 | 25.00 | 0.00 | $0.00 | $0.00 | $25.00 | $0.00 |
| A | 872758 | 08/07/2017 | 745 | 31 | 13U | 25.51 | 24.00 | 0.00 | $0.00 | $0.00 | $612.24 | $0.00 |
| A | 872769 | 08/07/2017 | 745 | 18 | 13U | 24.37 | 24.00 | 0.00 | $0.00 | $0.00 | $584.88 | $0.00 |
| A | 872773 | 08/07/2017 | 745 | 33 | 13U | 24.03 | 24.00 | 0.00 | $0.00 | $0.00 | $576.72 | $0.00 |
| A | 872780 | 08/07/2017 | 745 | 32 | 13U | 20.83 | 24.00 | 0.00 | $0.00 | $0.00 | $499.92 | $0.00 |
| A | 872784 | 08/07/2017 | 745 | 48 | 13U | 23.55 | 24.00 | 0.00 | $0.00 | $0.00 | $565.20 | $0.00 |

293.32

# Appendix D

## Landfill Disposal Approval

**SPECIAL WASTE MANIFEST (NON-HAZARDOUS)**

**PETROLEUM CONTAMINATED SOIL EXCAVATION**
**STH 33 CONSTRUCTION**
**VILLAGE OF CASHTON, MONROE COUNTY, WISCONSIN**
**WISDOT PROJECT ID No. 5100-08-72**

**LA CROSSE COUNTY SOLID WASTE DEPT. APPROVAL No. SW417-01**

LOAD DESTINATION: La Crosse County Landfill, 6500 State Road 16, La Crosse, WI 54601

P:\60527087\400_Technical\432_Haz_Mat\La Crosse County Landfill\Load Approval Sheet.docx

| | |
|---|---|
| **From:** | Randy Nedrelo |
| **To:** | Wagoner, Kyle |
| **Cc:** | (Stephan.Vetsch@dot.wi.gov); Ron Overlien (rdo@gerkeexcavating.com); Eagan, Phil; VanderWielen, Anthony - DOT |
| **Subject:** | RE: Special Waste Disposal Application - STH 33 Construction, Village of Cashton, WI (WisDOT #5100-08-72) |
| **Date:** | Thursday, April 20, 2017 3:29:39 PM |

Kyle

The soil is approved for alternative daily cover at a price of $24/ton. Please have all drivers use the reference number **SW417-01** when delivering this soil.

Randy Nedrelo
Special Waste Manager/Deputy Director
La Crosse County Solid Waste Dept.
6500 State Road 16
La Crosse, WI 54601
Phone: 608-789-7857
Cell: 608-406-0542
**Web Site:** http://www.co.la-crosse.wi.us/SolidWaste

**Wisconsin Green Tier Participant**

---

**From:** Wagoner, Kyle [mailto:KYLE.WAGONER@aecom.com]
**Sent:** Thursday, April 20, 2017 9:27 AM
**To:** Randy Nedrelo <rnedrelo@lacrossecounty.org>
**Cc:** (Stephan.Vetsch@dot.wi.gov) <Stephan.Vetsch@dot.wi.gov>; Ron Overlien (rdo@gerkeexcavating.com) <rdo@gerkeexcavating.com>; Eagan, Phil <PHIL.EAGAN@aecom.com>; VanderWielen, Anthony - DOT <Anthony.VanderWielen@dot.wi.gov>
**Subject:** Special Waste Disposal Application - STH 33 Construction, Village of Cashton, WI (WisDOT #5100-08-72)

Randy-

The completed special waste disposal application is attached. Please contact me again if you should need anything else.

Kyle

**Kyle Wagoner, P.G., CHMM**
Project Manager
Environment
D 715.342.3038
Internal Cisco Extension 2103038
kyle.wagoner@aecom.com

-

**AECOM**
200 Indiana Avenue, Stevens Point, WI 54481
T 715.341.8110 F 715.341.7390

---

**From:** Randy Nedrelo [mailto:rnedrelo@lacrossecounty.org]
**Sent:** Wednesday, April 19, 2017 9:26 AM
**To:** Wagoner, Kyle
**Subject:** RE: Waste Characterization for Petroleum Contaminated Soil (non-haz) - STH 33 Construction, Village of Cashton, WI (WisDOT #5100-08-72)

Kyle

Please complete and return to me.

Randy Nedrelo
Special Waste Manager/Deputy Director
La Crosse County Solid Waste Dept.
6500 State Road 16
La Crosse, WI 54601
Phone: 608-789-7857
Cell: 608-406-0542
**Web Site:** http://www.co.la-crosse.wi.us/SolidWaste

**Wisconsin Green Tier Participant**

---

**From:** Wagoner, Kyle [mailto:KYLE.WAGONER@aecom.com]
**Sent:** Tuesday, April 18, 2017 5:08 PM
**To:** Randy Nedrelo <rnedrelo@lacrossecounty.org>
**Cc:** (Stephan.Vetsch@dot.wi.gov) <Stephan.Vetsch@dot.wi.gov>; Ron Overlien (rdo@gerkeexcavating.com) <rdo@gerkeexcavating.com>; Eagan, Phil <PHIL.EAGAN@aecom.com>; VanderWielen, Anthony - DOT <Anthony.VanderWielen@dot.wi.gov>
**Subject:** Waste Characterization for Petroleum Contaminated Soil (non-haz) - STH 33 Construction, Village of Cashton, WI (WisDOT #5100-08-72)
**Importance:** High

Randy-

The attached Pace lab report is for a representative waste characterization sample collected by AECOM on April 4, 2017, from this WisDOT construction project in Cashton (Monroe County). The reconstruction of STH 33 is anticipated to begin in May 2017. We currently estimate 2,000 to 3,000 tons of petroleum contaminated soil to be excavated from the construction project this year.

The general contractor, Gerke Excavating Inc., is planning to haul the non-haz contaminated soil to La Crosse County Landfill, which is closest to the project. Gerke will pay the tipping fees per their contract with WisDOT. Gerke's contact info:

*Ron Overlien*
*Project Manager*
*Gerke Excavating Inc.*
*15341 State Hwy. 131, Tomah, WI 54660*
*Phone: 608-343-3025*
*Email: rdo@gerkeexcavating.com*

AECOM will serve as the environmental consultant, under contract to WisDOT, during construction. Please let me know if you have any Q's or need anything else.

Kyle

**Kyle Wagoner, P.G., CHMM**
Project Manager
Environment
D 715.342.3038
Internal Cisco Extension 2103038
kyle.wagoner@aecom.com

**AECOM**
200 Indiana Avenue, Stevens Point, WI 54481
T 715.341.8110 F 715.341.7390

---

**From:** Randy Nedrelo [mailto:rnedrelo@lacrossecounty.org]
**Sent:** Wednesday, November 30, 2016 12:47 PM
**To:** Wagoner, Kyle
**Subject:** RE: Waste Characterization Parameters for Petroleum Contaminated Soil? - STH 33, Village of Cashton, WI (WisDOT #5100-08-02)

Kyle

We accept that contaminated soil at a rate of $30/ton for bioremediation. However, because of space concerns, I can't guarantee that we would be able to large quantities of soils with higher contamination levels.

Randy Nedrelo
Special Waste Manager/Deputy Director
La Crosse County Solid Waste Dept.
6500 State Road 16
La Crosse, WI 54601
Phone: 608-789-7857
Cell: 608-406-0542
**Web Site:** http://www.co.la-crosse.wi.us/SolidWaste

**Wisconsin Green Tier Participant**

---

**From:** Wagoner, Kyle [mailto:KYLE.WAGONER@aecom.com]
**Sent:** Wednesday, November 30, 2016 12:11 PM

**To:** Randy Nedrelo <rnedrelo@lacrossecounty.org>
**Subject:** RE: Waste Characterization Parameters for Petroleum Contaminated Soil? - STH 33, Village of Cashton, WI (WisDOT #5100-08-02)
**Importance:** High

Hi Randy…The STH 33 construction project in Cashton is scheduled to begin in May 2017. Regarding the landfill cut off limit for DRO + GRO in soil, what option(s) do we have if the contaminated soil exceeds 2,000 ppm?

Kyle

**Kyle Wagoner, P.G., CHMM**
Project Manager
Environment
D 715.342.3038
Internal Cisco Extension 2103038
kyle.wagoner@aecom.com

**AECOM**
200 Indiana Avenue, Stevens Point, WI 54481
T 715.341.8110 F 715.341.7390

---

**From:** Randy Nedrelo [mailto:rnedrelo@lacrossecounty.org]
**Sent:** Wednesday, December 02, 2015 8:44 AM
**To:** Wagoner, Kyle
**Subject:** RE: Waste Characterization Parameters for Petroleum Contaminated Soil? - STH 33, Village of Cashton, WI (WisDOT #5100-08-02)

If diesel or fuel oil is potentially present, a DRO would be required. The 2,000ppm cut off would apply to DRO + GRO.

