MEC[X]
8864 Interchange Dr., Houston, TX 77054-2512
Phone (713) 585-7000 ● Fax (713) 585-7049

## LETTER OF TRANSMITTAL

| | |
|---|---|
| **To: Brad Hoare, AECOM** | **Date: September 05, 2018** |
| **Cc:** | **RE: Final Project Closeout Report** |
| **Contract No.: File No. 761/16014.BDH- Index No. 44501** | |
| **Project Name: Former Pullman Industries, Building Demolition and Impacted Soil Excavation** | |

**WE ARE SENDING YOU:**

☒ attached ☐ under separate cover the following:

☐ shop drawings ☐ prints ☐ standards ☐ specifications

☐ plans ☐ copy of letter ☐ ordinance ☐ other:

| COPIES | DOCUMENT | FORMAT | DESCRIPTION |
|---|---|---|---|
| 1 | Final Project Closeout Report | pdf | Final Project Closeout Report |
| | | | |
| | | | |
| | | | |

**THESE ARE TRANSMITTED AS CHECKED BELOW:**

☐ for approval ☒ approved as submitted ☐ resubmit ☐ copies for approval

☐ for your use ☐ approved as noted ☐ submit ☐ copies for distribution

☐ as requested ☐ returned for corrections ☐ return ☐ corrected prints

☐ for review and comment ☐ other:

**TRANSMITTAL FORMAT:**

☒ Electronic

☐ Paper

☐ Other:

**IF ENCLOSURES ARE NOT AS NOTED, KINDLY NOTIFY US AT ONCE**

Signed 

Title MEC[X] Project Manager

Comments/Notes:

| MECX Submittal Label | |
|---|---|
| **Submittal Number:** | 16-2 |
| **Contract #:** | File No. 761/16014.BDH- Index No. 44501 |
| **Project Name:** | Former Pullman Industries, Building Demolition and Impacted Soil Excavation |
| **Date:** | September 05, 2018 |
| **Client:** | State of Michigan |
| **Project Address:** | 40677 CR-388<br>Bloomingdale, Van Buren County, Michigan |
| **Subcontractor/Supplier:** | MECX, Inc. |
| **Subcontractor Address:** | |
| **Manufacturer:** | |
| **Number and Title of Specification Section:** | Final Project Closeout Report |
| **Drawing Number and Detail Reference:** | |
| **Signature:** | |

**MECX**
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| MEC$^X$ Submittal Review | |
|---|---|
| **Subcontractor Number:** | |
| **Subcontractor Task Order Number:** | |
| **Project Name:** | |
| **Date:** | |
| **Client:** | |
| **Client Address:** | |
| | |
| **Subcontractor:** | |
| **Subcontractor Address:** | |
| | |
| **Submittal Review Date:** | |
| **Approved as Submitted:** | |
| **Approved as Noted (resubmittal not required):** | |
| **Approved as Noted (resubmittal required):** | |
| **Disapproved:** | |
| **Signature:** | |

**MEC$^X$**
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Phone (713) 585-7000 ● Fax (713) 585-7049

# FINAL PROJECT CLOSEOUT REPORT

Building Demolition and Affected Soil Excavation
Former Pullman Industries
40677 East Kalamazoo Street (CR-388)
Bloomingdale Township, Van Buren County, Michigan

Facility I.D. #80000211
File No. 761/16014.BDH
Agency No. 761, Index No. 44501
MEC$^X$ Project No.: 1533.001R

**Prepared for:**
Department of Environmental Quality
State of Michigan

**05 SEPTEMBER 2018**

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## FIGURES



## TABLES



## ATTACHMENTS

# 1.0 INTRODUCTION

## 1.1 PROJECT LOCATION

The State of Michigan Department of Technology, Management and Budget (DTMB) State Facilities Administration, Design and Construction Division issued MEC$^X$, Inc. (MEC$^X$) a contract for the building demolition and affected soil excavation at a Former Pullman Industries facility located at 40677 East Kalamazoo Street (CR-388), Bloomingdale Township, Van Buren County, Michigan (referenced as the Site herein). The Site has Facility identification number 80000211, file number 761/16014.BDH, agency number 761 and index number 44501. The Michigan Department of Natural Resources (MDNR) Kal-Haven Trail to the south and a privately-owned property to the east are also included in the work described herein.

## 1.2 PURPOSE

The purpose of the project was to remove on-site structures and petroleum-affected soil from beneath the Site and adjacent properties.

## 1.3 PROJECT RESPONSIBLE PARTY, PROFESSIONAL AND CONTRACTOR

The State of Michigan is the owner of the Site. The Michigan Department of Environmental Quality (MDEQ) is the responsible party/waste generator.

The State of Michigan retained AECOM Technical Services, Inc. (AECOM) to serve as the Professional on the project. AECOM prepared the project specifications and provided oversight of MEC$^X$'s work at the Site on behalf of the State of Michigan.

MEC$^X$ served as the Contractor on the project, retained to perform building demolition and affected soil excavation activities at Site.

## 1.4 PROJECT MANAGEMENT

The following table summarizes key personnel that were involved with the project:

| Personnel | Company- Title |
|---|---|
| Dave Harn | MDEQ- Project Manager |
| Brad Hoare, P.G. | AECOM- Project Manager |
| James Janesak | AECOM- Field Supervisor |
| Steve Cervi | AECOM- Project Engineer |
| Isaac Aboulafia, P.E. | MEC$^X$- Program Manager |
| Larry Rader | MEC$^X$- On-site Field Superintendent |

### 1.5 SPECIFICATIONS

MEC$^X$ performed the scope of work in accordance with the project specifications prepared by AECOM and dated December 2016, with AECOM project number 60477048.

### 1.6 BASELINE SITE CONDITIONS

Baseline (pre-demolition/excavation) conditions at the Site consisted of paved areas, a severely deteriorated building remnant and two aboveground storage tanks (ASTs) and associated facilities. The Site was unoccupied and not in operation. The building remnant had asbestos-containing building materials (ACBM) that were abated prior to building demolition.

### 1.7 KAL-HAVEN TRAIL

MEC$^X$ completed excavation and restoration activities under a portion of the existing MDNR Kal-Haven hiking trail located adjacent to the south part of the Site.

### 1.8 EASTERN PROPERTY

MEC$^X$ completed aboveground storage tank (AST) demolition and soil excavation activities on the privately-owned property east of the Former Pullman Industries building.

# 2.0 SITE WORK

## 2.1 BASELINE AND AS-BUILT TOPOGRAPHICAL SURVEYS

MEC$^X$ contracted Prein & Newhof, a Michigan-licensed surveyor to perform a baseline topographical survey of the Site in accordance with the project specifications. The baseline survey was completed in May 2017. MEC$^X$ submitted the completed topographical survey to the Professional for use in establishing flow line elevations and the locations of the planned storm sewer replacement.

Prein & Newhof is scheduled to complete an as-built survey of the Site in September 2018. Once completed, MEC$^X$ will submit the as-built survey as an addendum to this report.

## 2.2 COUNTY ROADWAY PRE- AND POST-ASSESSMENT

On May 18, 2017, prior to the start of hauling activities to and from the Site, MEC$^X$ conducted a photo and video inspection/documentation of the county roads to be used for hauling with the Van Buren County Road Commission. The inspection included photo and video documentation of conditions on the following roads:

- 10 Avenue north from the intersection of 10$^{th}$ Avenue and CR-388 east to 40$^{th}$ Street;
- 40$^{th}$ Street from 10$^{th}$ Avenue north to the intersection of 40$^{th}$ Street and Highway 390 (4$^{th}$ Avenue)

On December 21, 2017, MEC$^X$ conducted a post-operations photo and video inspection/documentation of the same county roads with the Van Buren County Road Commission. No concerns related to road damage or needed repairs were identified by Van Buren County following completion of the project.

## 2.3 UTILITY LOCATIONS, REMOVALS AND TEMPORARY INSTALLATION

### 2.3.1 Utility Location

MEC$^X$ contracted Underground Detectives to identify and mark known utilities at the Site prior to our performing invasive excavation at the Site. Underground Detectives reviewed readily available drawings of utilities and utilized a variety of other methods (i.e., magnetic locator, ground-penetrating radar) to locate and mark utility locations across the Site.

### 2.3.2 Abandoned Utility Removals

MEC$^X$ plugged and removed abandoned underground utilities identified at the Site. MEC$^X$ also coordinated removal of the overhead electric lines and transformers with Indiana Michigan Power.

### 2.3.3 Temporary Utility Installation

MEC$^X$ installed temporary electrical services for the Site construction trailer and for the asbestos abatement activities. The temporary electric line was installed adjacent to the sanitary sewer lift station located in the northwest corner of the Site west of the asphalt pavement. A temporary electric panel was also installed adjacent to the asbestos abatement area to provide power for the abatement activities. Additional power was supplied by gas-powered generators as needed.

## 2.4 NPDES/WETLAND/SOIL EROSION AND SEDIMENTATION CONTROL/DEMOLITION PERMITS

### 2.4.1 NPDES Permit

MEC$^X$ managed, treated, and discharged excavation water collected during site activities according to the discharge requirements outlined in the MDEQ National Pollutant Discharge Elimination System (NPDES) Permit No. MIG08000- Wastewater Discharge General Permit, Petroleum-Contaminated Wastewater (General Permit). AECOM secured a Certificate of Coverage for the Site under the General Permit.

### 2.4.2 Wetland Permit

MEC$^X$ conducted authorized site activities (ie, excavation, storm sewer construction and backfilling) in the wetland area located in the northeast corner of the Site under guidelines described in MDEQ Wetland Permit No. WRP006111 v. 1 (Part 303) Wetlands Protection dated March 3, 2017.

### 2.4.3 Soil Erosion and Sedimentation Control (SESC) Permit

MEC$^X$ conducted soil erosion and sedimentation control measures at the Site under Van Buren County SESC Permit No. # 05-1-299 dated May 16, 2017.

### 2.4.4 Demolition Permit

Prior to demolition activities, MEC$^X$ secured a demolition permit from the Village of Bloomingdale. Demolition work was completed under guidelines outlined in the demolition permit.

## 2.5 ASBESTOS ABATEMENT

MEC$^X$ contracted the Taplin Group (Taplin), a Michigan-licensed asbestos abatement company, to perform the required abatement of asbestos-containing building materials (ACBM) associated with the Site remnant structure. Taplin abated the following materials from the remnant structure:

- Black Roof Tar (approximately 312 square feet [sf]);
- Black Roof Membrane (approximately 7,000 sf);
- Grey Spray-on Fireproofing (15,600 sf); and
- Bat insulation in contact with grey fireproofing (approximately 13,000 sf)

Taplin transported and disposed of the ACBM at Waste Management's Westside Landfill in Three Rivers, Michigan. Waste manifests for the ACBM are included in the attachments for this report.

## 2.6 EROSION CONTROL

The first measure that MEC$^X$ implemented to control and minimize erosion at the Site was to limit land disturbance to the extent practical. We maintained positive drainage away from excavation areas and installed silt fence along the southern boundary of the Site adjacent to the Kal-Haven Trail and around the perimeter of the wetland area in the northeast corner of the Site to prevent sediment run-off during site-work.

## 2.7 CLEARING AND GRUBBING

MEC$^X$ cleared and grubbed areas south and west of the Site building as indicated in the specifications. We minimized the amount of clearing and grubbing to the extent practical to preserve Site ground cover.

Clearing and grubbing included the surface removal of timber, logs, brush, stumps and debris within the designated areas.

MEC$^X$ utilized chain saws, track excavators and other equipment to effectively remove the required elements. Cleared vegetation was chipped on site and spread on-site where needed.

## 2.8 BUILDING DEMOLITION

Following completion of asbestos abatement activities, MEC$^X$ demolished the remaining building structure using track excavators equipped with thumb attachments. MEC$^X$ segregated materials for recycling from materials designated for disposal. Materials to be recycled were stockpiled at the west end of the Site. Materials designated for disposal were transported to Waste Management's Autumn Hills landfill, located at 700 56$^{th}$ Avenue, Zeeland, Michigan.

## 2.9 AST DEMOLITION

Two ASTs were located on the adjacent off-site eastern property. The tanks were estimated to have capacities of 100,000 and 180,000 gallons. Upon receiving contact information for the eastern property owner from the MDEQ and AECOM, MEC$^X$ maintained appropriate communications with the eastern property owner to inform them of our schedule and anticipated activities.

### 2.9.1 Pre-Demolition Inspection

Prior to performing demolition activities, MEC$^X$ inspected the ASTs for signs of structural damage. MEC$^X$ observed rust holes at the bottom of both tanks. Following inspection, we opened the existing bolted access ways to the ASTs and collected air quality measurements of explosive limit, flammability limit, oxygen and carbon dioxide within each AST. Once it was determined that the atmospheres inside the ASTs were the same as ambient air, MEC$^X$ inspected the ASTs interiors for signs of residual petroleum. MEC$^X$ did not observe residual petroleum or affected water within the ASTs. MEC$^X$ reported these findings to AECOM prior to the start of AST demolition.

### 2.9.2 Demolition

MEC$^X$ demolished the ASTs using track excavators equipped with a hydraulic hammers and thumb attachments. Next, we cut the steel sections into smaller, more manageable, pieces for loading onto trucks for off-site transportation and recycling. Taplin transported the AST materials off-site for disposal / recycling.

## 2.10 SOIL MANAGEMENT, EXCAVATION, TRANSPORTATION AND DISPOSAL

### 2.10.1 Soil Management

Prior to the start of excavation activities, MEC$^X$ coordinated with Waste Management to complete the waste profiling of materials to be transported off-site for disposal. MEC$^X$ coordinated the sampling with AECOM and collected additional soil samples for analyses to meet profiling requirements.