Randy Nedrelo
Special Waste Manager/Deputy Director
La Crosse County Solid Waste Dept.
6500 State Road 16
La Crosse, WI 54601
Phone: 608-789-7857
Cell: 608-406-0542
**Web Site:** http://www.co.la-crosse.wi.us/SolidWaste

**Wisconsin Green Tier Participant**

---

**From:** Wagoner, Kyle [mailto:KYLE.WAGONER@aecom.com]
**Sent:** Wednesday, December 02, 2015 8:36 AM
**To:** Randy Nedrelo <rnedrelo@lacrossecounty.org>
**Subject:** RE: Waste Characterization Parameters for Petroleum Contaminated Soil? - STH 33, Village of Cashton, WI (WisDOT #5100-08-02)

Randy…Thanks for your quick reply. One of the petroleum contaminated sites is a former bulk petroleum storage plant that had large volume above ground tanks containing leaded/unleaded gasoline, diesel, and fuel oil. The tanks were removed many years ago. What would be the waste characterization parameters for contaminated soil at that type of site?

Kyle

---

**From:** Randy Nedrelo [mailto:rnedrelo@lacrossecounty.org]
**Sent:** Wednesday, December 02, 2015 8:17 AM
**To:** Wagoner, Kyle
**Subject:** RE: Waste Characterization Parameters for Petroleum Contaminated Soil? - STH 33, Village of Cashton, WI (WisDOT #5100-08-02)

Kyle

If the tanks are only gasoline, we would require GRO and lead. If the total lead is above 100 ppm a TCLP would be necessary.

The cut off for use as alternate daily (ADC) cover is 2,000 ppm for hydrocarbons. The charge for bioremediation is $30/ton. Next year the cost for ADC is $24/ton.

Randy Nedrelo
Special Waste Manager/Deputy Director
La Crosse County Solid Waste Dept.
6500 State Road 16
La Crosse, WI 54601
Phone: 608-789-7857
Cell: 608-406-0542
**Web Site:** http://www.co.la-crosse.wi.us/SolidWaste

**Wisconsin Green Tier Participant**

---

**From:** Wagoner, Kyle [mailto:KYLE.WAGONER@aecom.com]
**Sent:** Tuesday, December 01, 2015 5:01 PM
**To:** Randy Nedrelo <rnedrelo@lacrossecounty.org>
**Subject:** Waste Characterization Parameters for Petroleum Contaminated Soil? - STH 33, Village of Cashton, WI (WisDOT #5100-08-02)

Randy-

I'm assisting WisDOT with preparation of plans and specs for the reconstruction of STH 33 in the Village of Cashton (Monroe County). There are four LUST sites (ie, existing and former gasoline services stations) located along the project route where petroleum contaminated soil exceeding WI

non-industrial direct contact standards will be excavated during construction, roughly 200-300 CY of material. Construction is currently scheduled for 2017.

Unfortunately, the excavated contaminated soil can't be reused as fill within project limits, so we're looking for an off-site treatment/disposal option.

Q's-

1. What analytical parameters does La Crosse County LF need for waste characterization purposes for leaded and unleaded gasoline contaminated soil from LUST sites?

2. What is the per ton tipping fee for biopile treatment? For direct landfilling?

Sincerely,

Kyle

**Kyle Wagoner, P.G., CHMM**
Project Manager
Environment
D 715.342.3038
Internal Cisco Extension 2103038
kyle.wagoner@aecom.com

**AECOM**
200 Indiana Avenue, Stevens Point, WI 54481
T 715.341.8110 F 715.341.7390



PRIVATE AND CONFIDENTIAL
This e-mail and attachments are intended for the addressed recipient only. If you are not the correct recipient please notify the sender of the delivery error and delete this message. Improper disclosure, copying, distribution, retransmission, or use of information from this e-mail is Prohibited, and may result in liability and damages for misuse of this information.

PRIVATE AND CONFIDENTIAL
This e-mail and attachments are intended for the addressed recipient only. If you are not the correct recipient please notify the sender of the delivery error and delete this message. Improper disclosure, copying, distribution, retransmission, or use of information from this e-mail is Prohibited, and may result in liability and damages for misuse of this information.

PRIVATE AND CONFIDENTIAL
This e-mail and attachments are intended for the addressed recipient only. If you are not the correct recipient please notify the sender of the delivery

error and delete this message.  Improper disclosure, copying, distribution, retransmission, or use of information from this e-mail is Prohibited, and may result in liability and damages for misuse of this information.

PRIVATE AND CONFIDENTIAL
This e-mail and attachments are intended for the addressed recipient only. If you are not the correct recipient please notify the sender of the delivery error and delete this message.  Improper disclosure, copying, distribution, retransmission, or use of information from this e-mail is Prohibited, and may result in liability and damages for misuse of this information.

**Waste Characterization Analytical Results**
**Former Hoffman's Mobil**
**Village of Cashton, Wisconsin**
**WisDOT Project ID No. 5100-08-72**
**WDNR BRRTS No. 03-42-01293**

| | | | |
|---|---|---|---|
| | | **Sample ID:** | **Waste Characterization** |
| | | **Sample Date:** | **4/4/2017** |
| | | **Sample Matrix:** | **Soil** |
| | | **PID (i.u.)** | |
| **Parameter** | **Non-Industrial D-C RCL** | **RCL-gw** | **Analytical Results** |
| DRO (mg/kg) | NE | NE | 101 |
| GRO (mg/kg) | NE | NE | 46.4 |
| Benzene (µg/kg) | 1,600 | 5.1 | <50.0 |
| Lead (mg/kg) | 400 | NE | 7.3 |
| Percent Moisture | NE | NE | 17.4 |
| Flashpoint (deg F) | NE | NE | >210 |
| pH | NE | NE | 7.46 |
| Free Liquids | NE | NE | pass |

Notes:
Non-Industrial D-C RCL refers to the Not-To-Exceed, non-industrial Direct-Contact Residual Contaminant Levels taken from the WDNR's RCLs spreadsheet, updated January 2015.

RCL-gw refers to the Soil-to-Groundwater Residual Contaminant Level, DF = 2, taken from the WDNR's RCLs spreadsheet, updated December 2017.

**Bold** result indicates RCL exceedence.

P:\60527087\400_Technical\432_Haz_Mat\Former Hoffman Mobil Oversight\Tables\[Table 1 - Waste Characterization Sample.xlsx]Sheet1

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

April 18, 2017

WISDOT #5100-08-72
STH 33 - CARLTON, WI
WASTE CHARACTERIZATION
APRIL 2017

Kyle Wagoner
AECOM, Inc. - Stevens Point
200 INDIANA AVE
Stevens Point, WI 54481

RE: Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

Dear Kyle Wagoner:
Enclosed are the analytical results for sample(s) received by the laboratory on April 07, 2017. The results relate only to the samples included in this report. Results reported herein conform to the most current, applicable TNI/NELAC 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,

Christopher Hyska

Christopher Hyska
christopher.hyska@pacelabs.com
(920)469-2436
Project Manager

Enclosures

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## CERTIFICATIONS

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

**Green Bay Certification IDs**

1241 Bellevue Street, Green Bay, WI 54302
Florida/NELAP Certification #: E87948
Illinois Certification #: 200050
Kentucky UST Certification #: 82
Louisiana Certification #: 04168
Minnesota Certification #: 055-999-334
New York Certification #: 12064
North Dakota Certification #: R-150
Virginia VELAP ID: 460263
South Carolina Certification #: 83006001
Texas Certification #: T104704529-14-1
Wisconsin Certification #: 405132750
Wisconsin DATCP Certification #: 105-444
USDA Soil Permit #: P330-16-00157
Federal Fish & Wildlife Permit #: LE51774A-0

## REPORT OF LABORATORY ANALYSIS

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## ANALYTICAL RESULTS

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

**Sample: WASTE CHARACTERIZATION** **Lab ID: 40147962005** Collected: 04/04/17 11:30 Received: 04/07/17 09:45 Matrix: Solid