### 2.10.2 Excavation

MEC$^X$ performed the required excavations with experienced operators and supervisory personnel. To the extent possible, we performed the excavations and simultaneously live-loaded the excavated soils directly to trucks to minimize on-site stockpiling of excavated soil. When temporary stockpiling was required, MEC$^X$ placed excavated soils on polyethylene sheeting and covered the stockpiles at the end of each day with

polyethylene sheeting secured by ballast. MEC$^X$ completed excavations at the following designated locations on the Site:

- Area 1: Concrete Pad Area in the southern end of the adjacent property east of the Site (approximately 1,227 sf)
- Area 2: Excavation beneath the eastern AST location (approximately 2,161 sf);
- Area 3: Excavation beneath the western AST location (approximately 2,009 sf);
- Area 4: Kal-Haven Trail excavation in the southeast corner of the Site (approximately 22,562 sf);
- Area 5A: Excavation under the concrete slab at eh western end of the Site building (approximately 21,653 sf);
- Area 5B: Excavation under paved lot north of the former building (approximately 28,027 sf);
- Area 5C: Excavation under the former building remnant structure (approximately 17,928 sf); and
- Area 6: Excavation beneath former AST location at western end of Site (approximately 2,160 sf)

Typically, MEC$^X$ completed the excavations to approximately 7 feet below ground surface (bgs) per the specifications. However, when additional affected soils were observed, MEC$^X$ excavated additional material horizontally and vertically as directed by AECOM and/or the MDEQ. For example:

- MEC$^X$ extended the western and southern boundaries of the Area 6 excavation sidewalls by approximately 4 feet horizontally due to the identification of affected soils in these areas;
- MEC$^X$ excavated to depths of approximately 11 to 12 feet bgs in portions of Areas 5A, 5B and 5C due to the presence of petroleum affected soils and/or debris near and under the footprint of the former building;

MEC$^X$ excavated and transported off-site a total of 57,781 tons of affected soil from the Site during the project.

#### 2.10.3 Soil Transportation

Taplin and/or Deaton Trucking (Deaton) hauled affected soils to Waste Management's Autumn Hills landfill in Zeeland, Michigan for disposal. Copies of the waste manifests for affected soils are provided in the attachments of this report.

### 2.11 SOIL SCREENING AND CONFIRMATION SAMPLING

During excavation activities, AECOM screened exposed excavation sidewall and floor soils for the presence of residual hydrocarbons with a photoionization detector (PID) to determine if further excavation was necessary. AECOM also collected sidewall and floor samples with the assistance of MEC$^X$ to document remaining affected soil conditions that are being left in place. A summary of AECOM's soil sampling and analytical results is provide in Table 1 of this report.

### 2.12 BACKFILLING AND COMPACTION

Following completion of excavation activities and clearance by AECOM, MEC$^X$ backfilled the excavations with clean Class II Sand fill material. Aggregate Industries of Kalamazoo, Michigan provided the clean backfill materials. Taplin and/or Deaton transported the clean fill to the Site. MEC$^X$ placed and compacted the backfill materials in lifts using mechanical methods (ie, excavator, bulldozer and rollers).

MEC$^X$ imported a total of 45,991.67 tons of clean Class II Sand during the project.

ATC Associates provided compaction testing in accordance with the specifications. Sand tickets and compaction testing results are provided in the attachments of this report.

### 2.13 SURFACE GRAVEL

Following excavation and backfilling activities, MEC$^X$ installed and compacted 21AA gravel across the Site for surface cover. For the project, MEC$^X$ imported a total of 1,614.74 tons of 21AA gravel. With the Professional's concurrence, the 21AA surface gravel was supplemented with clean recycled concrete from the Site as described in Section 2.15. Gravel tickets are provided in the attachments of this report.

### 2.14 WATER MANAGEMENT

#### 2.14.1 Dewatering

MEC$^X$ managed groundwater entering the excavations by collecting the water in sumps and then pumping it from the excavations via gas-operated pumps. The excavation water was transferred to a series of two (2) 21,000-gallon capacity frac-tanks connected in series. MEC$^X$ stored the water in the frac-tanks until it was treated at the on-site treatment facility.

#### 2.14.2 Water Treatment

To treat on-site excavation water, MEC$^X$ pumped the water from the frac tanks through a series of trailer-mounted granular activated carbon vessels for treatment. Following treatment and confirmation sampling, MEC$^X$ discharged the water to the adjacent Haven and Max Lake Drain, located south of the Site.

Over the course of field activities, MEC$^X$ collected, treated and discharged approximately 195,000 gallons of excavation water from the Site in accordance with the NPDES permit.

### 2.15 CONCRETE MANAGEMENT

MEC$^X$ segregated concrete removed during demolition/excavation activities based on visual characteristics. Concrete that was known to be in contact with affected soils or petroleum was disposed of with the affected soils. MEC$^X$ stockpiled concrete that did not contact petroleum-affected materials and appeared clean at the west end of the Site for recycling. Once concrete removal was completed, Taplin crushed the concrete on-site and used it for a portion of surface fill across the former paved area of the Site.

MEC$^X$ crushed and recycled 2,113 tons of concrete during the project.

### 2.16 KAL-HAVEN TRAIL EXCAVATION AND RESTORATION

MEC$^X$ excavated affected soils from beneath a portion of the Kal-Haven Trail along the southeast corner of the Site. Two weeks prior to the start of work in the trail, MEC$^X$ notified the MDNR as requested so that the public could be notified of the temporary closure of the trail. Prior to the start of work in the trail, MEC$^X$ installed security fencing and signs indicating that the trail was closed. We also established a temporary detour that routed bicyclists and pedestrians along CR-388 around the Site while the trail was closed. MEC$^X$ completed the excavation and restoration work in the trail in approximately one week.

### 2.17 STORM SEWER CONSTRUCTION

MEC$^X$ installed a new storm sewer line from the former wetland area at the northeast corner of the Site along CR-388 to the discharge at the Haven and Max Lake Drain on the south side of the Kal-Haven Trail. As

part of this work, MEC$^X$ installed four new catch basins (designated CB-1 through CB-4) with open grates and associated storm sewer piping according to the specifications. MEC$^X$ also installed a new discharge pipe under the Kal-Haven Trail from CB-4 at the southern boundary of the Site to the Haven and Max Lake Drain under a separate work order.

### 2.18 WELL ABANDONMENT

MEC$^X$ abandoned fourteen shallow groundwater monitoring wells at the Site. The monitoring wells were plugged and abandoned according to the specifications and American Society for Testing Materials (ASTM) guidance. Once removed, MEC$^X$ decontaminated monitoring well materials and disposed of the materials as part of the construction debris.

One water well was located in the northern end of the former building of the Site. MEC$^X$ contracted Koops Well Drilling, a Michigan-licensed well driller based in Holland, Michigan (Koops) to decommission the water well at the Site. Koops plugged and abandoned the water well on July 27, 2017. The water well abandonment log for this well is provided in the attachments to this report.

### 2.19 TRAFFIC CONTROL

MEC$^X$ did not work within the established right-of-way on CR-388 during the field activities. As a precaution, MEC$^X$ placed one "Watch for Truck Entering and Leaving Work Area" sign in the curbed area of each traffic direction along CR-388 to warn drivers of general construction activities and that trucks may be entering the roadways from the Site.

### 2.20 DUST MONITORING AND CONTROL

During demolition and excavation activities, MEC$^X$ conducted periodic dust monitoring using a hand-held dust monitor. MEC$^X$ maintained a trailer-mounted watering system on site during excavation and demolition activities that was used to mitigate dust.

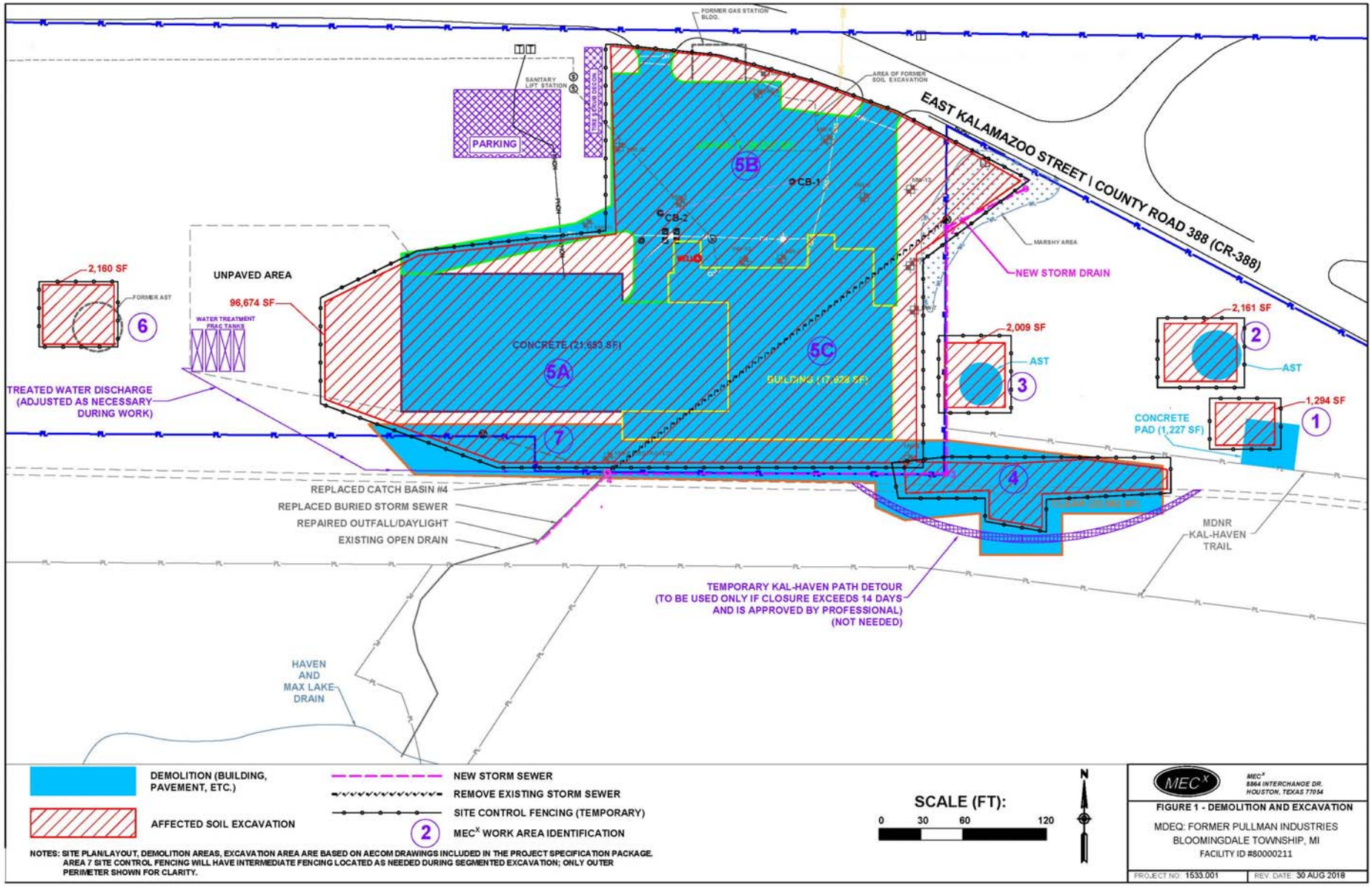
### 2.21 EQUIPMENT DECONTAMINATION

MEC$^X$ constructed a lined decontamination pad in the northwestern portion of the Site for the decontamination of excavation equipment that contacted affected soils. Equipment was decontaminated using pressure washing techniques and manual methods. Decontamination water was collected in a sump beneath the pad and treated in the on-site water treatment system. MEC$^X$ also established a gravel cleaning pad where we inspected vehicles leaving the Site and, when needed, performed a gross-material removal using shovels or similar implements.

### 2.22 SITE RESTORATION

Following completion of excavation activities, MEC$^X$ completed site restoration activities according to the specifications. This work included grading areas along the eastern and southern boundaries of the Site near the Kal-Haven trail to optimize surface drainage to the storm catch basins, removal of remaining materials form the Site, and re-seeding grassy areas to the east of the Site.

# FIGURES




NOTES: SITE PLAN/LAYOUT, DEMOLITION AREAS, EXCAVATION AREA ARE BASED ON AECOM DRAWINGS INCLUDED IN THE PROJECT SPECIFICATION PACKAGE. AREA 7 SITE CONTROL FENCING WILL HAVE INTERMEDIATE FENCING LOCATED AS NEEDED DURING SEGMENTED EXCAVATION; ONLY OUTER PERIMETER SHOWN FOR CLARITY.

MECX
MECX
8864 INTERCHANGE DR.
HOUSTON, TEXAS 77054

**FIGURE 1 - DEMOLITION AND EXCAVATION**

MDEQ: FORMER PULLMAN INDUSTRIES
BLOOMINGDALE TOWNSHIP, MI
FACILITY ID #80000211

PROJECT NO: 1533.001 | REV. DATE: 30 AUG 2018

LEGEND

EXCAVATION AREAS
EXCAVATION SAMPLE LOCATIONS
PROPERTY / PARCEL LINE
NATURAL GAS
OVERHEAD ELECTRICAL
POWER POLE
ELECTRICAL TRANSFORMER
LIGHT POLE
SANITARY SEWER
SANITARY SEWER CLEAN OUT
SANITARY MANHOLE
SANITARY LIFT STATION
UNDERGROUND TELEPHONE
TELEPHONE CABLE BOX
MONITORING WELL
STORM SEWER
STORM CATCH BASIN
STORM DRAIN INLET
APPROXIMATE RIGHT OF WAY
APPROXIMATE MARSHY AREA

N
0 40
SCALE: 1" = 40'

BLDG.
BLDG.
PAVED AREA
EAST KALAMAZOO STREET \ COUNTY ROAD 388 (CR-388)
10th AVENUE
SANITARY LIFT STATION
FORMER GAS STATION BLDG.
AREA OF FORMER SOIL EXCAVATION
UNPAVED AREA
96,674 SF
PAVED AREA
BUILDING OUTLINE
PAVED AREA
BLDG.
CANOPY
MARSHY AREA
STORM DRAIN INLET
CR-388
2,180 SF
A6-NORTH
A6-WEST
A6-B-CENTER
A6-EAST
A6-SOUTH
FORMER AST
2,009 SF
A3-NORTH
AST
A3-B-CENTER
A3-EAST
A3-SOUTH
2,161 SF
A2-NORTH
A2-WEST
A2-B-CENTER
A2-EAST
AST
A2-SOUTH
1,294 SF
A1-NORTH
A1-B-CENTER
A1-WEST
A1-EAST
A1-SOUTH
CONCRETE PAD
BLDG.
UNPAVED AREA
OUTFALL
OPEN DRAIN
HAVEN AND MAX LAKE DRAIN
TRAIL
APPROXIMATE PROPERTY BOUNDARY
MDNR RAILWAY

WEST (5) NORTH (5) NORTH (6) NORTH (7) NORTH (8) NORTH (9)
WEST (4) C (1) C (2) C (3)
WEST (3) C (5) C (6) C (7) EAST (1) EAST (2)
NORTH (2) NORTH (3) NORTH (4) C (4)
NORTH (1) C (8) C (9) C (10) EAST (3)
WEST (2) C (11) C (15) C (17) C (19)
WEST (1) C (12) C (13) C (16) C (18) EAST (4)
SOUTH (4) SOUTH (3) SOUTH (1) SOUTH (2) C (14) EAST (5)
SOUTH (5) SOUTH (6) SOUTH (7) SOUTH (8)
KHT (14) KHT (13) KHT (12) KHT (11) KHT (10) KHT (9) KHT (8) KHT (7) KHT (6) KHT (5) KHT (4) KHT (3) KHT (2) KHT (1)

MW-1 MW-2 MW-3 MW-4 (DESTROYED) MW-5 MW-6 MW-7 MW-8 MW-9 MW-10 MW-11 MW-12 MW-13 MW-14

NOTE: SITE PLAN INFORMATION SHOWN WAS PRODUCED USING VARIOUS SOURCES, INCLUDING AERIAL PHOTOGRAPHIC IMAGERY FROM GOOGLE, MAP DATA 2016, HISTORICAL ARCHIVE DRAWINGS AND FIELD OBSERVATIONS. INFORMATION MAY NOT BE COMPLETE OR INCLUSIVE.

AECOM

Sheet No.: 02

EXCAVATION SAMPLE LOCATIONS

PULLMAN INDUSTRIES
40677 CR-388
BLOOMINGDALE, MI
Project No.: 60477048 Date: August 2018

# TABLES

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1706055-06 | 1706055-08 | 1706055-07 | 1706055-10 | 1706055-09 | 1706212-03 | 1706212-01 | 1706212-04 | 1706212-11 | 1706212-02 | 1706055-02 | 1706055-04 | 1706055-05 | 1706055-01 | 1706055-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | A1-NORTH WALL | A1-EAST WALL | A1-SOUTH WALL | A1-WEST WALL | A1-B-CENTER | A3-NORTH WALL | A3-EAST WALL | A3-SOUTH WALL | A3-WEST WALL | A3-B-CENTER | A6-NORTH WALL | A6-EAST WALL | A6-SOUTH WALL | A6-WEST WALL | A6-B-CENTER |
| Date Collected | | | | | | | | 6/1/2017 | 6/1/2017 | 6/1/2017 | 6/1/2017 | 6/1/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 5/30/2017 | 5/31/2017 | 5/31/2017 | 5/30/2017 | 5/30/2017 |
| Date Received | | | | | | | | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 |
| **Volatiles** | Units | Method | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/kg dry | 8260 | 100 | 1,500 | ID | 6,200 | 4.80E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,1,1-Trichloroethane | ug/kg dry | 8260 | 50 | 4,000 | 1,800 | 2.50E+05 | 5.00E+08 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,1,2,2-Tetrachloroethane | ug/kg dry | 8260 | 50 | 170 | 1,600 | 4,300 | 53,000 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,1,2-Trichloroethane | ug/kg dry | 8260 | 50 | 100 | 6,600 | 4,600 | 1.80E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,1-Dichloroethane | ug/kg dry | 8260 | 50 | 18,000 | 15,000 | 2.30E+05 | 2.70E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,1-Dichloroethylene | ug/kg dry | 8260 | 50 | 140 | 2,600 | 62 | 2.00E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2,3-Trichlorobenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| 1,2,3-Trichloropropane | ug/kg dry | 8260 | 100 | 840 | NA | 4,000 | 1.30E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2,3-Trimethylbenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2,4-Trichlorobenzene | ug/kg dry | 8260 | 250 | 4,200 | 5,900 | 9.60E+06 | 9.90E+05 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| 1,2,4-Trimethylbenzene | ug/kg dry | 8260 | 100 | 2,100 | 570 | 4.30E+06 | 3.20E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2-Dibromoethane | ug/kg dry | 8260 | 20 | 20 | 110 | 670 | 92 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2-Dichlorobenzene | ug/kg dry | 8260 | 100 | 14,000 | 280 | 1.10E+07 | 1.90E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2-Dichloroethane | ug/kg dry | 8260 | 50 | 100 | 7,200 | 2,100 | 91,000 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,2-Dichloropropane | ug/kg dry | 8260 | 50 | 100 | 4,600 | 4,000 | 1.40E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,3,5-Trimethylbenzene | ug/kg dry | 8260 | 100 | 1,800 | 1,100 | 2.60E+06 | 3.20E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,3-Dichlorobenzene | ug/kg dry | 8260 | 100 | 170 | 680 | 26,000 | 2.00E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 1,4-Dichlorobenzene | ug/kg dry | 8260 | 100 | 1,700 | 360 | 19,000 | 4.00E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| 2,2,4-Trimethylpentane | ug/kg dry | 8260 | 2,500 | ID | NA | 1.10E+05 | ID | <87 | <80 | <71 | <66 | <74 | <340 | <340 | <360 | <390 | <390 | <75 | <83 | <83 | <76 | <71 |
| 2-Butanone (MEK) | ug/kg dry | 8260 | 750 | 2.60E+05 | 44,000 | 5.40E+07 | 1.20E+08 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| 2-Methylnaphthalene | ug/kg dry | 8260 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| 2-Propanone (acetone) | ug/kg dry | 8260 | 1,000 | 15,000 | 34,000 | 2.90E+08 | 2.30E+07 | <1700 | <1600 | <1400 | <1300 | <1500 | <1400 | <1400 | <1500 | <1600 | <1600 | <1500 | <1700 | <1700 | <1500 | <1400 |
| 4-Methyl-2-pentanone (MIBK) | ug/kg dry | 8260 | 2,500 | 36,000 | ID | 3.70E+07 | 5.60E+07 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Acrylonitrile | ug/kg dry | 8260 | 100 | 100 | 100 | 6,600 | 16,000 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Benzene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,600 | 1.80E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Bromochloromethane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Bromodichloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 1,200 | 1.10E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Bromoform | ug/kg dry | 8260 | 100 | 1,600 | ID | 1.50E+05 | 8.20E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Bromomethane | ug/kg dry | 8260 | 200 | 200 | 700 | 860 | 3.20E+05 | <350 | <320 | <280 | <260 | <300 | <270 | <270 | <290 | <310 | <310 | <300 | <330 | <330 | <300 | <280 |
| Carbon disulfide | ug/kg dry | 8260 | 250 | 16,000 | ID | 76,000 | 7.20E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Carbon tetrachloride | ug/kg dry | 8260 | 50 | 100 | 900 | 190 | 96,000 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Chlorobenzene | ug/kg dry | 8260 | 50 | 2,000 | 500 | 1.20E+05 | 4.30E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Chloroethane | ug/kg dry | 8260 | 250 | 8,600 | 22,000 | 2.90E+06 | 2.60E+06 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Chloroform | ug/kg dry | 8260 | 50 | 1,600 | 7,000 | 7,200 | 1.20E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Chloromethane | ug/kg dry | 8260 | 250 | 5,200 | ID | 2,300 | 1.60E+06 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| cis-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 1,400 | 12,000 | 22,000 | 2.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| cis-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Cyclohexane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Dibromochloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 3,900 | 1.10E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Dibromomethane | ug/kg dry | 8260 | 250 | 1,600 | NA | ID | 2.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Dichlorodifluoromethane | ug/kg dry | 8260 | 250 | 95,000 | ID | 9.00E+05 | 5.20E+07 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Diethyl ether | ug/kg dry | 8260 | 200 | 200 | ID | 2.80E+07 | 1.10E+08 | <350 | <320 | <280 | <260 | <300 | <270 | <270 | <290 | <310 | <310 | <300 | <330 | <330 | <300 | <280 |
| Diisopropyl Ether | ug/kg dry | 8260 | 250 | 600 | ID | 6.70E+05 | 9.20E+05 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Ethylbenzene | ug/kg dry | 8260 | 50 | 1,500 | 360 | 87,000 | 2.20E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Ethyltertiarybutylether | ug/kg dry | 8260 | 250 | 980 | ID | 5.40E+05 | ID | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Hexachloroethane | ug/kg dry | 8260 | 300 | 430 | 1,800 | 40,000 | 2.30E+05 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Hexane | ug/kg dry | 8260 | NA | 1.80E+05 | NA | 5.10E+05 | 9.20E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Isopropylbenzene | ug/kg dry | 8260 | 250 | 91,000 | 3,200 | 4.00E+05 | 2.50E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| m & p - Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <170 | <160 | <140 | <130 | <150 | <140 | <140 | <150 | <160 | <160 | <150 | <170 | <170 | <150 | <140 |
| Methylene chloride | ug/kg dry | 8260 | 100 | 100 | 30,000 | 45,000 | 1.30E+06 | <170 | <160 | <140 | <130 | <150 | <140 | <140 | <150 | <160 | <160 | <150 | <170 | <170 | <150 | <140 |
| Methyltertiarybutylether | ug/kg dry | 8260 | 250 | 800 | 140,000 | 9.90E+06 | 1.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Naphthalene | ug/kg dry | 8260 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| n-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| n-Propylbenzene | ug/kg dry | 8260 | 100 | 1,600 | ID | ID | 2.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| o-Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| sec-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Styrene | ug/kg dry | 8260 | 50 | 2,700 | 2,100 | 2.50E+05 | 4.00E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| tert-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| tertiary Butyl Alcohol | ug/kg dry | 8260 | 2,500 | 78,000 | NA | 3.10E+08 | 1.20E+08 | <4400 | <4000 | <3500 | <3300 | <3700 | <3400 | <3400 | <3600 | <3900 | <3900 | <3700 | <4100 | <4200 | <3800 | <3500 |
| tertiaryAmylmethylether | ug/kg dry | 8260 | 250 | 3,900 | NA | 58,000 | 2.90E+07 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Tetrachloroethylene | ug/kg dry | 8260 | 50 | 100 | 1,200 | 11,000 | 2.00E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Tetrahydrofuran | ug/kg dry | 8260 | 1,000 | 1,900 | 220,000 | 1.30E+06 | 2.90E+06 | <440 | <400 | <350 | <330 | <370 | <340 | <340 | <360 | <390 | <390 | <370 | <410 | <420 | <380 | <350 |
| Toluene | ug/kg dry | 8260 | 100 | 16,000 | 5,400 | 3.30E+05 | 5.00E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| trans-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 2,000 | 30,000 | 23,000 | 3.80E+06 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| trans-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Trichloroethylene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,000 | 1.10E+05 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Trichlorofluoromethane | ug/kg dry | 8260 | 100 | 52,000 | NA | 2.80E+06 | 7.90E+07 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |
| Vinyl chloride | ug/kg dry | 8260 | 40 | 40 | 260 | 270 | 3,800 | <87 | <80 | <71 | <66 | <74 | <68 | <68 | <73 | <78 | <78 | <75 | <83 | <83 | <76 | <71 |