***Results reported on a "dry weight" basis and are adjusted for percent moisture, sample size and any dilutions.***

| Parameters | Results | Units | LOQ | LOD | DF | Prepared | Analyzed | CAS No. | Qual |
|---|---|---|---|---|---|---|---|---|---|
| **WIDRO GCS** | Analytical Method: WI MOD DRO Preparation Method: WI MOD DRO | | | | | | | | |
| Diesel Range Organics | **101** | mg/kg | 3.7 | 1.5 | 2 | 04/10/17 11:28 | 04/10/17 16:26 | | |
| **WIGRO GCV** | Analytical Method: WI MOD GRO Preparation Method: TPH GRO/PVOC WI ext. | | | | | | | | |
| Benzene | **<50.0** | ug/kg | 120 | 50.0 | 2 | 04/11/17 07:00 | 04/11/17 17:03 | 71-43-2 | D3,W |
| Gasoline Range Organics | **46.4** | mg/kg | 12.1 | 6.1 | 2 | 04/11/17 07:00 | 04/11/17 17:03 | | G+ |
| ***Surrogates*** | | | | | | | | | |
| a,a,a-Trifluorotoluene (S) | 102 | % | 80-120 | | 2 | 04/11/17 07:00 | 04/11/17 17:03 | 98-08-8 | |
| **6010 MET ICP** | Analytical Method: EPA 6010 Preparation Method: EPA 3050 | | | | | | | | |
| Lead | **7.3** | mg/kg | 1.5 | 0.49 | 1 | 04/12/17 13:55 | 04/17/17 12:29 | 7439-92-1 | |
| **Percent Moisture** | Analytical Method: ASTM D2974-87 | | | | | | | | |
| Percent Moisture | **17.4** | % | 0.10 | 0.10 | 1 | | 04/13/17 10:24 | | |
| **1010 Flashpoint,Closed Cup** | Analytical Method: EPA 1010 | | | | | | | | |
| Flashpoint | **>210** | deg F | | | 1 | | 04/12/17 12:20 | | |
| **9045 pH Soil** | Analytical Method: EPA 9045 | | | | | | | | |
| pH at 25 Degrees C | **7.46** | Std. Units | 0.100 | 0.0100 | 1 | | 04/14/17 09:35 | | H6 |
| **9095 Paint Filter Liquid Test** | Analytical Method: EPA 9095 | | | | | | | | |
| Free Liquids | **pass** | no units | | | 1 | | 04/12/17 09:29 | | |

## REPORT OF LABORATORY ANALYSIS

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252324 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 40147962001, 40147962003, 40147962004, 40147962005, 40147962006, 40147962007, 40147962008, 40147962009, 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021

METHOD BLANK: 1489110 Matrix: Solid
Associated Lab Samples: 40147962001, 40147962003, 40147962004, 40147962005, 40147962006, 40147962007, 40147962008, 40147962009, 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| 1,3,5-Trimethylbenzene | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| Benzene | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| Ethylbenzene | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| Gasoline Range Organics | mg/kg | <1.6 | 2.5 | 04/11/17 11:05 | |
| m&p-Xylene | ug/kg | <50.0 | 100 | 04/11/17 11:05 | |
| Methyl-tert-butyl ether | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| o-Xylene | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| Toluene | ug/kg | <25.0 | 50.0 | 04/11/17 11:05 | |
| a,a,a-Trifluorotoluene (S) | % | 102 | 80-120 | 04/11/17 11:05 | |

LABORATORY CONTROL SAMPLE & LCSD: 1489111 1489112

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | 1000 | 1120 | 1070 | 112 | 107 | 80-120 | 5 | 20 | |
| 1,3,5-Trimethylbenzene | ug/kg | 1000 | 1080 | 1030 | 108 | 103 | 80-120 | 5 | 20 | |
| Benzene | ug/kg | 1000 | 1070 | 1030 | 107 | 103 | 80-120 | 4 | 20 | |
| Ethylbenzene | ug/kg | 1000 | 1080 | 1030 | 108 | 103 | 80-120 | 4 | 20 | |
| Gasoline Range Organics | mg/kg | 10 | 9.7 | 10.8 | 97 | 108 | 80-120 | 11 | 20 | |
| m&p-Xylene | ug/kg | 2000 | 2160 | 2060 | 108 | 103 | 80-120 | 5 | 20 | |
| Methyl-tert-butyl ether | ug/kg | 1000 | 1000 | 961 | 100 | 96 | 80-120 | 4 | 20 | |
| o-Xylene | ug/kg | 1000 | 1090 | 1040 | 109 | 104 | 80-120 | 5 | 20 | |
| Toluene | ug/kg | 1000 | 1070 | 1020 | 107 | 102 | 80-120 | 4 | 20 | |
| a,a,a-Trifluorotoluene (S) | % | | | | 102 | 101 | 80-120 | | | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252325 Analysis Method: WI MOD GRO
QC Batch Method: TPH GRO/PVOC WI ext. Analysis Description: WIGRO Solid GCV
Associated Lab Samples: 40147962022, 40147962023, 40147962024, 40147962025, 40147962026, 40147962027, 40147962028, 40147962029, 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

METHOD BLANK: 1489113 Matrix: Solid
Associated Lab Samples: 40147962022, 40147962023, 40147962024, 40147962025, 40147962026, 40147962027, 40147962028, 40147962029, 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| 1,3,5-Trimethylbenzene | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| Benzene | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| Ethylbenzene | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| m&p-Xylene | ug/kg | <50.0 | 100 | 04/11/17 09:29 | |
| Methyl-tert-butyl ether | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| o-Xylene | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| Toluene | ug/kg | <25.0 | 50.0 | 04/11/17 09:29 | |
| a,a,a-Trifluorotoluene (S) | % | 98 | 80-120 | 04/11/17 09:29 | |

LABORATORY CONTROL SAMPLE & LCSD: 1489114 1489115

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/kg | 1000 | 1090 | 1080 | 109 | 108 | 80-120 | 2 | 20 | |
| 1,3,5-Trimethylbenzene | ug/kg | 1000 | 1080 | 1050 | 108 | 105 | 80-120 | 2 | 20 | |
| Benzene | ug/kg | 1000 | 1070 | 1080 | 107 | 108 | 80-120 | 1 | 20 | |
| Ethylbenzene | ug/kg | 1000 | 1040 | 1030 | 104 | 103 | 80-120 | 2 | 20 | |
| m&p-Xylene | ug/kg | 2000 | 2080 | 2060 | 104 | 103 | 80-120 | 1 | 20 | |
| Methyl-tert-butyl ether | ug/kg | 1000 | 1020 | 1020 | 102 | 102 | 80-120 | 0 | 20 | |
| o-Xylene | ug/kg | 1000 | 1050 | 1030 | 105 | 103 | 80-120 | 1 | 20 | |
| Toluene | ug/kg | 1000 | 1060 | 1040 | 106 | 104 | 80-120 | 2 | 20 | |
| a,a,a-Trifluorotoluene (S) | % | | | | 98 | 98 | 80-120 | | | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252464 Analysis Method: WI MOD GRO
QC Batch Method: WI MOD GRO Analysis Description: WIGRO GCV Water
Associated Lab Samples: 40147962002, 40147962037

METHOD BLANK: 1489598 Matrix: Water
Associated Lab Samples: 40147962002, 40147962037

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/L | <0.42 | 1.0 | 04/12/17 08:56 | |
| 1,3,5-Trimethylbenzene | ug/L | <0.42 | 1.0 | 04/12/17 08:56 | |
| Benzene | ug/L | <0.40 | 1.0 | 04/12/17 08:56 | |
| Ethylbenzene | ug/L | <0.39 | 1.0 | 04/12/17 08:56 | |
| m&p-Xylene | ug/L | <0.80 | 2.0 | 04/12/17 08:56 | |
| Methyl-tert-butyl ether | ug/L | <0.48 | 1.0 | 04/12/17 08:56 | |
| Naphthalene | ug/L | <0.42 | 1.0 | 04/12/17 08:56 | |
| o-Xylene | ug/L | <0.45 | 1.0 | 04/12/17 08:56 | |
| Toluene | ug/L | <0.39 | 1.0 | 04/12/17 08:56 | |
| a,a,a-Trifluorotoluene (S) | % | 102 | 80-120 | 04/12/17 08:56 | |