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1706055-06 | 1706055-08 | 1706055-07 | 1706055-10 | 1706055-09 | 1706212-03 | 1706212-01 | 1706212-04 | 1706212-11 | 1706212-02 | 1706055-02 | 1706055-04 | 1706055-05 | 1706055-01 | 1706055-03 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | A1-NORTH WALL | A1-EAST WALL | A1-SOUTH WALL | A1-WEST WALL | A1-B-CENTER | A3-NORTH WALL | A3-EAST WALL | A3-SOUTH WALL | A3-WEST WALL | A3-B-CENTER | A6-NORTH WALL | A6-EAST WALL | A6-SOUTH WALL | A6-WEST WALL | A6-B-CENTER |
| Date Collected | | | | | | | | 6/1/2017 | 6/1/2017 | 6/1/2017 | 6/1/2017 | 6/1/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 5/30/2017 | 5/31/2017 | 5/31/2017 | 5/30/2017 | 5/30/2017 |
| Date Received | | | | | | | | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 | 6/7/2017 |
| **Semi-Volatiles** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | ug/kg dry | 8270 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <610 | <590 | <590 | <560 | <580 | <560 | <580 | <570 | <590 | <570 | <590 | <600 | <590 | <590 | <560 |
| Acenaphthene | ug/kg dry | 8270 | 330 | 3.00E+05 | 8,700 | 1.90E+08 | 4.10E+07 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Acenaphthylene | ug/kg dry | 8270 | 330 | 5,900 | ID | 1.60E+06 | 1.60E+06 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Anthracene | ug/kg dry | 8270 | 330 | 41,000 | ID | 1.00E+09 | 2.30E+08 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Benz[a]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Benzo[a]pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <490 | <470 | <470 | <450 | <460 | <450 | <460 | <460 | <470 | <460 | <470 | <480 | <470 | <480 | <450 |
| Benzo[b]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 20,000 | <490 | <470 | <470 | <450 | <460 | <450 | <460 | <460 | <470 | <460 | <470 | <480 | <470 | <480 | <450 |
| Benzo[g,h,i]perylene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.50E+06 | <490 | <470 | <470 | <450 | <460 | <450 | <460 | <460 | <470 | <460 | <470 | <480 | <470 | <480 | <450 |
| Benzo[k]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.00E+05 | <490 | <470 | <470 | <450 | <460 | <450 | <460 | <460 | <470 | <460 | <470 | <480 | <470 | <480 | <450 |
| Chrysene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 2.00E+06 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Dibenz[a,h]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <490 | <470 | <470 | <450 | <460 | <450 | <460 | <460 | <470 | <460 | <470 | <480 | <470 | <480 | <450 |
| Fluoranthene | ug/kg dry | 8270 | 330 | 7.30E+05 | 5,500 | 1.00E+09 | 4.60E+07 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Fluorene | ug/kg dry | 8270 | 330 | 3.90E+05 | 5,300 | 5.80E+08 | 2.70E+07 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Indeno(1,2,3-c,d)pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <490 | <470 | <470 | <450 | <460 | <450 | <460 | <460 | <470 | <460 | <470 | <480 | <470 | <480 | <450 |
| Naphthalene | ug/kg dry | 8270 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Phenanthrene | ug/kg dry | 8270 | 330 | 56,000 | 2,100 | 2.80E+06 | 1.60E+06 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| Pyrene | ug/kg dry | 8270 | 330 | 4.80E+05 | ID | 1.00E+09 | 2.90E+07 | <240 | <240 | <230 | <220 | <230 | <230 | <230 | <230 | <230 | <230 | <240 | <240 | <240 | <240 | <220 |
| **Organics** | | | | | | | | | | | | | | | | | | | | | | |
| Gas Range Organics(C6-C10) | ug/kg dry | 8260 Modified | NA | NA | NA | NA | 900 | <8700 | <8000 | <7100 | <6600 | <7400 | <6800 | <6800 | <7300 | <7800 | <7800 | <7500 | **81,000** | <8300 | <7600 | <7100 |
| Diesel Range Org(C10-C20) | ug/kg dry | 8015 | NA | NA | NA | NA | 1,050 | <15000 | <15000 | <15000 | <14000 | <14000 | **57,000** | <14000 | <14000 | <15000 | <14000 | <15000 | **290,000** | **19,000** | <15000 | <14000 |
| Oil Range Organics (C20-C34) | ug/kg dry | 8015 | NA | NA | NA | NA | NA | <61000 | <59000 | <59000 | <56000 | <58000 | **120,000** | <58000 | <57000 | <59000 | <57000 | <59000 | <60000 | <59000 | <59000 | <56000 |
| % Total Solids | % | NA | NA | NA | NA | NA | NA | **82.0** | **85.0** | **85.4** | **89.0** | **86.9** | **88.7** | **86.5** | **87.5** | **85.3** | **87.1** | **84.8** | **83.2** | **84.6** | **84.2** | **89.1** |

**Contaminant was detected.**
Contaminant exceeds DWPC.
Contaminant exceeds GSIPC.
Contaminant exceeds both DWPC and GSIPC.
Contaminant exceeds one or more criteria; SVIIC and/or DCC.
Exceeds GRO/DRO Screening Levels
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLL" means hazardous substance is not likely to leach under most soil conditions.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1706212-06 | 1706212-08 | 1706212-10 | 1706212-07 | 1706212-09 | 1706320-03 | 1707246-03 | 1707246-04 | 1707246-09 | 1710040-05 | 1710040-08 | 1710040-02 | 1710040-03 | 1710040-11 | 1710040-10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | A2-NORTH WALL | A2-EAST WALL | A2-SOUTH WALL | A2-WEST WALL | A2-B-CENTER | NORTH (1) | NORTH (2) | NORTH (3) | NORTH (4) | NORTH (5) | NORTH (6) | NORTH (7) | NORTH (8) | NORTH (9) | EAST (1) |
| Date Collected | | | | | | | | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/23/2017 | 7/17/2017 | 7/17/2017 | 7/20/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 |
| Date Received | | | | | | | | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/27/2017 | 7/24/2017 | 7/24/2017 | 7/24/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 |
| **Volatiles** | Units | Method | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/kg dry | 8260 | 100 | 1,500 | ID | 6,200 | 4.80E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,1,1-Trichloroethane | ug/kg dry | 8260 | 50 | 4,000 | 1,800 | 2.50E+05 | 5.00E+08 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,1,2,2-Tetrachloroethane | ug/kg dry | 8260 | 50 | 170 | 1,600 | 4,300 | 53,000 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,1,2-Trichloroethane | ug/kg dry | 8260 | 50 | 100 | 6,600 | 4,600 | 1.80E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,1-Dichloroethane | ug/kg dry | 8260 | 50 | 18,000 | 15,000 | 2.30E+05 | 2.70E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,1-Dichloroethylene | ug/kg dry | 8260 | 50 | 140 | 2,600 | 62 | 2.00E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2,3-Trichlorobenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| 1,2,3-Trichloropropane | ug/kg dry | 8260 | 100 | 840 | NA | 4,000 | 1.30E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2,3-Trimethylbenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2,4-Trichlorobenzene | ug/kg dry | 8260 | 250 | 4,200 | 5,900 | 9.60E+06 | 9.90E+05 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| 1,2,4-Trimethylbenzene | ug/kg dry | 8260 | 100 | 2,100 | 570 | 4.30E+06 | 3.20E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2-Dibromoethane | ug/kg dry | 8260 | 20 | 20 | 110 | 670 | 92 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2-Dichlorobenzene | ug/kg dry | 8260 | 100 | 14,000 | 280 | 1.10E+07 | 1.90E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2-Dichloroethane | ug/kg dry | 8260 | 50 | 100 | 7,200 | 2,100 | 91,000 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,2-Dichloropropane | ug/kg dry | 8260 | 50 | 100 | 4,600 | 4,000 | 1.40E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,3,5-Trimethylbenzene | ug/kg dry | 8260 | 100 | 1,800 | 1,100 | 2.60E+06 | 3.20E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,3-Dichlorobenzene | ug/kg dry | 8260 | 100 | 170 | 680 | 26,000 | 2.00E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 1,4-Dichlorobenzene | ug/kg dry | 8260 | 100 | 1,700 | 360 | 19,000 | 4.00E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| 2,2,4-Trimethylpentane | ug/kg dry | 8260 | 2,500 | ID | NA | 1.10E+05 | ID | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| 2-Butanone (MEK) | ug/kg dry | 8260 | 750 | 2.60E+05 | 44,000 | 5.40E+07 | 1.20E+08 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| 2-Methylnaphthalene | ug/kg dry | 8260 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| 2-Propanone (acetone) | ug/kg dry | 8260 | 1,000 | 15,000 | 34,000 | 2.90E+08 | 2.30E+07 | <1500 | <1500 | <1500 | <1500 | <3300 | <1500 | <1500 | <1500 | <1700 | <1500 | <1500 | <1400 | <1600 | <1400 | <1500 |
| 4-Methyl-2-pentanone (MIBK) | ug/kg dry | 8260 | 2,500 | 36,000 | ID | 3.70E+07 | 5.60E+07 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Acrylonitrile | ug/kg dry | 8260 | 100 | 100 | 100 | 6,600 | 16,000 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Benzene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,600 | 1.80E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Bromochloromethane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Bromodichloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 1,200 | 1.10E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Bromoform | ug/kg dry | 8260 | 100 | 1,600 | ID | 1.50E+05 | 8.20E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Bromomethane | ug/kg dry | 8260 | 200 | 200 | 700 | 860 | 3.20E+05 | <310 | <290 | <300 | <300 | <660 | <310 | <310 | <300 | <330 | <290 | <300 | <270 | <310 | <280 | <290 |
| Carbon disulfide | ug/kg dry | 8260 | 250 | 16,000 | ID | 76,000 | 7.20E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Carbon tetrachloride | ug/kg dry | 8260 | 50 | 100 | 900 | 190 | 96,000 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Chlorobenzene | ug/kg dry | 8260 | 50 | 2,000 | 500 | 1.20E+05 | 4.30E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Chloroethane | ug/kg dry | 8260 | 250 | 8,600 | 22,000 | 2.90E+06 | 2.60E+06 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Chloroform | ug/kg dry | 8260 | 50 | 1,600 | 7,000 | 7,200 | 1.20E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Chloromethane | ug/kg dry | 8260 | 250 | 5,200 | ID | 2,300 | 1.60E+06 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| cis-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 1,400 | 12,000 | 22,000 | 2.50E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| cis-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Cyclohexane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Dibromochloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 3,900 | 1.10E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Dibromomethane | ug/kg dry | 8260 | 250 | 1,600 | NA | ID | 2.50E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Dichlorodifluoromethane | ug/kg dry | 8260 | 250 | 95,000 | ID | 9.00E+05 | 5.20E+07 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Diethyl ether | ug/kg dry | 8260 | 200 | 200 | ID | 2.80E+07 | 1.10E+08 | <310 | <290 | <300 | <300 | <660 | <310 | <310 | <300 | <330 | <290 | <300 | <270 | <310 | <280 | <290 |
| Diisopropyl Ether | ug/kg dry | 8260 | 250 | 600 | ID | 6.70E+05 | 9.20E+05 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Ethylbenzene | ug/kg dry | 8260 | 50 | 1,500 | 360 | 87,000 | 2.20E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Ethyltertiarybutylether | ug/kg dry | 8260 | 250 | 980 | ID | 5.40E+05 | ID | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Hexachloroethane | ug/kg dry | 8260 | 300 | 430 | 1,800 | 40,000 | 2.30E+05 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Hexane | ug/kg dry | 8260 | NA | 1.80E+05 | NA | 5.10E+05 | 9.20E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Isopropylbenzene | ug/kg dry | 8260 | 250 | 91,000 | 3,200 | 4.00E+05 | 2.50E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| m & p - Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <150 | <150 | <150 | <150 | <330 | <150 | <150 | <150 | <170 | <150 | <150 | <140 | <160 | <140 | <150 |
| Methylene chloride | ug/kg dry | 8260 | 100 | 100 | 30,000 | 45,000 | 1.30E+06 | <150 | <150 | <150 | <150 | <330 | <150 | <150 | <150 | <170 | <150 | <150 | <140 | <160 | <140 | <150 |
| Methyltertiarybutylether | ug/kg dry | 8260 | 250 | 800 | 140,000 | 9.90E+06 | 1.50E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Naphthalene | ug/kg dry | 8260 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| n-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| n-Propylbenzene | ug/kg dry | 8260 | 100 | 1,600 | ID | ID | 2.50E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| o-Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| sec-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <77 | <73 | <74 | <75 | **310** | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Styrene | ug/kg dry | 8260 | 50 | 2,700 | 2,100 | 2.50E+05 | 4.00E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| tert-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| tertiary Butyl Alcohol | ug/kg dry | 8260 | 2,500 | 78,000 | NA | 3.10E+08 | 1.20E+08 | <3900 | <3700 | <3700 | <3700 | <8300 | <3800 | <3800 | <3800 | <4200 | <3600 | <3800 | <3400 | <3900 | <3500 | <3600 |
| tertiaryAmylmethylether | ug/kg dry | 8260 | 250 | 3,900 | NA | 58,000 | 2.90E+07 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Tetrachloroethylene | ug/kg dry | 8260 | 50 | 100 | 1,200 | 11,000 | 2.00E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Tetrahydrofuran | ug/kg dry | 8260 | 1,000 | 1,900 | 220,000 | 1.30E+06 | 2.90E+06 | <390 | <370 | <370 | <370 | <830 | <380 | <380 | <380 | <420 | <360 | <380 | <340 | <390 | <350 | <360 |
| Toluene | ug/kg dry | 8260 | 100 | 16,000 | 5,400 | 3.30E+05 | 5.00E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| trans-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 2,000 | 30,000 | 23,000 | 3.80E+06 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| trans-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Trichloroethylene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,000 | 1.10E+05 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Trichlorofluoromethane | ug/kg dry | 8260 | 100 | 52,000 | NA | 2.80E+06 | 7.90E+07 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |
| Vinyl chloride | ug/kg dry | 8260 | 40 | 40 | 260 | 270 | 3,800 | <77 | <73 | <74 | <75 | <170 | <77 | <76 | <76 | <83 | <73 | <75 | <68 | <78 | <69 | <73 |

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1706212-06 | 1706212-08 | 1706212-10 | 1706212-07 | 1706212-09 | 1706320-03 | 1707246-03 | 1707246-04 | 1707246-09 | 1710040-05 | 1710040-08 | 1710040-02 | 1710040-03 | 1710040-11 | 1710040-10 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | A2-NORTH WALL | A2-EAST WALL | A2-SOUTH WALL | A2-WEST WALL | A2-B-CENTER | NORTH (1) | NORTH (2) | NORTH (3) | NORTH (4) | NORTH (5) | NORTH (6) | NORTH (7) | NORTH (8) | NORTH (9) | EAST (1) |
| Date Collected | | | | | | | | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/23/2017 | 7/17/2017 | 7/17/2017 | 7/20/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 |
| Date Received | | | | | | | | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/27/2017 | 7/24/2017 | 7/24/2017 | 7/24/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 |
| **Semi-Volatiles** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | ug/kg dry | 8270 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <570 | <580 | <580 | <570 | <600 | <590 | <580 | <590 | <600 | <560 | <600 | <540 | <590 | <2700 | <570 |
| Acenaphthene | ug/kg dry | 8270 | 330 | 3.00E+05 | 8,700 | 1.90E+08 | 4.10E+07 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Acenaphthylene | ug/kg dry | 8270 | 330 | 5,900 | ID | 1.60E+06 | 1.60E+06 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Anthracene | ug/kg dry | 8270 | 330 | 41,000 | ID | 1.00E+09 | 2.30E+08 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Benz[a]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Benzo[a]pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <460 | <460 | <470 | <460 | <480 | <470 | <460 | <470 | <480 | <450 | <480 | <430 | <470 | <2200 | <460 |
| Benzo[b]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 20,000 | <460 | <460 | <470 | <460 | <480 | <470 | <460 | <470 | <480 | <450 | <480 | <430 | <470 | <2200 | <460 |
| Benzo[g,h,i]perylene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.50E+06 | <460 | <460 | <470 | <460 | <480 | <470 | <460 | <470 | <480 | <450 | <480 | <430 | <470 | <2200 | <460 |
| Benzo[k]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.00E+05 | <460 | <460 | <470 | <460 | <480 | <470 | <460 | <470 | <480 | <450 | <480 | <430 | <470 | <2200 | <460 |
| Chrysene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 2.00E+06 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Dibenz[a,h]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <460 | <460 | <470 | <460 | <480 | <470 | <460 | <470 | <480 | <450 | <480 | <430 | <470 | <2200 | <460 |
| Fluoranthene | ug/kg dry | 8270 | 330 | 7.30E+05 | 5,500 | 1.00E+09 | 4.60E+07 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Fluorene | ug/kg dry | 8270 | 330 | 3.90E+05 | 5,300 | 5.80E+08 | 2.70E+07 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Indeno(1,2,3-c,d)pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <460 | <460 | <470 | <460 | <480 | <470 | <460 | <470 | <480 | <450 | <480 | <430 | <470 | <2200 | <460 |
| Naphthalene | ug/kg dry | 8270 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Phenanthrene | ug/kg dry | 8270 | 330 | 56,000 | 2,100 | 2.80E+06 | 1.60E+06 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| Pyrene | ug/kg dry | 8270 | 330 | 4.80E+05 | ID | 1.00E+09 | 2.90E+07 | <230 | <230 | <230 | <230 | <240 | <240 | <230 | <240 | <240 | <220 | <240 | <220 | <230 | <1100 | <230 |
| **Organics** | | | | | | | | | | | | | | | | | | | | | | |
| Gas Range Organics(C6-C10) | ug/kg dry | 8260 Modified | NA | NA | NA | NA | 900 | <7700 | <7300 | <7400 | <7500 | **67,000** | <7700 | <7600 | <7600 | <8300 | **23,000** | <7500 | <6800 | <7800 | <6900 | <7300 |
| Diesel Range Org(C10-C20) | ug/kg dry | 8015 | NA | NA | NA | NA | 1,050 | <14000 | <14000 | <15000 | <14000 | **530,000** | <15000 | <14000 | <15000 | **46,000** | <14000 | <15000 | <14000 | **16,000** | **99,000** | <14000 |
| Oil Range Organics (C20-C34) | ug/kg dry | 8015 | NA | NA | NA | NA | NA | **71,000** | <58000 | <58000 | <57000 | **110,000** | <59000 | <58000 | <59000 | **160,000** | <56000 | <60000 | <54000 | <59000 | **460,000** | <57000 |
| % Total Solids | % | NA | NA | NA | NA | NA | NA | NA | **87.2** | **86.8** | **85.9** | **87.5** | **83.4** | **85.1** | **86.9** | **84.8** | **83.2** | **89.8** | **83.9** | **92.4** | **85.3** | **92.1** | **87.1** |

**Contaminant was detected.**
Contaminant exceeds DWPC.
Contaminant exceeds GSIPC.
Contaminant exceeds both DWPC and GSIPC.
Contaminant exceeds one or more criteria; SVIIC and/or DCC.
Exceeds GRO/DRO Screening Levels
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLL" means hazardous substance is not likely to leach under most soil conditions.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1710040-12 | 1708249-04 | 1707246-01 | 1707246-02 | 1706212-05 | 1706212-12 | 1706212-13 | 1706212-14 | 1706320-04 | 1707027-01 | 1707027-02 | 1707027-03 | 1706212-16 | 1706212-18 | 1708249-08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | EAST (2) | EAST (3) | EAST (4) | EAST (5) | SOUTH (1) | SOUTH (2) | SOUTH (3) | SOUTH (4) | SOUTH (5) | SOUTH (6) | SOUTH (7) | SOUTH (8) | WEST (1) | WEST(2) | WEST (3) |
| Date Collected | | | | | | | | 10/3/2017 | 8/9/2017 | 7/17/2017 | 7/17/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/12/2017 | 6/23/2017 | 7/3/2017 | 7/3/2017 | 7/3/2017 | 6/13/2017 | 6/14/2017 | 8/15/2017 |
| Date Received | | | | | | | | 10/5/2017 | 8/16/2017 | 7/24/2017 | 7/24/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/27/2017 | 7/6/2017 | 7/6/2017 | 7/6/2017 | 6/16/2017 | 6/16/2017 | 8/16/2017 |
| **Volatiles** | Units | Method | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/kg dry | 8260 | 100 | 1,500 | ID | 6,200 | 4.80E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,1,1-Trichloroethane | ug/kg dry | 8260 | 50 | 4,000 | 1,800 | 2.50E+05 | 5.00E+08 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,1,2,2-Tetrachloroethane | ug/kg dry | 8260 | 50 | 170 | 1,600 | 4,300 | 53,000 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,1,2-Trichloroethane | ug/kg dry | 8260 | 50 | 100 | 6,600 | 4,600 | 1.80E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,1-Dichloroethane | ug/kg dry | 8260 | 50 | 18,000 | 15,000 | 2.30E+05 | 2.70E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,1-Dichloroethylene | ug/kg dry | 8260 | 50 | 140 | 2,600 | 62 | 2.00E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2,3-Trichlorobenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| 1,2,3-Trichloropropane | ug/kg dry | 8260 | 100 | 840 | NA | 4,000 | 1.30E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2,3-Trimethylbenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <80 | <73 | <71 | <81 | **98** | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2,4-Trichlorobenzene | ug/kg dry | 8260 | 250 | 4,200 | 5,900 | 9.60E+06 | 9.90E+05 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| 1,2,4-Trimethylbenzene | ug/kg dry | 8260 | 100 | 2,100 | 570 | 4.30E+06 | 3.20E+07 | <80 | <73 | <71 | <81 | **160** | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2-Dibromoethane | ug/kg dry | 8260 | 20 | 20 | 110 | 670 | 92 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2-Dichlorobenzene | ug/kg dry | 8260 | 100 | 14,000 | 280 | 1.10E+07 | 1.90E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2-Dichloroethane | ug/kg dry | 8260 | 50 | 100 | 7,200 | 2,100 | 91,000 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,2-Dichloropropane | ug/kg dry | 8260 | 50 | 100 | 4,600 | 4,000 | 1.40E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,3,5-Trimethylbenzene | ug/kg dry | 8260 | 100 | 1,800 | 1,100 | 2.60E+06 | 3.20E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,3-Dichlorobenzene | ug/kg dry | 8260 | 100 | 170 | 680 | 26,000 | 2.00E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 1,4-Dichlorobenzene | ug/kg dry | 8260 | 100 | 1,700 | 360 | 19,000 | 4.00E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| 2,2,4-Trimethylpentane | ug/kg dry | 8260 | 2,500 | ID | NA | 1.10E+05 | ID | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| 2-Butanone (MEK) | ug/kg dry | 8260 | 750 | 2.60E+05 | 44,000 | 5.40E+07 | 1.20E+08 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| 2-Methylnaphthalene | ug/kg dry | 8260 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <400 | <360 | <350 | <410 | **520** | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| 2-Propanone (acetone) | ug/kg dry | 8260 | 1,000 | 15,000 | 34,000 | 2.90E+08 | 2.30E+07 | <1600 | <1500 | <1400 | <1600 | <1700 | <1700 | <1500 | <1700 | <1500 | <1500 | <1400 | <1600 | <1600 | <1700 | <1700 |
| 4-Methyl-2-pentanone (MIBK) | ug/kg dry | 8260 | 2,500 | 36,000 | ID | 3.70E+07 | 5.60E+07 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Acrylonitrile | ug/kg dry | 8260 | 100 | 100 | 100 | 6,600 | 16,000 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Benzene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,600 | 1.80E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Bromochloromethane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Bromodichloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 1,200 | 1.10E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Bromoform | ug/kg dry | 8260 | 100 | 1,600 | ID | 1.50E+05 | 8.20E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Bromomethane | ug/kg dry | 8260 | 200 | 200 | 700 | 860 | 3.20E+05 | <320 | <290 | <280 | <320 | <340 | <340 | <300 | <340 | <300 | <290 | <280 | <310 | <320 | <330 | <330 |
| Carbon disulfide | ug/kg dry | 8260 | 250 | 16,000 | ID | 76,000 | 7.20E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Carbon tetrachloride | ug/kg dry | 8260 | 50 | 100 | 900 | 190 | 96,000 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Chlorobenzene | ug/kg dry | 8260 | 50 | 2,000 | 500 | 1.20E+05 | 4.30E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Chloroethane | ug/kg dry | 8260 | 250 | 8,600 | 22,000 | 2.90E+06 | 2.60E+06 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Chloroform | ug/kg dry | 8260 | 50 | 1,600 | 7,000 | 7,200 | 1.20E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Chloromethane | ug/kg dry | 8260 | 250 | 5,200 | ID | 2,300 | 1.60E+06 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| cis-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 1,400 | 12,000 | 22,000 | 2.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| cis-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Cyclohexane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Dibromochloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 3,900 | 1.10E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Dibromomethane | ug/kg dry | 8260 | 250 | 1,600 | NA | ID | 2.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Dichlorodifluoromethane | ug/kg dry | 8260 | 250 | 95,000 | ID | 9.00E+05 | 5.20E+07 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Diethyl ether | ug/kg dry | 8260 | 200 | 200 | ID | 2.80E+07 | 1.10E+08 | <320 | <290 | <280 | <320 | <340 | <340 | <300 | <340 | <300 | <290 | <280 | <310 | <320 | <330 | <330 |
| Diisopropyl Ether | ug/kg dry | 8260 | 250 | 600 | ID | 6.70E+05 | 9.20E+05 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Ethylbenzene | ug/kg dry | 8260 | 50 | 1,500 | 360 | 87,000 | 2.20E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Ethyltertiarybutylether | ug/kg dry | 8260 | 250 | 980 | ID | 5.40E+05 | ID | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Hexachloroethane | ug/kg dry | 8260 | 300 | 430 | 1,800 | 40,000 | 2.30E+05 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Hexane | ug/kg dry | 8260 | NA | 1.80E+05 | NA | 5.10E+05 | 9.20E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Isopropylbenzene | ug/kg dry | 8260 | 250 | 91,000 | 3,200 | 4.00E+05 | 2.50E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| m & p - Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <160 | <150 | <140 | <160 | **300** | <170 | <150 | <170 | <150 | <150 | <140 | <160 | <160 | <170 | <170 |
| Methylene chloride | ug/kg dry | 8260 | 100 | 100 | 30,000 | 45,000 | 1.30E+06 | <160 | <150 | <140 | <160 | <170 | <170 | <150 | <170 | <150 | <150 | <140 | <160 | <160 | <170 | <170 |
| Methyltertiarybutylether | ug/kg dry | 8260 | 250 | 800 | 140,000 | 9.90E+06 | 1.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Naphthalene | ug/kg dry | 8260 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| n-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| n-Propylbenzene | ug/kg dry | 8260 | 100 | 1,600 | ID | ID | 2.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| o-Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <80 | <73 | <71 | <81 | **260** | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| sec-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Styrene | ug/kg dry | 8260 | 50 | 2,700 | 2,100 | 2.50E+05 | 4.00E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| tert-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| tertiary Butyl Alcohol | ug/kg dry | 8260 | 2,500 | 78,000 | NA | 3.10E+08 | 1.20E+08 | <4000 | <3600 | <3500 | <4100 | <4300 | <4200 | <3800 | <4200 | <3700 | <3700 | <3500 | <3900 | <4000 | <4100 | <4200 |
| tertiaryAmylmethylether | ug/kg dry | 8260 | 250 | 3,900 | NA | 58,000 | 2.90E+07 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Tetrachloroethylene | ug/kg dry | 8260 | 50 | 100 | 1,200 | 11,000 | 2.00E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Tetrahydrofuran | ug/kg dry | 8260 | 1,000 | 1,900 | 220,000 | 1.30E+06 | 2.90E+06 | <400 | <360 | <350 | <410 | <430 | <420 | <380 | <420 | <370 | <370 | <350 | <390 | <400 | <410 | <420 |
| Toluene | ug/kg dry | 8260 | 100 | 16,000 | 5,400 | 3.30E+05 | 5.00E+07 | <80 | <73 | <71 | <81 | **120** | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| trans-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 2,000 | 30,000 | 23,000 | 3.80E+06 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| trans-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Trichloroethylene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,000 | 1.10E+05 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Trichlorofluoromethane | ug/kg dry | 8260 | 100 | 52,000 | NA | 2.80E+06 | 7.90E+07 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |
| Vinyl chloride | ug/kg dry | 8260 | 40 | 40 | 260 | 270 | 3,800 | <80 | <73 | <71 | <81 | <85 | <84 | <75 | <84 | <74 | <73 | <71 | <78 | <79 | <83 | <83 |