LABORATORY CONTROL SAMPLE & LCSD: 1489599 1489600

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/L | 20 | 21.6 | 21.4 | 108 | 107 | 80-120 | 1 | 20 | |
| 1,3,5-Trimethylbenzene | ug/L | 20 | 20.9 | 20.9 | 105 | 104 | 80-120 | 0 | 20 | |
| Benzene | ug/L | 20 | 21.1 | 21.0 | 106 | 105 | 80-120 | 1 | 20 | |
| Ethylbenzene | ug/L | 20 | 21.2 | 21.0 | 106 | 105 | 80-120 | 1 | 20 | |
| m&p-Xylene | ug/L | 40 | 42.1 | 41.8 | 105 | 105 | 80-120 | 1 | 20 | |
| Methyl-tert-butyl ether | ug/L | 20 | 18.6 | 18.3 | 93 | 92 | 80-120 | 2 | 20 | |
| Naphthalene | ug/L | 20 | 20.3 | 20.6 | 101 | 103 | 80-120 | 1 | 20 | |
| o-Xylene | ug/L | 20 | 21.0 | 20.9 | 105 | 104 | 80-120 | 1 | 20 | |
| Toluene | ug/L | 20 | 21.0 | 20.9 | 105 | 105 | 80-120 | 0 | 20 | |
| a,a,a-Trifluorotoluene (S) | % | | | | 100 | 101 | 80-120 | | | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1490387 1490388

| Parameter | Units | 40147949007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1,2,4-Trimethylbenzene | ug/L | 1060 | 200 | 200 | 1380 | 1320 | 158 | 131 | 48-177 | 4 | 20 | |
| 1,3,5-Trimethylbenzene | ug/L | 236 | 200 | 200 | 477 | 466 | 120 | 115 | 73-145 | 2 | 20 | |
| Benzene | ug/L | <4.0 | 200 | 200 | 206 | 205 | 103 | 102 | 74-139 | 1 | 20 | |
| Ethylbenzene | ug/L | 534 | 200 | 200 | 768 | 738 | 117 | 102 | 74-140 | 4 | 20 | |
| m&p-Xylene | ug/L | 1050 | 400 | 400 | 1510 | 1470 | 116 | 105 | 55-165 | 3 | 20 | |
| Methyl-tert-butyl ether | ug/L | <4.8 | 200 | 200 | 182 | 172 | 91 | 86 | 80-120 | 6 | 20 | |
| Naphthalene | ug/L | 247 | 200 | 200 | 464 | 446 | 109 | 100 | 73-133 | 4 | 20 | |
| o-Xylene | ug/L | 326 | 200 | 200 | 556 | 534 | 115 | 104 | 73-136 | 4 | 20 | |
| Toluene | ug/L | 37.0 | 200 | 200 | 248 | 249 | 106 | 106 | 80-128 | 0 | 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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1490387 1490388

| Parameter | Units | 40147949007 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| a,a,a-Trifluorotoluene (S) | % | | | | | | 105 | 103 | 80-120 | | | |

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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252547 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 40147962003, 40147962004, 40147962005, 40147962006, 40147962007, 40147962008, 40147962009, 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021, 40147962022

METHOD BLANK: 1489914 Matrix: Solid
Associated Lab Samples: 40147962003, 40147962004, 40147962005, 40147962006, 40147962007, 40147962008, 40147962009, 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021, 40147962022

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Lead | mg/kg | <0.43 | 1.3 | 04/17/17 12:07 | |

LABORATORY CONTROL SAMPLE: 1489915

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Lead | mg/kg | 50 | 49.6 | 99 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489916 1489917

| Parameter | Units | 40147962003 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | mg/kg | 30.4 | 64.1 | 64.2 | 80.4 | 88.2 | 78 | 90 | 75-125 | 9 | 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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252558 Analysis Method: EPA 6010
QC Batch Method: EPA 3050 Analysis Description: 6010 MET
Associated Lab Samples: 40147962023, 40147962024, 40147962025, 40147962026, 40147962027, 40147962028, 40147962029, 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

METHOD BLANK: 1489972 Matrix: Solid
Associated Lab Samples: 40147962023, 40147962024, 40147962025, 40147962026, 40147962027, 40147962028, 40147962029, 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Lead | mg/kg | <0.43 | 1.3 | 04/14/17 11:45 | |

LABORATORY CONTROL SAMPLE: 1489973

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Lead | mg/kg | 50 | 48.5 | 97 | 80-120 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489974 1489975

| Parameter | Units | 40148069001 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Lead | mg/kg | 17.4 | 52 | 51.9 | 59.9 | 54.9 | 82 | 72 | 75-125 | 9 | 20 | M0 |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252494 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM
Associated Lab Samples: 40147962003, 40147962004, 40147962006, 40147962007, 40147962008, 40147962009

METHOD BLANK: 1489679 Matrix: Solid
Associated Lab Samples: 40147962003, 40147962004, 40147962006, 40147962007, 40147962008, 40147962009

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <4.0 | 13.4 | 04/12/17 14:53 | |
| 2-Methylnaphthalene | ug/kg | <5.0 | 16.7 | 04/12/17 14:53 | |
| Acenaphthene | ug/kg | <3.9 | 12.9 | 04/12/17 14:53 | |
| Acenaphthylene | ug/kg | <3.3 | 11.0 | 04/12/17 14:53 | |
| Anthracene | ug/kg | <5.7 | 19.0 | 04/12/17 14:53 | |
| Benzo(a)anthracene | ug/kg | <3.2 | 10.6 | 04/12/17 14:53 | |
| Benzo(a)pyrene | ug/kg | <2.5 | 8.4 | 04/12/17 14:53 | |
| Benzo(b)fluoranthene | ug/kg | <2.8 | 9.4 | 04/12/17 14:53 | |
| Benzo(g,h,i)perylene | ug/kg | <2.0 | 6.8 | 04/12/17 14:53 | |
| Benzo(k)fluoranthene | ug/kg | <2.5 | 8.4 | 04/12/17 14:53 | |
| Chrysene | ug/kg | <3.4 | 11.2 | 04/12/17 14:53 | |
| Dibenz(a,h)anthracene | ug/kg | <2.2 | 7.4 | 04/12/17 14:53 | |
| Fluoranthene | ug/kg | <5.2 | 17.4 | 04/12/17 14:53 | |
| Fluorene | ug/kg | <4.1 | 13.8 | 04/12/17 14:53 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.2 | 7.3 | 04/12/17 14:53 | |
| Naphthalene | ug/kg | <8.4 | 28.1 | 04/12/17 14:53 | |
| Phenanthrene | ug/kg | <11.6 | 38.8 | 04/12/17 14:53 | |
| Pyrene | ug/kg | <4.5 | 15.0 | 04/12/17 14:53 | |
| 2-Fluorobiphenyl (S) | % | 71 | 26-130 | 04/12/17 14:53 | |
| Terphenyl-d14 (S) | % | 84 | 10-130 | 04/12/17 14:53 | |

LABORATORY CONTROL SAMPLE: 1489680

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | 333 | 256 | 77 | 48-130 | |
| 2-Methylnaphthalene | ug/kg | 333 | 251 | 75 | 49-130 | |
| Acenaphthene | ug/kg | 333 | 271 | 81 | 54-130 | |
| Acenaphthylene | ug/kg | 333 | 275 | 83 | 56-130 | |
| Anthracene | ug/kg | 333 | 278 | 84 | 70-130 | |
| Benzo(a)anthracene | ug/kg | 333 | 251 | 75 | 58-130 | |
| Benzo(a)pyrene | ug/kg | 333 | 304 | 91 | 58-130 | |
| Benzo(b)fluoranthene | ug/kg | 333 | 298 | 90 | 50-130 | |
| Benzo(g,h,i)perylene | ug/kg | 333 | 289 | 87 | 39-130 | |
| Benzo(k)fluoranthene | ug/kg | 333 | 312 | 94 | 57-130 | |
| Chrysene | ug/kg | 333 | 289 | 87 | 64-130 | |
| Dibenz(a,h)anthracene | ug/kg | 333 | 297 | 89 | 44-130 | |
| Fluoranthene | ug/kg | 333 | 287 | 86 | 59-130 | |
| Fluorene | ug/kg | 333 | 281 | 84 | 56-130 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | 333 | 302 | 91 | 45-130 | |
| Naphthalene | ug/kg | 333 | 254 | 76 | 46-130 | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

LABORATORY CONTROL SAMPLE: 1489680

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Phenanthrene | ug/kg | 333 | 281 | 84 | 56-130 | |
| Pyrene | ug/kg | 333 | 250 | 75 | 59-130 | |
| 2-Fluorobiphenyl (S) | % | | | 73 | 26-130 | |
| Terphenyl-d14 (S) | % | | | 71 | 10-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1489681 1489682

| Parameter | Units | 40147949016 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <5.0 | 418 | 418 | 305 | 326 | 73 | 78 | 41-130 | 7 | 24 | |
| 2-Methylnaphthalene | ug/kg | <6.3 | 418 | 418 | 301 | 334 | 72 | 80 | 42-130 | 10 | 25 | |
| Acenaphthene | ug/kg | <4.9 | 418 | 418 | 338 | 322 | 81 | 77 | 49-130 | 5 | 27 | |
| Acenaphthylene | ug/kg | <4.1 | 418 | 418 | 343 | 329 | 82 | 79 | 52-130 | 4 | 26 | |
| Anthracene | ug/kg | <7.2 | 418 | 418 | 352 | 331 | 84 | 79 | 61-130 | 6 | 29 | |
| Benzo(a)anthracene | ug/kg | <4.0 | 418 | 418 | 304 | 287 | 72 | 68 | 45-130 | 6 | 28 | |
| Benzo(a)pyrene | ug/kg | <3.1 | 418 | 418 | 368 | 349 | 88 | 83 | 39-130 | 5 | 34 | |
| Benzo(b)fluoranthene | ug/kg | <3.5 | 418 | 418 | 356 | 337 | 85 | 81 | 30-130 | 5 | 43 | |
| Benzo(g,h,i)perylene | ug/kg | <2.5 | 418 | 418 | 350 | 335 | 84 | 80 | 24-130 | 4 | 34 | |
| Benzo(k)fluoranthene | ug/kg | <3.1 | 418 | 418 | 373 | 358 | 89 | 86 | 41-130 | 4 | 32 | |
| Chrysene | ug/kg | <4.2 | 418 | 418 | 347 | 334 | 83 | 80 | 46-130 | 4 | 37 | |
| Dibenz(a,h)anthracene | ug/kg | <2.8 | 418 | 418 | 361 | 345 | 86 | 83 | 33-130 | 5 | 34 | |
| Fluoranthene | ug/kg | <6.5 | 418 | 418 | 351 | 330 | 84 | 79 | 41-130 | 6 | 25 | |
| Fluorene | ug/kg | <5.2 | 418 | 418 | 344 | 331 | 82 | 79 | 49-130 | 4 | 30 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.8 | 418 | 418 | 365 | 350 | 87 | 84 | 30-130 | 4 | 28 | |
| Naphthalene | ug/kg | <10.6 | 418 | 418 | 317 | 324 | 76 | 77 | 39-130 | 2 | 26 | |
| Phenanthrene | ug/kg | <14.6 | 418 | 418 | 345 | 337 | 83 | 81 | 47-130 | 2 | 26 | |
| Pyrene | ug/kg | <5.7 | 418 | 418 | 300 | 285 | 72 | 68 | 37-130 | 5 | 30 | |
| 2-Fluorobiphenyl (S) | % | | | | | | 61 | 65 | 26-130 | | | |
| Terphenyl-d14 (S) | % | | | | | | 59 | 62 | 10-130 | | | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252641 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM
Associated Lab Samples: 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021, 40147962023

METHOD BLANK: 1490534 Matrix: Solid
Associated Lab Samples: 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021, 40147962023

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <4.0 | 13.4 | 04/13/17 11:43 | |
| 2-Methylnaphthalene | ug/kg | <5.0 | 16.7 | 04/13/17 11:43 | |
| Acenaphthene | ug/kg | <3.9 | 12.9 | 04/13/17 11:43 | |
| Acenaphthylene | ug/kg | <3.3 | 11.0 | 04/13/17 11:43 | |
| Anthracene | ug/kg | <5.7 | 19.0 | 04/13/17 11:43 | |
| Benzo(a)anthracene | ug/kg | <3.2 | 10.6 | 04/13/17 11:43 | |
| Benzo(a)pyrene | ug/kg | <2.5 | 8.4 | 04/13/17 11:43 | |
| Benzo(b)fluoranthene | ug/kg | <2.8 | 9.4 | 04/13/17 11:43 | |
| Benzo(g,h,i)perylene | ug/kg | <2.0 | 6.8 | 04/13/17 11:43 | |
| Benzo(k)fluoranthene | ug/kg | <2.5 | 8.4 | 04/13/17 11:43 | |
| Chrysene | ug/kg | <3.4 | 11.2 | 04/13/17 11:43 | |
| Dibenz(a,h)anthracene | ug/kg | <2.2 | 7.4 | 04/13/17 11:43 | |
| Fluoranthene | ug/kg | <5.2 | 17.4 | 04/13/17 11:43 | |
| Fluorene | ug/kg | <4.1 | 13.8 | 04/13/17 11:43 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.2 | 7.3 | 04/13/17 11:43 | |
| Naphthalene | ug/kg | <8.4 | 28.1 | 04/13/17 11:43 | |
| Phenanthrene | ug/kg | <11.6 | 38.8 | 04/13/17 11:43 | |
| Pyrene | ug/kg | <4.5 | 15.0 | 04/13/17 11:43 | |
| 2-Fluorobiphenyl (S) | % | 69 | 26-130 | 04/13/17 11:43 | |
| Terphenyl-d14 (S) | % | 72 | 10-130 | 04/13/17 11:43 | |

LABORATORY CONTROL SAMPLE: 1490535

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | 333 | 244 | 73 | 48-130 | |
| 2-Methylnaphthalene | ug/kg | 333 | 243 | 73 | 49-130 | |
| Acenaphthene | ug/kg | 333 | 271 | 81 | 54-130 | |
| Acenaphthylene | ug/kg | 333 | 273 | 82 | 56-130 | |
| Anthracene | ug/kg | 333 | 280 | 84 | 70-130 | |
| Benzo(a)anthracene | ug/kg | 333 | 243 | 73 | 58-130 | |
| Benzo(a)pyrene | ug/kg | 333 | 291 | 87 | 58-130 | |
| Benzo(b)fluoranthene | ug/kg | 333 | 284 | 85 | 50-130 | |
| Benzo(g,h,i)perylene | ug/kg | 333 | 280 | 84 | 39-130 | |
| Benzo(k)fluoranthene | ug/kg | 333 | 292 | 88 | 57-130 | |
| Chrysene | ug/kg | 333 | 276 | 83 | 64-130 | |
| Dibenz(a,h)anthracene | ug/kg | 333 | 288 | 86 | 44-130 | |
| Fluoranthene | ug/kg | 333 | 279 | 84 | 59-130 | |
| Fluorene | ug/kg | 333 | 277 | 83 | 56-130 | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

LABORATORY CONTROL SAMPLE: 1490535

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | ug/kg | 333 | 295 | 89 | 45-130 | |
| Naphthalene | ug/kg | 333 | 256 | 77 | 46-130 | |
| Phenanthrene | ug/kg | 333 | 275 | 83 | 56-130 | |
| Pyrene | ug/kg | 333 | 240 | 72 | 59-130 | |
| 2-Fluorobiphenyl (S) | % | | | 72 | 26-130 | |
| Terphenyl-d14 (S) | % | | | 68 | 10-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1490536 1490537

| Parameter | Units | 40147962016 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <5.1 | 420 | 420 | 293 | 303 | 70 | 72 | 41-130 | 3 | 24 | |
| 2-Methylnaphthalene | ug/kg | <6.3 | 420 | 420 | 290 | 300 | 69 | 71 | 42-130 | 3 | 25 | |
| Acenaphthene | ug/kg | <4.9 | 420 | 420 | 333 | 341 | 79 | 81 | 49-130 | 2 | 27 | |
| Acenaphthylene | ug/kg | <4.2 | 420 | 420 | 334 | 347 | 79 | 82 | 52-130 | 4 | 26 | |
| Anthracene | ug/kg | <7.2 | 420 | 420 | 333 | 349 | 79 | 83 | 61-130 | 5 | 29 | |
| Benzo(a)anthracene | ug/kg | <4.0 | 420 | 420 | 279 | 291 | 66 | 69 | 45-130 | 4 | 28 | |
| Benzo(a)pyrene | ug/kg | <3.2 | 420 | 420 | 338 | 354 | 80 | 84 | 39-130 | 5 | 34 | |
| Benzo(b)fluoranthene | ug/kg | <3.6 | 420 | 420 | 323 | 352 | 77 | 84 | 30-130 | 9 | 43 | |
| Benzo(g,h,i)perylene | ug/kg | <2.6 | 420 | 420 | 324 | 337 | 77 | 80 | 24-130 | 4 | 34 | |
| Benzo(k)fluoranthene | ug/kg | <3.2 | 420 | 420 | 347 | 358 | 82 | 85 | 41-130 | 3 | 32 | |
| Chrysene | ug/kg | <4.3 | 420 | 420 | 323 | 340 | 77 | 81 | 46-130 | 5 | 37 | |
| Dibenz(a,h)anthracene | ug/kg | <2.8 | 420 | 420 | 331 | 343 | 79 | 82 | 33-130 | 4 | 34 | |
| Fluoranthene | ug/kg | <6.6 | 420 | 420 | 325 | 343 | 77 | 82 | 41-130 | 5 | 25 | |
| Fluorene | ug/kg | <5.2 | 420 | 420 | 332 | 346 | 79 | 82 | 49-130 | 4 | 30 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.8 | 420 | 420 | 337 | 354 | 80 | 84 | 30-130 | 5 | 28 | |
| Naphthalene | ug/kg | <10.6 | 420 | 420 | 316 | 327 | 75 | 78 | 39-130 | 3 | 26 | |
| Phenanthrene | ug/kg | <14.7 | 420 | 420 | 324 | 339 | 77 | 81 | 47-130 | 5 | 26 | |
| Pyrene | ug/kg | <5.7 | 420 | 420 | 281 | 298 | 67 | 71 | 37-130 | 6 | 30 | |
| 2-Fluorobiphenyl (S) | % | | | | | | 64 | 68 | 26-130 | | | |
| Terphenyl-d14 (S) | % | | | | | | 65 | 70 | 10-130 | | | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252642 Analysis Method: EPA 8270 by SIM
QC Batch Method: EPA 3546 Analysis Description: 8270/3546 MSSV PAH by SIM
Associated Lab Samples: 40147962024, 40147962025, 40147962026, 40147962027, 40147962028, 40147962029, 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