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1710040-12 | 1708249-04 | 1707246-01 | 1707246-02 | 1706212-05 | 1706212-12 | 1706212-13 | 1706212-14 | 1706320-04 | 1707027-01 | 1707027-02 | 1707027-03 | 1706212-16 | 1706212-18 | 1708249-08 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | EAST (2) | EAST (3) | EAST (4) | EAST (5) | SOUTH (1) | SOUTH (2) | SOUTH (3) | SOUTH (4) | SOUTH (5) | SOUTH (6) | SOUTH (7) | SOUTH (8) | WEST (1) | WEST(2) | WEST (3) |
| Date Collected | | | | | | | | 10/3/2017 | 8/9/2017 | 7/17/2017 | 7/17/2017 | 6/9/2017 | 6/9/2017 | 6/9/2017 | 6/12/2017 | 6/23/2017 | 7/3/2017 | 7/3/2017 | 7/3/2017 | 6/13/2017 | 6/14/2017 | 8/15/2017 |
| Date Received | | | | | | | | 10/5/2017 | 8/16/2017 | 7/24/2017 | 7/24/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 6/27/2017 | 7/6/2017 | 7/6/2017 | 7/6/2017 | 6/16/2017 | 6/16/2017 | 8/16/2017 |
| **Semi-Volatiles** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | ug/kg dry | 8270 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <590 | <570 | <570 | <580 | <630 | <600 | <2900 | <600 | <590 | <590 | <550 | <580 | <580 | <610 | <610 |
| Acenaphthene | ug/kg dry | 8270 | 330 | 3.00E+05 | 8,700 | 1.90E+08 | 4.10E+07 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Acenaphthylene | ug/kg dry | 8270 | 330 | 5,900 | ID | 1.60E+06 | 1.60E+06 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Anthracene | ug/kg dry | 8270 | 330 | 41,000 | ID | 1.00E+09 | 2.30E+08 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Benz[a]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Benzo[a]pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <470 | <460 | <460 | <470 | <500 | <480 | <2300 | <480 | <470 | <470 | <440 | <460 | <470 | <490 | <490 |
| Benzo[b]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 20,000 | <470 | <460 | <460 | <470 | <500 | <480 | <2300 | <480 | <470 | <470 | <440 | <460 | <470 | <490 | <490 |
| Benzo[g,h,i]perylene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.50E+06 | <470 | <460 | <460 | <470 | <500 | <480 | <2300 | <480 | <470 | <470 | <440 | <460 | <470 | <490 | <490 |
| Benzo[k]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.00E+05 | <470 | <460 | <460 | <470 | <500 | <480 | <2300 | <480 | <470 | <470 | <440 | <460 | <470 | <490 | <490 |
| Chrysene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 2.00E+06 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Dibenz[a,h]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <470 | <460 | <460 | <470 | <500 | <480 | <2300 | <480 | <470 | <470 | <440 | <460 | <470 | <490 | <490 |
| Fluoranthene | ug/kg dry | 8270 | 330 | 7.30E+05 | 5,500 | 1.00E+09 | 4.60E+07 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Fluorene | ug/kg dry | 8270 | 330 | 3.90E+05 | 5,300 | 5.80E+08 | 2.70E+07 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Indeno(1,2,3-c,d)pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <470 | <460 | <460 | <470 | <500 | <480 | <2300 | <480 | <470 | <470 | <440 | <460 | <470 | <490 | <490 |
| Naphthalene | ug/kg dry | 8270 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Phenanthrene | ug/kg dry | 8270 | 330 | 56,000 | 2,100 | 2.80E+06 | 1.60E+06 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| Pyrene | ug/kg dry | 8270 | 330 | 4.80E+05 | ID | 1.00E+09 | 2.90E+07 | <240 | <230 | <230 | <230 | <250 | <240 | <1200 | <240 | <230 | <240 | <220 | <230 | <230 | <240 | <240 |
| **Organics** | | | | | | | | | | | | | | | | | | | | | | |
| Gas Range Organics(C6-C10) | ug/kg dry | 8260 Modified | NA | NA | NA | NA | 900 | <8000 | <7300 | <7100 | **14,000** | **8,000** | <8400 | <7500 | <8400 | <7400 | **260,000** | <7100 | <7800 | <7900 | <8300 | <8300 |
| Diesel Range Org(C10-C20) | ug/kg dry | 8015 | NA | NA | NA | NA | 1,050 | **31,000** | <14000 | **59,000** | **510,000** | **22,000** | <15000 | **18,000** | <15000 | <15000 | **1,100,000** | <14000 | <14000 | <15000 | <15000 | <15000 |
| Oil Range Organics (C20-C34) | ug/kg dry | 8015 | NA | NA | NA | NA | NA | **140,000** | <57000 | **61,000** | **690,000** | **280,000** | <60000 | **120,000** | <60000 | <59000 | **1,000,000** | <55000 | <58000 | <58000 | <61000 | <61000 |
| % Total Solids | % | NA | NA | NA | NA | NA | NA | **84.6** | **87.4** | **87.3** | **85.9** | **79.2** | **82.7** | **86.7** | **83.6** | **85.3** | **84.4** | **90.1** | **86.3** | **85.9** | **82.3** | **82.2** |

**Contaminant was detected.**
Contaminant exceeds DWPC.
Contaminant exceeds GSIPC.
Contaminant exceeds both DWPC and GSIPC.
Contaminant exceeds one or more criteria; SVIIC and/or DCC.
Exceeds GRO/DRO Screening Levels
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLL" means hazardous substance is not likely to leach under most soil conditions.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1710040-06 | 1710040-07 | 1710040-04 | 1710040-09 | 1710040-01 | 1708249-07 | 1708249-09 | 1708249-06 | 1708249-05 | 1708249-03 | 1708249-01 | 1708249-02 | 1708381-01 | 1707246-08 | 1707246-07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | WEST (4) | WEST (5) | C (1) | C (2) | C (3) | C (4) | C (5) | C (6) | C (7) | C (8) | C (9) | C (10) | C(11) | C (12) | C (13) |
| Date Collected | | | | | | | | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 8/15/2017 | 8/15/2017 | 8/11/2017 | 8/9/2017 | 8/9/2017 | 8/9/2017 | 8/9/2017 | 8/21/2017 | 7/20/2017 | 7/20/2017 |
| Date Received | | | | | | | | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/25/2017 | 7/24/2017 | 7/24/2017 |
| **Volatiles** | Units | Method | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/kg dry | 8260 | 100 | 1,500 | ID | 6,200 | 4.80E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,1,1-Trichloroethane | ug/kg dry | 8260 | 50 | 4,000 | 1,800 | 2.50E+05 | 5.00E+08 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,1,2,2-Tetrachloroethane | ug/kg dry | 8260 | 50 | 170 | 1,600 | 4,300 | 53,000 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,1,2-Trichloroethane | ug/kg dry | 8260 | 50 | 100 | 6,600 | 4,600 | 1.80E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,1-Dichloroethane | ug/kg dry | 8260 | 50 | 18,000 | 15,000 | 2.30E+05 | 2.70E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,1-Dichloroethylene | ug/kg dry | 8260 | 50 | 140 | 2,600 | 62 | 2.00E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2,3-Trichlorobenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| 1,2,3-Trichloropropane | ug/kg dry | 8260 | 100 | 840 | NA | 4,000 | 1.30E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2,3-Trimethylbenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2,4-Trichlorobenzene | ug/kg dry | 8260 | 250 | 4,200 | 5,900 | 9.60E+06 | 9.90E+05 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| 1,2,4-Trimethylbenzene | ug/kg dry | 8260 | 100 | 2,100 | 570 | 4.30E+06 | 3.20E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2-Dibromoethane | ug/kg dry | 8260 | 20 | 20 | 110 | 670 | 92 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2-Dichlorobenzene | ug/kg dry | 8260 | 100 | 14,000 | 280 | 1.10E+07 | 1.90E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2-Dichloroethane | ug/kg dry | 8260 | 50 | 100 | 7,200 | 2,100 | 91,000 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,2-Dichloropropane | ug/kg dry | 8260 | 50 | 100 | 4,600 | 4,000 | 1.40E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,3,5-Trimethylbenzene | ug/kg dry | 8260 | 100 | 1,800 | 1,100 | 2.60E+06 | 3.20E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,3-Dichlorobenzene | ug/kg dry | 8260 | 100 | 170 | 680 | 26,000 | 2.00E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 1,4-Dichlorobenzene | ug/kg dry | 8260 | 100 | 1,700 | 360 | 19,000 | 4.00E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| 2,2,4-Trimethylpentane | ug/kg dry | 8260 | 2,500 | ID | NA | 1.10E+05 | ID | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| 2-Butanone (MEK) | ug/kg dry | 8260 | 750 | 2.60E+05 | 44,000 | 5.40E+07 | 1.20E+08 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| 2-Methylnaphthalene | ug/kg dry | 8260 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| 2-Propanone (acetone) | ug/kg dry | 8260 | 1,000 | 15,000 | 34,000 | 2.90E+08 | 2.30E+07 | <1300 | <1400 | <1400 | <1500 | <1500 | <1500 | <1600 | <1600 | <1500 | <1400 | <1500 | <1500 | <1500 | <1400 | <1500 |
| 4-Methyl-2-pentanone (MIBK) | ug/kg dry | 8260 | 2,500 | 36,000 | ID | 3.70E+07 | 5.60E+07 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Acrylonitrile | ug/kg dry | 8260 | 100 | 100 | 100 | 6,600 | 16,000 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Benzene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,600 | 1.80E+05 | <67 | <71 | <70 | <76 | **170** | <75 | **9,700** | <78 | <76 | <72 | <74 | <76 | <77 | <68 | **2,300** |
| Bromochloromethane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Bromodichloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 1,200 | 1.10E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Bromoform | ug/kg dry | 8260 | 100 | 1,600 | ID | 1.50E+05 | 8.20E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Bromomethane | ug/kg dry | 8260 | 200 | 200 | 700 | 860 | 3.20E+05 | <270 | <280 | <280 | <300 | <290 | <300 | <320 | <310 | <300 | <290 | <290 | <300 | <310 | <270 | <300 |
| Carbon disulfide | ug/kg dry | 8260 | 250 | 16,000 | ID | 76,000 | 7.20E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Carbon tetrachloride | ug/kg dry | 8260 | 50 | 100 | 900 | 190 | 96,000 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Chlorobenzene | ug/kg dry | 8260 | 50 | 2,000 | 500 | 1.20E+05 | 4.30E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Chloroethane | ug/kg dry | 8260 | 250 | 8,600 | 22,000 | 2.90E+06 | 2.60E+06 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Chloroform | ug/kg dry | 8260 | 50 | 1,600 | 7,000 | 7,200 | 1.20E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Chloromethane | ug/kg dry | 8260 | 250 | 5,200 | ID | 2,300 | 1.60E+06 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| cis-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 1,400 | 12,000 | 22,000 | 2.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| cis-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Cyclohexane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | **720** |
| Dibromochloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 3,900 | 1.10E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Dibromomethane | ug/kg dry | 8260 | 250 | 1,600 | NA | ID | 2.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Dichlorodifluoromethane | ug/kg dry | 8260 | 250 | 95,000 | ID | 9.00E+05 | 5.20E+07 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Diethyl ether | ug/kg dry | 8260 | 200 | 200 | ID | 2.80E+07 | 1.10E+08 | <270 | <280 | <280 | <300 | <290 | <300 | <320 | <310 | <300 | <290 | <290 | <300 | <310 | <270 | <300 |
| Diisopropyl Ether | ug/kg dry | 8260 | 250 | 600 | ID | 6.70E+05 | 9.20E+05 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Ethylbenzene | ug/kg dry | 8260 | 50 | 1,500 | 360 | 87,000 | 2.20E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Ethyltertiarybutylether | ug/kg dry | 8260 | 250 | 980 | ID | 5.40E+05 | ID | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Hexachloroethane | ug/kg dry | 8260 | 300 | 430 | 1,800 | 40,000 | 2.30E+05 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Hexane | ug/kg dry | 8260 | NA | 1.80E+05 | NA | 5.10E+05 | 9.20E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Isopropylbenzene | ug/kg dry | 8260 | 250 | 91,000 | 3,200 | 4.00E+05 | 2.50E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| m & p - Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <130 | <140 | <140 | <150 | <150 | <150 | <160 | <160 | <150 | <140 | <150 | <150 | <150 | <140 | <150 |
| Methylene chloride | ug/kg dry | 8260 | 100 | 100 | 30,000 | 45,000 | 1.30E+06 | <130 | <140 | <140 | <150 | <150 | <150 | <160 | <160 | <150 | <140 | <150 | <150 | <150 | <140 | <150 |
| Methyltertiarybutylether | ug/kg dry | 8260 | 250 | 800 | 140,000 | 9.90E+06 | 1.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Naphthalene | ug/kg dry | 8260 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| n-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| n-Propylbenzene | ug/kg dry | 8260 | 100 | 1,600 | ID | ID | 2.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| o-Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| sec-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Styrene | ug/kg dry | 8260 | 50 | 2,700 | 2,100 | 2.50E+05 | 4.00E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| tert-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| tertiary Butyl Alcohol | ug/kg dry | 8260 | 2,500 | 78,000 | NA | 3.10E+08 | 1.20E+08 | <3400 | <3600 | <3500 | <3800 | <3600 | <3700 | <4000 | <3900 | <3800 | <3600 | <3700 | <3800 | <3800 | <3400 | <3800 |
| tertiaryAmylmethylether | ug/kg dry | 8260 | 250 | 3,900 | NA | 58,000 | 2.90E+07 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Tetrachloroethylene | ug/kg dry | 8260 | 50 | 100 | 1,200 | 11,000 | 2.00E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Tetrahydrofuran | ug/kg dry | 8260 | 1,000 | 1,900 | 220,000 | 1.30E+06 | 2.90E+06 | <340 | <360 | <350 | <380 | <360 | <370 | <400 | <390 | <380 | <360 | <370 | <380 | <380 | <340 | <380 |
| Toluene | ug/kg dry | 8260 | 100 | 16,000 | 5,400 | 3.30E+05 | 5.00E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| trans-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 2,000 | 30,000 | 23,000 | 3.80E+06 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| trans-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Trichloroethylene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,000 | 1.10E+05 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Trichlorofluoromethane | ug/kg dry | 8260 | 100 | 52,000 | NA | 2.80E+06 | 7.90E+07 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |
| Vinyl chloride | ug/kg dry | 8260 | 40 | 40 | 260 | 270 | 3,800 | <67 | <71 | <70 | <76 | <73 | <75 | <80 | <78 | <76 | <72 | <74 | <76 | <77 | <68 | <75 |