METHOD BLANK: 1490538 Matrix: Solid
Associated Lab Samples: 40147962024, 40147962025, 40147962026, 40147962027, 40147962028, 40147962029, 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <4.0 | 13.4 | 04/13/17 14:03 | |
| 2-Methylnaphthalene | ug/kg | <5.0 | 16.7 | 04/13/17 14:03 | |
| Acenaphthene | ug/kg | <3.9 | 12.9 | 04/13/17 14:03 | |
| Acenaphthylene | ug/kg | <3.3 | 11.0 | 04/13/17 14:03 | |
| Anthracene | ug/kg | <5.7 | 19.0 | 04/13/17 14:03 | |
| Benzo(a)anthracene | ug/kg | <3.2 | 10.6 | 04/13/17 14:03 | |
| Benzo(a)pyrene | ug/kg | <2.5 | 8.4 | 04/13/17 14:03 | |
| Benzo(b)fluoranthene | ug/kg | <2.8 | 9.4 | 04/13/17 14:03 | |
| Benzo(g,h,i)perylene | ug/kg | <2.0 | 6.8 | 04/13/17 14:03 | |
| Benzo(k)fluoranthene | ug/kg | <2.5 | 8.4 | 04/13/17 14:03 | |
| Chrysene | ug/kg | <3.4 | 11.2 | 04/13/17 14:03 | |
| Dibenz(a,h)anthracene | ug/kg | <2.2 | 7.4 | 04/13/17 14:03 | |
| Fluoranthene | ug/kg | <5.2 | 17.4 | 04/13/17 14:03 | |
| Fluorene | ug/kg | <4.1 | 13.8 | 04/13/17 14:03 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.2 | 7.3 | 04/13/17 14:03 | |
| Naphthalene | ug/kg | <8.4 | 28.1 | 04/13/17 14:03 | |
| Phenanthrene | ug/kg | <11.6 | 38.8 | 04/13/17 14:03 | |
| Pyrene | ug/kg | <4.5 | 15.0 | 04/13/17 14:03 | |
| 2-Fluorobiphenyl (S) | % | 85 | 26-130 | 04/13/17 14:03 | |
| Terphenyl-d14 (S) | % | 94 | 10-130 | 04/13/17 14:03 | |

LABORATORY CONTROL SAMPLE: 1490539

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | 333 | 280 | 84 | 48-130 | |
| 2-Methylnaphthalene | ug/kg | 333 | 279 | 84 | 49-130 | |
| Acenaphthene | ug/kg | 333 | 314 | 94 | 54-130 | |
| Acenaphthylene | ug/kg | 333 | 317 | 95 | 56-130 | |
| Anthracene | ug/kg | 333 | 322 | 97 | 70-130 | |
| Benzo(a)anthracene | ug/kg | 333 | 279 | 84 | 58-130 | |
| Benzo(a)pyrene | ug/kg | 333 | 335 | 101 | 58-130 | |
| Benzo(b)fluoranthene | ug/kg | 333 | 327 | 98 | 50-130 | |
| Benzo(g,h,i)perylene | ug/kg | 333 | 318 | 95 | 39-130 | |
| Benzo(k)fluoranthene | ug/kg | 333 | 345 | 104 | 57-130 | |
| Chrysene | ug/kg | 333 | 317 | 95 | 64-130 | |
| Dibenz(a,h)anthracene | ug/kg | 333 | 328 | 98 | 44-130 | |
| Fluoranthene | ug/kg | 333 | 322 | 97 | 59-130 | |
| Fluorene | ug/kg | 333 | 317 | 95 | 56-130 | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

LABORATORY CONTROL SAMPLE: 1490539

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Indeno(1,2,3-cd)pyrene | ug/kg | 333 | 334 | 100 | 45-130 | |
| Naphthalene | ug/kg | 333 | 294 | 88 | 46-130 | |
| Phenanthrene | ug/kg | 333 | 319 | 96 | 56-130 | |
| Pyrene | ug/kg | 333 | 275 | 83 | 59-130 | |
| 2-Fluorobiphenyl (S) | % | | | 83 | 26-130 | |
| Terphenyl-d14 (S) | % | | | 77 | 10-130 | |

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1490540 1490541

| Parameter | Units | 40147962034 Result | MS Spike Conc. | MSD Spike Conc. | MS Result | MSD Result | MS % Rec | MSD % Rec | % Rec Limits | RPD | Max RPD | Qual |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <5.1 | 423 | 423 | 335 | 305 | 79 | 72 | 41-130 | 9 | 24 | |
| 2-Methylnaphthalene | ug/kg | <6.4 | 423 | 423 | 333 | 303 | 78 | 72 | 42-130 | 9 | 25 | |
| Acenaphthene | ug/kg | <4.9 | 423 | 423 | 376 | 357 | 89 | 84 | 49-130 | 5 | 27 | |
| Acenaphthylene | ug/kg | <4.2 | 423 | 423 | 383 | 362 | 90 | 85 | 52-130 | 6 | 26 | |
| Anthracene | ug/kg | <7.3 | 423 | 423 | 377 | 377 | 89 | 89 | 61-130 | 0 | 29 | |
| Benzo(a)anthracene | ug/kg | <4.0 | 423 | 423 | 328 | 331 | 77 | 78 | 45-130 | 1 | 28 | |
| Benzo(a)pyrene | ug/kg | <3.2 | 423 | 423 | 397 | 400 | 94 | 94 | 39-130 | 1 | 34 | |
| Benzo(b)fluoranthene | ug/kg | <3.6 | 423 | 423 | 384 | 388 | 91 | 91 | 30-130 | 1 | 43 | |
| Benzo(g,h,i)perylene | ug/kg | <2.6 | 423 | 423 | 379 | 386 | 90 | 91 | 24-130 | 2 | 34 | |
| Benzo(k)fluoranthene | ug/kg | <3.2 | 423 | 423 | 406 | 413 | 96 | 97 | 41-130 | 2 | 32 | |
| Chrysene | ug/kg | <4.3 | 423 | 423 | 380 | 382 | 90 | 90 | 46-130 | 1 | 37 | |
| Dibenz(a,h)anthracene | ug/kg | <2.8 | 423 | 423 | 394 | 396 | 93 | 93 | 33-130 | 1 | 34 | |
| Fluoranthene | ug/kg | <6.6 | 423 | 423 | 371 | 376 | 88 | 89 | 41-130 | 1 | 25 | |
| Fluorene | ug/kg | <5.3 | 423 | 423 | 380 | 373 | 90 | 88 | 49-130 | 2 | 30 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.8 | 423 | 423 | 399 | 405 | 94 | 95 | 30-130 | 1 | 28 | |
| Naphthalene | ug/kg | <10.7 | 423 | 423 | 357 | 313 | 84 | 74 | 39-130 | 13 | 26 | |
| Phenanthrene | ug/kg | <14.8 | 423 | 423 | 372 | 380 | 88 | 90 | 47-130 | 2 | 26 | |
| Pyrene | ug/kg | <5.7 | 423 | 423 | 328 | 334 | 77 | 79 | 37-130 | 2 | 30 | |
| 2-Fluorobiphenyl (S) | % | | | | | | 74 | 66 | 26-130 | | | |
| Terphenyl-d14 (S) | % | | | | | | 71 | 70 | 10-130 | | | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 253014
QC Batch Method: EPA 3546
Associated Lab Samples: 40147962022

Analysis Method: EPA 8270 by SIM
Analysis Description: 8270/3546 MSSV PAH by SIM

METHOD BLANK: 1492824
Matrix: Solid
Associated Lab Samples: 40147962022

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | <4.0 | 13.4 | 04/18/17 11:18 | |
| 2-Methylnaphthalene | ug/kg | <5.0 | 16.7 | 04/18/17 11:18 | |
| Acenaphthene | ug/kg | <3.9 | 12.9 | 04/18/17 11:18 | |
| Acenaphthylene | ug/kg | <3.3 | 11.0 | 04/18/17 11:18 | |
| Anthracene | ug/kg | <5.7 | 19.0 | 04/18/17 11:18 | |
| Benzo(a)anthracene | ug/kg | <3.2 | 10.6 | 04/18/17 11:18 | |
| Benzo(a)pyrene | ug/kg | <2.5 | 8.4 | 04/18/17 11:18 | |
| Benzo(b)fluoranthene | ug/kg | <2.8 | 9.4 | 04/18/17 11:18 | |
| Benzo(g,h,i)perylene | ug/kg | <2.0 | 6.8 | 04/18/17 11:18 | |
| Benzo(k)fluoranthene | ug/kg | <2.5 | 8.4 | 04/18/17 11:18 | |
| Chrysene | ug/kg | <3.4 | 11.2 | 04/18/17 11:18 | |
| Dibenz(a,h)anthracene | ug/kg | <2.2 | 7.4 | 04/18/17 11:18 | |
| Fluoranthene | ug/kg | <5.2 | 17.4 | 04/18/17 11:18 | |
| Fluorene | ug/kg | <4.1 | 13.8 | 04/18/17 11:18 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | <2.2 | 7.3 | 04/18/17 11:18 | |
| Naphthalene | ug/kg | <8.4 | 28.1 | 04/18/17 11:18 | |
| Phenanthrene | ug/kg | <11.6 | 38.8 | 04/18/17 11:18 | |
| Pyrene | ug/kg | <4.5 | 15.0 | 04/18/17 11:18 | |
| 2-Fluorobiphenyl (S) | % | 39 | 26-130 | 04/18/17 11:18 | |
| Terphenyl-d14 (S) | % | 45 | 10-130 | 04/18/17 11:18 | |

LABORATORY CONTROL SAMPLE: 1492825

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| 1-Methylnaphthalene | ug/kg | 333 | 250 | 75 | 48-130 | |
| 2-Methylnaphthalene | ug/kg | 333 | 246 | 74 | 49-130 | |
| Acenaphthene | ug/kg | 333 | 282 | 85 | 54-130 | |
| Acenaphthylene | ug/kg | 333 | 285 | 85 | 56-130 | |
| Anthracene | ug/kg | 333 | 297 | 89 | 70-130 | |
| Benzo(a)anthracene | ug/kg | 333 | 257 | 77 | 58-130 | |
| Benzo(a)pyrene | ug/kg | 333 | 309 | 93 | 58-130 | |
| Benzo(b)fluoranthene | ug/kg | 333 | 310 | 93 | 50-130 | |
| Benzo(g,h,i)perylene | ug/kg | 333 | 281 | 84 | 39-130 | |
| Benzo(k)fluoranthene | ug/kg | 333 | 314 | 94 | 57-130 | |
| Chrysene | ug/kg | 333 | 295 | 88 | 64-130 | |
| Dibenz(a,h)anthracene | ug/kg | 333 | 290 | 87 | 44-130 | |
| Fluoranthene | ug/kg | 333 | 301 | 90 | 59-130 | |
| Fluorene | ug/kg | 333 | 290 | 87 | 56-130 | |
| Indeno(1,2,3-cd)pyrene | ug/kg | 333 | 296 | 89 | 45-130 | |
| Naphthalene | ug/kg | 333 | 261 | 78 | 46-130 | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

LABORATORY CONTROL SAMPLE: 1492825

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Phenanthrene | ug/kg | 333 | 296 | 89 | 56-130 | |
| Pyrene | ug/kg | 333 | 258 | 77 | 59-130 | |
| 2-Fluorobiphenyl (S) | % | | | 74 | 26-130 | |
| Terphenyl-d14 (S) | % | | | 72 | 10-130 | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252258
QC Batch Method: WI MOD DRO
Analysis Method: WI MOD DRO
Analysis Description: WIDRO GCS
Associated Lab Samples: 40147962005

METHOD BLANK: 1488837
Matrix: Solid
Associated Lab Samples: 40147962005

| Parameter | Units | Blank Result | Reporting Limit | Analyzed | Qualifiers |
|---|---|---|---|---|---|
| Diesel Range Organics | mg/kg | <0.80 | 2.0 | 04/10/17 14:51 | |

LABORATORY CONTROL SAMPLE & LCSD: 1488838 1488839

| Parameter | Units | Spike Conc. | LCS Result | LCSD Result | LCS % Rec | LCSD % Rec | % Rec Limits | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|---|---|---|---|
| Diesel Range Organics | mg/kg | 40 | 30.0 | 29.2 | 75 | 73 | 70-120 | 2 | 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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252644
QC Batch Method: ASTM D2974-87
Associated Lab Samples: 40147962005

Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture

SAMPLE DUPLICATE: 1490590

| Parameter | Units | 40148150002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 20.4 | 21.3 | 4 | 10 | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252734
QC Batch Method: ASTM D2974-87
Associated Lab Samples: 40147962029

Analysis Method: ASTM D2974-87
Analysis Description: Dry Weight/Percent Moisture

SAMPLE DUPLICATE: 1491154

| Parameter | Units | 40147962029 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 21.8 | 20.8 | 5 | 10 | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252916 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40147962003, 40147962004, 40147962006, 40147962007, 40147962008

SAMPLE DUPLICATE: 1492512

| Parameter | Units | 40147962003 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 22.3 | 20.6 | 8 | 10 | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252921 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40147962009, 40147962010, 40147962011, 40147962012, 40147962013, 40147962014, 40147962015, 40147962016, 40147962017, 40147962018, 40147962019, 40147962020, 40147962021, 40147962022, 40147962023, 40147962024, 40147962025, 40147962026, 40147962027, 40147962028

SAMPLE DUPLICATE: 1492523

| Parameter | Units | 40147962009 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 22.4 | 21.8 | 3 | 10 | |

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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252922 Analysis Method: ASTM D2974-87
QC Batch Method: ASTM D2974-87 Analysis Description: Dry Weight/Percent Moisture
Associated Lab Samples: 40147962030, 40147962031, 40147962032, 40147962033, 40147962034, 40147962035, 40147962036

SAMPLE DUPLICATE: 1492524

| Parameter | Units | 40147962030 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Percent Moisture | % | 22.7 | 22.8 | 0 | 10 | |

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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252485
QC Batch Method: EPA 1010
Analysis Method: EPA 1010
Analysis Description: 1010 Flash Point, Closed Cup
Associated Lab Samples: 40147962005

LABORATORY CONTROL SAMPLE: 1489652

| Parameter | Units | Spike Conc. | LCS Result | LCS % Rec | % Rec Limits | Qualifiers |
|---|---|---|---|---|---|---|
| Flashpoint | deg F | | 81.9 | | | |

SAMPLE DUPLICATE: 1490015

| Parameter | Units | 10384203001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Flashpoint | deg F | 72.9 | 72.9 | | | |

SAMPLE DUPLICATE: 1490073

| Parameter | Units | 40147821001 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Flashpoint | deg F | 72.9 | 72.9 | | | |

**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

Pace Analytical Services, LLC
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252766
QC Batch Method: EPA 9045
Analysis Method: EPA 9045
Analysis Description: 9045 pH
Associated Lab Samples: 40147962005

SAMPLE DUPLICATE: 1491268

| Parameter | Units | 40147608011 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| pH at 25 Degrees C | Std. Units | 7.93 | 7.96 | 0 | 5 | H6 |

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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

## QUALITY CONTROL DATA

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

QC Batch: 252486
QC Batch Method: EPA 9095
Analysis Method: EPA 9095
Analysis Description: 9095 PAINT FILTER LIQUID TEST
Associated Lab Samples: 40147962005

SAMPLE DUPLICATE: 1489653

| Parameter | Units | 40147670002 Result | Dup Result | RPD | Max RPD | Qualifiers |
|---|---|---|---|---|---|---|
| Free Liquids | no units | pass | pass | | | |

**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

Pace Analytical®
www.pacelabs.com

**Pace Analytical Services, LLC**
1241 Bellevue Street - Suite 9
Green Bay, WI 54302
(920)469-2436

# QUALIFIERS

Project: 60527087 FORMER MOBIL BULK
Pace Project No.: 40147962

## DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor and percent moisture.

LOQ - Limit of Quantitation adjusted for dilution factor and percent moisture.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

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 at or above the adjusted LOD.

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-G | Pace Analytical Services - Green Bay |

## ANALYTE QUALIFIERS

| | |
|---|---|
| D3 | Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference. |
| G+ | Late peaks present outside the GRO window. |
| H6 | Analysis initiated outside of the 15 minute EPA required holding time. |
| M0 | Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits. |
| S7 | Surrogate recovery outside control limits (not confirmed by re-analysis). |
| W | Non-detect results are reported on a wet weight basis. |

UPPER MIDWEST REGION
MN: 612-607-1700 WI: 920-469-2436

Pace Analytical®
www.pacelabs.com

mm.