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1710040-06 | 1710040-07 | 1710040-04 | 1710040-09 | 1710040-01 | 1708249-07 | 1708249-09 | 1708249-06 | 1708249-05 | 1708249-03 | 1708249-01 | 1708249-02 | 1708381-01 | 1707246-08 | 1707246-07 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | WEST (4) | WEST (5) | C (1) | C (2) | C (3) | C (4) | C (5) | C (6) | C (7) | C (8) | C (9) | C (10) | C(11) | C (12) | C (13) |
| Date Collected | | | | | | | | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 10/3/2017 | 8/15/2017 | 8/15/2017 | 8/11/2017 | 8/9/2017 | 8/9/2017 | 8/9/2017 | 8/9/2017 | 8/21/2017 | 7/20/2017 | 7/20/2017 |
| Date Received | | | | | | | | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 10/5/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/16/2017 | 8/25/2017 | 7/24/2017 | 7/24/2017 |
| **Semi-Volatiles** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | ug/kg dry | 8270 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <13000 | <2600 | <550 | <600 | <580 | <570 | <570 | <560 | <570 | <580 | <570 | <570 | <580 | <560 | <570 |
| Acenaphthene | ug/kg dry | 8270 | 330 | 3.00E+05 | 8,700 | 1.90E+08 | 4.10E+07 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Acenaphthylene | ug/kg dry | 8270 | 330 | 5,900 | ID | 1.60E+06 | 1.60E+06 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Anthracene | ug/kg dry | 8270 | 330 | 41,000 | ID | 1.00E+09 | 2.30E+08 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Benz[a]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Benzo[a]pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <11000 | <2100 | <440 | <480 | <460 | <460 | <460 | <450 | <460 | <460 | <460 | <450 | <460 | <450 | <450 |
| Benzo[b]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 20,000 | <11000 | <2100 | <440 | <480 | <460 | <460 | <460 | <450 | <460 | <460 | <460 | <450 | <460 | <450 | <450 |
| Benzo[g,h,i]perylene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.50E+06 | <11000 | <2100 | <440 | <480 | <460 | <460 | <460 | <450 | <460 | <460 | <460 | <450 | <460 | <450 | <450 |
| Benzo[k]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.00E+05 | <11000 | <2100 | <440 | <480 | <460 | <460 | <460 | <450 | <460 | <460 | <460 | <450 | <460 | <450 | <450 |
| Chrysene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 2.00E+06 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Dibenz[a,h]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <11000 | <2100 | <440 | <480 | <460 | <460 | <460 | <450 | <460 | <460 | <460 | <450 | <460 | <450 | <450 |
| Fluoranthene | ug/kg dry | 8270 | 330 | 7.30E+05 | 5,500 | 1.00E+09 | 4.60E+07 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Fluorene | ug/kg dry | 8270 | 330 | 3.90E+05 | 5,300 | 5.80E+08 | 2.70E+07 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Indeno(1,2,3-c,d)pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <11000 | <2100 | <440 | <480 | <460 | <460 | <460 | <450 | <460 | <460 | <460 | <450 | <460 | <450 | <450 |
| Naphthalene | ug/kg dry | 8270 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Phenanthrene | ug/kg dry | 8270 | 330 | 56,000 | 2,100 | 2.80E+06 | 1.60E+06 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| Pyrene | ug/kg dry | 8270 | 330 | 4.80E+05 | ID | 1.00E+09 | 2.90E+07 | <5300 | <1000 | <220 | <240 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 | <230 |
| **Organics** | | | | | | | | | | | | | | | | | | | | | | |
| Gas Range Organics(C6-C10) | ug/kg dry | 8260 Modified | NA | NA | NA | NA | 900 | <6700 | <7100 | **27,000** | <7600 | <7300 | <7500 | **24,000** | <7800 | <7600 | <7200 | <7400 | <7600 | <7700 | **6,500** | **8,800** |
| Diesel Range Org(C10-C20) | ug/kg dry | 8015 | NA | NA | NA | NA | 1,050 | <130000 | <130000 | <14000 | <15000 | <14000 | <14000 | <14000 | <14000 | <14000 | **18,000** | <14000 | **14,000** | <14000 | **23,000** | **20,000** |
| Oil Range Organics (C20-C34) | ug/kg dry | 8015 | NA | NA | NA | NA | NA | **1,300,000** | **790,000** | <55000 | <60000 | <58000 | <57000 | <57000 | <56000 | <57000 | <58000 | <57000 | <57000 | <58000 | <56000 | <57000 |
| % Total Solids | % | NA | NA | NA | NA | NA | NA | NA | **95.2** | **95.3** | **91.1** | **83.8** | **86.8** | **87.8** | **87.4** | **88.6** | **87.0** | **86.3** | **87.7** | **88.1** | **86.5** | **88.6** | **88.0** |

**Contaminant was detected.**
Contaminant exceeds DWPC.
Contaminant exceeds GSIPC.
Contaminant exceeds both DWPC and GSIPC.
Contaminant exceeds one or more criteria; SVIIC and/or DCC.
Exceeds GRO/DRO Screening Levels
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLL" means hazardous substance is not likely to leach under most soil conditions.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1707246-05 | 1706320-01 | 1706320-02 | 1706212-15 | 1706212-19 | 1706212-17 | 1710075-01 | 1710075-02 | 1710075-03 | 1710075-04 | 1710075-05 | 1710075-06 | 1710075-07 | 1710075-08 | 1710075-09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | C (14) | C(15) | C(16) | C(17) | C(18) | C(19) | KHT-1 | KHT-2 | KHT-3 | KHT-4 | KHT-5 | KHT-6 | KHT-7 | KHT-8 | KHT-9 |
| Date Collected | | | | | | | | 7/18/2017 | 6/23/2017 | 6/23/2017 | 6/13/2017 | 6/16/2017 | 6/14/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 |
| Date Received | | | | | | | | 7/24/2017 | 6/27/2017 | 6/27/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 |
| **Volatiles** | Units | Method | | | | | | | | | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/kg dry | 8260 | 100 | 1,500 | ID | 6,200 | 4.80E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,1,1-Trichloroethane | ug/kg dry | 8260 | 50 | 4,000 | 1,800 | 2.50E+05 | 5.00E+08 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,1,2,2-Tetrachloroethane | ug/kg dry | 8260 | 50 | 170 | 1,600 | 4,300 | 53,000 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,1,2-Trichloroethane | ug/kg dry | 8260 | 50 | 100 | 6,600 | 4,600 | 1.80E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,1-Dichloroethane | ug/kg dry | 8260 | 50 | 18,000 | 15,000 | 2.30E+05 | 2.70E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,1-Dichloroethylene | ug/kg dry | 8260 | 50 | 140 | 2,600 | 62 | 2.00E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2,3-Trichlorobenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| 1,2,3-Trichloropropane | ug/kg dry | 8260 | 100 | 840 | NA | 4,000 | 1.30E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2,3-Trimethylbenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2,4-Trichlorobenzene | ug/kg dry | 8260 | 250 | 4,200 | 5,900 | 9.60E+06 | 9.90E+05 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| 1,2,4-Trimethylbenzene | ug/kg dry | 8260 | 100 | 2,100 | 570 | 4.30E+06 | 3.20E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2-Dibromoethane | ug/kg dry | 8260 | 20 | 20 | 110 | 670 | 92 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2-Dichlorobenzene | ug/kg dry | 8260 | 100 | 14,000 | 280 | 1.10E+07 | 1.90E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2-Dichloroethane | ug/kg dry | 8260 | 50 | 100 | 7,200 | 2,100 | 91,000 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,2-Dichloropropane | ug/kg dry | 8260 | 50 | 100 | 4,600 | 4,000 | 1.40E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,3,5-Trimethylbenzene | ug/kg dry | 8260 | 100 | 1,800 | 1,100 | 2.60E+06 | 3.20E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,3-Dichlorobenzene | ug/kg dry | 8260 | 100 | 170 | 680 | 26,000 | 2.00E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 1,4-Dichlorobenzene | ug/kg dry | 8260 | 100 | 1,700 | 360 | 19,000 | 4.00E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| 2,2,4-Trimethylpentane | ug/kg dry | 8260 | 2,500 | ID | NA | 1.10E+05 | ID | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| 2-Butanone (MEK) | ug/kg dry | 8260 | 750 | 2.60E+05 | 44,000 | 5.40E+07 | 1.20E+08 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| 2-Methylnaphthalene | ug/kg dry | 8260 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | **2,100** | **6,100** | **400** | **3,000** | <300 | **500** |
| 2-Propanone (acetone) | ug/kg dry | 8260 | 1,000 | 15,000 | 34,000 | 2.90E+08 | 2.30E+07 | <1500 | <1500 | <1700 | <1500 | <1500 | <1500 | <1800 | <2700 | <1600 | <3300 | <6400 | <1600 | <3100 | <1200 | <1700 |
| 4-Methyl-2-pentanone (MIBK) | ug/kg dry | 8260 | 2,500 | 36,000 | ID | 3.70E+07 | 5.60E+07 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Acrylonitrile | ug/kg dry | 8260 | 100 | 100 | 100 | 6,600 | 16,000 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Benzene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,600 | 1.80E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Bromochloromethane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Bromodichloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 1,200 | 1.10E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Bromoform | ug/kg dry | 8260 | 100 | 1,600 | ID | 1.50E+05 | 8.20E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Bromomethane | ug/kg dry | 8260 | 200 | 200 | 700 | 860 | 3.20E+05 | <290 | <310 | <350 | <300 | <300 | <300 | <370 | <530 | <310 | <660 | <1300 | <320 | <630 | <240 | <340 |
| Carbon disulfide | ug/kg dry | 8260 | 250 | 16,000 | ID | 76,000 | 7.20E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Carbon tetrachloride | ug/kg dry | 8260 | 50 | 100 | 900 | 190 | 96,000 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Chlorobenzene | ug/kg dry | 8260 | 50 | 2,000 | 500 | 1.20E+05 | 4.30E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Chloroethane | ug/kg dry | 8260 | 250 | 8,600 | 22,000 | 2.90E+06 | 2.60E+06 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Chloroform | ug/kg dry | 8260 | 50 | 1,600 | 7,000 | 7,200 | 1.20E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Chloromethane | ug/kg dry | 8260 | 250 | 5,200 | ID | 2,300 | 1.60E+06 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| cis-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 1,400 | 12,000 | 22,000 | 2.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| cis-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Cyclohexane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Dibromochloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 3,900 | 1.10E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Dibromomethane | ug/kg dry | 8260 | 250 | 1,600 | NA | ID | 2.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Dichlorodifluoromethane | ug/kg dry | 8260 | 250 | 95,000 | ID | 9.00E+05 | 5.20E+07 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Diethyl ether | ug/kg dry | 8260 | 200 | 200 | ID | 2.80E+07 | 1.10E+08 | <290 | <310 | <350 | <300 | <300 | <300 | <370 | <530 | <310 | <660 | <1300 | <320 | <630 | <240 | <340 |
| Diisopropyl Ether | ug/kg dry | 8260 | 250 | 600 | ID | 6.70E+05 | 9.20E+05 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Ethylbenzene | ug/kg dry | 8260 | 50 | 1,500 | 360 | 87,000 | 2.20E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Ethyltertiarybutylether | ug/kg dry | 8260 | 250 | 980 | ID | 5.40E+05 | ID | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Hexachloroethane | ug/kg dry | 8260 | 300 | 430 | 1,800 | 40,000 | 2.30E+05 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Hexane | ug/kg dry | 8260 | NA | 1.80E+05 | NA | 5.10E+05 | 9.20E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Isopropylbenzene | ug/kg dry | 8260 | 250 | 91,000 | 3,200 | 4.00E+05 | 2.50E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | **180** | **500** | <80 | **330** | <59 | <85 |
| m & p - Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <150 | <150 | <170 | <150 | <150 | <150 | <180 | <270 | <160 | <330 | <640 | <160 | <310 | <120 | <170 |
| Methylene chloride | ug/kg dry | 8260 | 100 | 100 | 30,000 | 45,000 | 1.30E+06 | <150 | <150 | <170 | <150 | <150 | <150 | <180 | <270 | <160 | <330 | <640 | <160 | <310 | <120 | <170 |
| Methyltertiarybutylether | ug/kg dry | 8260 | 250 | 800 | 140,000 | 9.90E+06 | 1.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Naphthalene | ug/kg dry | 8260 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | **860** | <300 | <420 |
| n-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | **470** | **910** | **120** | **610** | <59 | **120** |
| n-Propylbenzene | ug/kg dry | 8260 | 100 | 1,600 | ID | ID | 2.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | **310** | **610** | **81** | **430** | <59 | **99** |
| o-Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| sec-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | **470** | **850** | **120** | **610** | <59 | **98** |
| Styrene | ug/kg dry | 8260 | 50 | 2,700 | 2,100 | 2.50E+05 | 4.00E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| tert-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| tertiary Butyl Alcohol | ug/kg dry | 8260 | 2,500 | 78,000 | NA | 3.10E+08 | 1.20E+08 | <3700 | <3900 | <4400 | <3800 | <3700 | <3800 | <4600 | <6700 | <3900 | <8200 | <16000 | <4000 | <7800 | <3000 | <4200 |
| tertiaryAmylmethylether | ug/kg dry | 8260 | 250 | 3,900 | NA | 58,000 | 2.90E+07 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Tetrachloroethylene | ug/kg dry | 8260 | 50 | 100 | 1,200 | 11,000 | 2.00E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Tetrahydrofuran | ug/kg dry | 8260 | 1,000 | 1,900 | 220,000 | 1.30E+06 | 2.90E+06 | <370 | <390 | <440 | <380 | <370 | <380 | <460 | <670 | <390 | <820 | <1600 | <400 | <780 | <300 | <420 |
| Toluene | ug/kg dry | 8260 | 100 | 16,000 | 5,400 | 3.30E+05 | 5.00E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| trans-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 2,000 | 30,000 | 23,000 | 3.80E+06 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| trans-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Trichloroethylene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,000 | 1.10E+05 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Trichlorofluoromethane | ug/kg dry | 8260 | 100 | 52,000 | NA | 2.80E+06 | 7.90E+07 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |
| Vinyl chloride | ug/kg dry | 8260 | 40 | 40 | 260 | 270 | 3,800 | <73 | <77 | <87 | <75 | <74 | <76 | <91 | <130 | <78 | <160 | <320 | <80 | <160 | <59 | <85 |