40147902



# CHAIN OF CUSTODY

*Preservation Codes
A=None B=HCL C=H2SO4 D=HNO3 E=DI Water F=Methanol G=NaOH
H=Sodium Bisulfate Solution I=Sodium Thiosulfate J=Other

| (Please Print Clearly) | |
|---|---|
| Company Name: | AECOM |
| Branch/Location: | STEVENS POINT |
| Project Contact: | KYLE WAGONER |
| Phone: | 715-342-3038 |
| Project Number: | 60527087 |
| Project Name: | FORMER MOBIL BULK |
| Project State: | WI |
| Sampled By (Print): | PHIL EGGAN |
| Sampled By (Sign): | Phil Eggan |
| PO #: | Regulatory Program: |

| Quote #: | |
|---|---|
| Mail To Contact: | KYLE WAGONER |
| Mail To Company: | AECOM |
| Mail To Address: | 200 INDIANA AVE STEVENS POINT WI |
| Invoice To Contact: | SAME A |
| Invoice To Company: | |
| Invoice To Address: | |
| Invoice To Phone: | |

**Data Package Options** (billable)
☐ EPA Level III
☐ EPA Level IV

**MS/MSD**
☐ On your sample (billable)
☐ NOT needed on your sample

**Matrix Codes**
A = Air W = Water
B = Biota DW = Drinking Water
C = Charcoal GW = Ground Water
O = Oil SW = Surface Water
S = Soil WW = Waste Water
SI = Sludge WP = Wipe

FILTERED? (YES/NO) Y/N
PRESERVATION (CODE)* Pick Letter

| PACE LAB # | CLIENT FIELD ID | COLLECTION DATE | COLLECTION TIME | MATRIX | Analyses Requested: PVOCs | DAHs + TOTAL Pb | PVOCs + NAPHTHA, TOTAL Pb, TOTAL BENZ | DRO, GRO, pH, SOLIDS, % ACID, % ALKALINITY, FREE LIQUIDS | FLASH POINT | CLIENT COMMENTS | LAB COMMENTS (Lab Use Only) | Profile # |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 001 | MEOH BLANK | 4/4/17 | 10:10 | — | X | | | | | 1-40mlVF | | |
| 002 | TRIP BLANK | | 16:00 | — | | | X | | | 2-40mlVB | | |
| 003 | DP-1 3-4 | 4/4/17 | 11:05 | S | X | X | | | | 1-40mlVF | 1-4ozagA 1-4ozpA | |
| | ~~DP-1 3-4~~ | | 11:05 | | | X | | | | | | |
| | ~~DP-1 3-4~~ | | 11:05 | | | X | | | | | | |
| 004 | DP-1 7-8 | 4/4/17 | 11:10 | S | X | X | | | | 1-40mlVF | 1-4ozagA 1-4ozpA | |
| | ~~DP-1 7-8~~ | | 11:10 | | | X | | | | | | |
| | ~~DP-1 7-8~~ | | 11:10 | | | X | | | | | | |
| 005 | Waste Characterization + | 4/4/17 | 11:30 | S | | | X | X X X | | 2-8ozagA | 1-4ozagA 2-40mlVF | |
| 006 | DP-1 15-16 | 4/4/17 | 12:10 | | X | X | | | | 1-40mlVF | 1-4ozagA 1-4ozpA | |
| 007 | DP-2 3-4 + | 4/4/17 | 1:10 | | X | X | | | | | | |
| 008 | DP-2 9-10 | 4/4/17 | 1:25 | | X | X | | | | 1-40mlVF | 1-4ozagA 1-4ozpA | |
| 009 | DP-3 3-4 | 4/5/17 | 1:45 | | X | X | | | | | | |

Rush Turnaround Time Requested - Prelims
(Rush TAT subject to approval/surcharge)
Date Needed:

Transmit Prelim Rush Results by (complete what you want):

| | |
|---|---|
| Email #1: | |
| Email #2: | |
| Telephone: | |
| Fax: | |

Samples on HOLD are subject to special pricing and release of liability

| Relinquished By: | Date/Time: | Received By: | Date/Time: |
|---|---|---|---|
| Phil Eggan | 4/6/17 16:00 | | |
| Ted Gf | 4-7-17 0945 | Susan Uglee Pace | 4-7-17 0945 |
| | | | |
| | | | |
| | | | |

PACE Project No.
40147902

Receipt Temp = ROT °C
Sample Receipt pH OK / Adjusted
Cooler Custody Seal Present / ~~Not Present~~
Intact / Not Intact

Version 8.0 06/14/06

C019a(27Jun2006)

# Sample Condition Upon Receipt

Pace Analytical Services, Inc.
1241 Bellevue Street, Suite 9
Green Bay, WI 54302

Pace Analytical™

Project **WO# : 40147962**

40147962

**Client Name:** AECOM

**Courier:** ☐ Fed Ex ☒ UPS ☐ Client ☐ Pace Other:

**Tracking #:** 1ZA478E90393692897

**Custody Seal on Cooler/Box Present:** ☐ yes ☑ no Seals intact: ☐ yes ☐ no

**Custody Seal on Samples Present:** ☐ yes ☑ no Seals intact: ☐ yes ☐ no

**Packing Material:** ☑ Bubble Wrap ☑ Bubble Bags ☐ None ☐ Other

**Thermometer Used** N/A **Type of Ice:** (Wet) Blue Dry None ☒ Samples on ice, cooling process has begun

**Cooler Temperature** Uncorr: ROT /Corr: **Biological Tissue is Frozen:** ☐ yes ☐ no

**Temp Blank Present:** ☐ yes ☑ no

**Person examining contents:**
Date: 4-7-17
Initials: SW

Temp should be above freezing to 6°C for all sample except Biota.
Frozen Biota Samples should be received ≤ 0°C.

| | | | | **Comments:** |
|---|---|---|---|---|
| Chain of Custody Present: | ☑Yes | ☐No | ☐N/A | 1. |
| Chain of Custody Filled Out: | ☑Yes | ☐No | ☐N/A | 2. |
| Chain of Custody Relinquished: | ☑Yes | ☐No | ☐N/A | 3. |
| Sampler Name & Signature on COC: | ☑Yes | ☐No | ☐N/A | 4. |
| Samples Arrived within Hold Time: | ☑Yes | ☐No | ☐N/A | 5. |
| - VOA Samples frozen upon receipt | ☐Yes | ☐No | | Date/Time: |
| **Short Hold Time Analysis (<72hr):** | ☐Yes | ☑No | ☐N/A | 6. |
| **Rush Turn Around Time Requested:** | ☐Yes | ☑No | ☐N/A | 7. |
| Sufficient Volume: | ☑Yes | ☐No | ☐N/A | 8. |
| Correct Containers Used: | ☑Yes | ☐No | ☐N/A | 9. |
| -Pace Containers Used: | ☑Yes | ☐No | ☐N/A | |
| -Pace IR Containers Used: | ☐Yes | ☐No | ☑N/A | |
| Containers Intact: | ☑Yes | ☑No | ☐N/A | 10. 035 - poly container cracked 4717 mm |
| Filtered volume received for Dissolved tests | ☐Yes | ☐No | ☑N/A | 11. |
| Sample Labels match COC: | ☐Yes | ☑No | ☐N/A | 12. 004- collect time on sample is 1115. 4-7-17 SW |
| -Includes date/time/ID/Analysis Matrix: S+W | | | | |
| All containers needing preservation have been checked. (Non-Compliance noted in 13.) | ☐Yes | ☐No | ☑N/A | 13. ☐ HNO3 ☐ H2SO4 ☐ NaOH ☐ NaOH +ZnAct |
| All containers needing preservation are found to be in compliance with EPA recommendation. (HNO3, H2SO4 ≤2; NaOH+ZnAct ≥9, NaOH ≥12) | ☐Yes | ☐No | ☑N/A | |
| exceptions: VOA, coliform, TOC, TOX, TOH, O&G, WIDROW, Phenolics, OTHER: | ☑Yes | ☐No | | Initial when completed / Lab Std #ID of preservative / Date/ Time: |
| Headspace in VOA Vials ( >6mm): | ☐Yes | ☑No | ☐N/A | 14. |
| Trip Blank Present: | ☐Yes | ☑No | ☐N/A | 15. |
| Trip Blank Custody Seals Present | ☐Yes | ☐No | ☑N/A | |
| Pace Trip Blank Lot # (if purchased): | | | | |

**Client Notification/ Resolution:** If checked, see attached form for additional comments ☐

Person Contacted: Date/Time:

Comments/ Resolution:

2nd Cooler - Tracking # 1ZA478E90394347708 4-7-17 SW
035 - 3 vials a lot of sediment MM4717

**Project Manager Review:** CA **Date:** 4-7-17

AECOM

**About AECOM**

AECOM is built to deliver a better world. We design, build, finance, and operate infrastructure assets for governments, businesses, and organizations in more than 150 countries. As a fully integrated firm, we connect knowledge and experience across our global network of experts to help clients solve their most complex challenges. From high-performance buildings and infrastructure, to resilient communities and environments, to stable and secure nations, our work is transformative, differentiated and vital. A Fortune 500 firm, AECOM companies have annual revenue of approximately US$18 billion. See how we deliver what others can only imagine at aecom.com and @AECOM.

**Contact**
Kyle Wagoner, P.G., CHMM
kyle.wagoner@aecom.com
T 715.342.3038