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1707246-05 | 1706320-01 | 1706320-02 | 1706212-15 | 1706212-19 | 1706212-17 | 1710075-01 | 1710075-02 | 1710075-03 | 1710075-04 | 1710075-05 | 1710075-06 | 1710075-07 | 1710075-08 | 1710075-09 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | C (14) | C(15) | C(16) | C(17) | C(18) | C(19) | KHT-1 | KHT-2 | KHT-3 | KHT-4 | KHT-5 | KHT-6 | KHT-7 | KHT-8 | KHT-9 |
| Date Collected | | | | | | | | 7/18/2017 | 6/23/2017 | 6/23/2017 | 6/13/2017 | 6/16/2017 | 6/14/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 |
| Date Received | | | | | | | | 7/24/2017 | 6/27/2017 | 6/27/2017 | 6/16/2017 | 6/16/2017 | 6/16/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 |
| **Semi-Volatiles** | | | | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | ug/kg dry | 8270 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <570 | <590 | <590 | <590 | <570 | <570 | <610 | <550 | <590 | <590 | **1,600** | <600 | **940** | <260 | <610 |
| Acenaphthene | ug/kg dry | 8270 | 330 | 3.00E+05 | 8,700 | 1.90E+08 | 4.10E+07 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | <230 | <240 | <230 | <100 | <240 |
| Acenaphthylene | ug/kg dry | 8270 | 330 | 5,900 | ID | 1.60E+06 | 1.60E+06 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | <230 | <240 | <230 | <100 | <240 |
| Anthracene | ug/kg dry | 8270 | 330 | 41,000 | ID | 1.00E+09 | 2.30E+08 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | <230 | <240 | <230 | <100 | <240 |
| Benz[a]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | <230 | <240 | <230 | <100 | <240 |
| Benzo[a]pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <460 | <470 | <480 | <470 | <460 | <460 | <480 | <440 | <470 | <470 | <460 | <480 | <470 | <200 | <490 |
| Benzo[b]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 20,000 | <460 | <470 | <480 | <470 | <460 | <460 | <480 | <440 | <470 | <470 | <460 | <480 | <470 | <200 | <490 |
| Benzo[g,h,i]perylene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.50E+06 | <460 | <470 | <480 | <470 | <460 | <460 | <480 | <440 | <470 | <470 | <460 | <480 | <470 | <200 | <490 |
| Benzo[k]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.00E+05 | <460 | <470 | <480 | <470 | <460 | <460 | <480 | <440 | <470 | <470 | <460 | <480 | <470 | <200 | <490 |
| Chrysene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 2.00E+06 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | <230 | <240 | <230 | <100 | <240 |
| Dibenz[a,h]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <460 | <470 | <480 | <470 | <460 | <460 | <480 | <440 | <470 | <470 | <460 | <480 | <470 | <200 | <490 |
| Fluoranthene | ug/kg dry | 8270 | 330 | 7.30E+05 | 5,500 | 1.00E+09 | 4.60E+07 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | **340** | <240 | **280** | <100 | <240 |
| Fluorene | ug/kg dry | 8270 | 330 | 3.90E+05 | 5,300 | 5.80E+08 | 2.70E+07 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | **350** | <240 | **350** | <100 | <240 |
| Indeno(1,2,3-c,d)pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <460 | <470 | <480 | <470 | <460 | <460 | <480 | <440 | <470 | <470 | <460 | <480 | <470 | <200 | <490 |
| Naphthalene | ug/kg dry | 8270 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | <230 | <240 | <230 | <100 | <240 |
| Phenanthrene | ug/kg dry | 8270 | 330 | 56,000 | 2,100 | 2.80E+06 | 1.60E+06 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | **570** | **1,100** | **250** | **1,100** | <100 | **240** |
| Pyrene | ug/kg dry | 8270 | 330 | 4.80E+05 | ID | 1.00E+09 | 2.90E+07 | <230 | <230 | <240 | <240 | <230 | <230 | <240 | <220 | <240 | <240 | **230** | <240 | <230 | <100 | <240 |
| **Organics** | | | | | | | | | | | | | | | | | | | | | | |
| Gas Range Organics(C6-C10) | ug/kg dry | 8260 Modified | NA | NA | NA | NA | 900 | <7300 | <7700 | <8700 | <7500 | **20,000** | <7600 | **12,000** | **160,000** | **15,000** | **190,000** | **440,000** | **61,000** | **300,000** | <5900 | **66,000** |
| Diesel Range Org(C10-C20) | ug/kg dry | 8015 | NA | NA | NA | NA | 1,050 | **17,000** | <15000 | <15000 | <15000 | <14000 | <14000 | **100,000** | **1,700,000** | **20,000** | **650,000** | **1,900,000** | **820,000** | **840,000** | <13000 | **290,000** |
| Oil Range Organics (C20-C34) | ug/kg dry | 8015 | NA | NA | NA | NA | NA | <57000 | <59000 | <59000 | <59000 | <57000 | <57000 | **62,000** | **1,800,000** | <59000 | **610,000** | **1,600,000** | **140,000** | **890,000** | <51000 | **190,000** |
| % Total Solids | % | NA | NA | NA | NA | NA | NA | **87.3** | **85.1** | **84.1** | **84.9** | **87.4** | **87.6** | **82.6** | **91.6** | **85.0** | **84.5** | **86.4** | **83.8** | **86.0** | **97.7** | **81.6** |

**Contaminant was detected.**
Contaminant exceeds DWPC.
Contaminant exceeds GSIPC.
Contaminant exceeds both DWPC and GSIPC.
Contaminant exceeds one or more criteria; SVIIC and/or DCC.
Exceeds GRO/DRO Screening Levels
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLL" means hazardous substance is not likely to leach under most soil conditions.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1710075-10 | 1710075-11 | 1710075-12 | 1710075-13 | 1710075-14 | 1707246-06 | 1710075-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | KHT-10 | KHT-11 | KHT-12 | KHT-13 | KHT-14 | TB-071817 | TB-100917 |
| Date Collected | | | | | | | | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 5/18/2017 | 5/8/2017 |
| Date Received | | | | | | | | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 7/24/2017 | 10/10/2017 |
| **Volatiles** | Units | Method | | | | | | | | | | | | |
| 1,1,1,2-Tetrachloroethane | ug/kg dry | 8260 | 100 | 1,500 | ID | 6,200 | 4.80E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,1,1-Trichloroethane | ug/kg dry | 8260 | 50 | 4,000 | 1,800 | 2.50E+05 | 5.00E+08 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,1,2,2-Tetrachloroethane | ug/kg dry | 8260 | 50 | 170 | 1,600 | 4,300 | 53,000 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,1,2-Trichloroethane | ug/kg dry | 8260 | 50 | 100 | 6,600 | 4,600 | 1.80E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,1-Dichloroethane | ug/kg dry | 8260 | 50 | 18,000 | 15,000 | 2.30E+05 | 2.70E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,1-Dichloroethylene | ug/kg dry | 8260 | 50 | 140 | 2,600 | 62 | 2.00E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2,3-Trichlorobenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| 1,2,3-Trichloropropane | ug/kg dry | 8260 | 100 | 840 | NA | 4,000 | 1.30E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2,3-Trimethylbenzene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2,4-Trichlorobenzene | ug/kg dry | 8260 | 250 | 4,200 | 5,900 | 9.60E+06 | 9.90E+05 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| 1,2,4-Trimethylbenzene | ug/kg dry | 8260 | 100 | 2,100 | 570 | 4.30E+06 | 3.20E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2-Dibromoethane | ug/kg dry | 8260 | 20 | 20 | 110 | 670 | 92 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2-Dichlorobenzene | ug/kg dry | 8260 | 100 | 14,000 | 280 | 1.10E+07 | 1.90E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2-Dichloroethane | ug/kg dry | 8260 | 50 | 100 | 7,200 | 2,100 | 91,000 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,2-Dichloropropane | ug/kg dry | 8260 | 50 | 100 | 4,600 | 4,000 | 1.40E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,3,5-Trimethylbenzene | ug/kg dry | 8260 | 100 | 1,800 | 1,100 | 2.60E+06 | 3.20E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,3-Dichlorobenzene | ug/kg dry | 8260 | 100 | 170 | 680 | 26,000 | 2.00E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 1,4-Dichlorobenzene | ug/kg dry | 8260 | 100 | 1,700 | 360 | 19,000 | 4.00E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| 2,2,4-Trimethylpentane | ug/kg dry | 8260 | 2,500 | ID | NA | 1.10E+05 | ID | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| 2-Butanone (MEK) | ug/kg dry | 8260 | 750 | 2.60E+05 | 44,000 | 5.40E+07 | 1.20E+08 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| 2-Methylnaphthalene | ug/kg dry | 8260 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | **1,500** | **74,000** | <310 | <420 | <420 | <250 | <250 |
| 2-Propanone (acetone) | ug/kg dry | 8260 | 1,000 | 15,000 | 34,000 | 2.90E+08 | 2.30E+07 | <1700 | <34000 | <1200 | <1700 | <1700 | <1000 | <1000 |
| 4-Methyl-2-pentanone (MIBK) | ug/kg dry | 8260 | 2,500 | 36,000 | ID | 3.70E+07 | 5.60E+07 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Acrylonitrile | ug/kg dry | 8260 | 100 | 100 | 100 | 6,600 | 16,000 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Benzene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,600 | 1.80E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Bromochloromethane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Bromodichloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 1,200 | 1.10E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Bromoform | ug/kg dry | 8260 | 100 | 1,600 | ID | 1.50E+05 | 8.20E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Bromomethane | ug/kg dry | 8260 | 200 | 200 | 700 | 860 | 3.20E+05 | <340 | <6900 | <250 | <340 | <340 | <200 | <200 |
| Carbon disulfide | ug/kg dry | 8260 | 250 | 16,000 | ID | 76,000 | 7.20E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Carbon tetrachloride | ug/kg dry | 8260 | 50 | 100 | 900 | 190 | 96,000 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Chlorobenzene | ug/kg dry | 8260 | 50 | 2,000 | 500 | 1.20E+05 | 4.30E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Chloroethane | ug/kg dry | 8260 | 250 | 8,600 | 22,000 | 2.90E+06 | 2.60E+06 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Chloroform | ug/kg dry | 8260 | 50 | 1,600 | 7,000 | 7,200 | 1.20E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Chloromethane | ug/kg dry | 8260 | 250 | 5,200 | ID | 2,300 | 1.60E+06 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| cis-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 1,400 | 12,000 | 22,000 | 2.50E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| cis-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Cyclohexane | ug/kg dry | 8260 | NA | NA | NA | NA | NA | **680** | **18,000** | <310 | <420 | <420 | <250 | <250 |
| Dibromochloromethane | ug/kg dry | 8260 | 100 | 1,600 | ID | 3,900 | 1.10E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Dibromomethane | ug/kg dry | 8260 | 250 | 1,600 | NA | ID | 2.50E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Dichlorodifluoromethane | ug/kg dry | 8260 | 250 | 95,000 | ID | 9.00E+05 | 5.20E+07 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Diethyl ether | ug/kg dry | 8260 | 200 | 200 | ID | 2.80E+07 | 1.10E+08 | <340 | <6900 | <250 | <340 | <340 | <200 | <200 |
| Diisopropyl Ether | ug/kg dry | 8260 | 250 | 600 | ID | 6.70E+05 | 9.20E+05 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Ethylbenzene | ug/kg dry | 8260 | 50 | 1,500 | 360 | 87,000 | 2.20E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Ethyltertiarybutylether | ug/kg dry | 8260 | 250 | 980 | ID | 5.40E+05 | ID | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Hexachloroethane | ug/kg dry | 8260 | 300 | 430 | 1,800 | 40,000 | 2.30E+05 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Hexane | ug/kg dry | 8260 | NA | 1.80E+05 | NA | 5.10E+05 | 9.20E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Isopropylbenzene | ug/kg dry | 8260 | 250 | 91,000 | 3,200 | 4.00E+05 | 2.50E+07 | **310** | **11,000** | <62 | <84 | <85 | <50 | <50 |
| m & p - Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <170 | <3400 | <120 | <170 | <170 | <100 | <100 |
| Methylene chloride | ug/kg dry | 8260 | 100 | 100 | 30,000 | 45,000 | 1.30E+06 | <170 | <3400 | <120 | <170 | <170 | <100 | <100 |
| Methyltertiarybutylether | ug/kg dry | 8260 | 250 | 800 | 140,000 | 9.90E+06 | 1.50E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Naphthalene | ug/kg dry | 8260 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <420 | **22,000** | <310 | <420 | <420 | <250 | <250 |
| n-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | **310** | **12,000** | <62 | <84 | <85 | <50 | <50 |
| n-Propylbenzene | ug/kg dry | 8260 | 100 | 1,600 | ID | ID | 2.50E+06 | **440** | **17,000** | <62 | <84 | <85 | <50 | <50 |
| o-Xylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| sec-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | **340** | **9,800** | <62 | <84 | <85 | <50 | <50 |
| Styrene | ug/kg dry | 8260 | 50 | 2,700 | 2,100 | 2.50E+05 | 4.00E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| tert-Butylbenzene | ug/kg dry | 8260 | 50 | 1,600 | ID | ID | 2.50E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| tertiary Butyl Alcohol | ug/kg dry | 8260 | 2,500 | 78,000 | NA | 3.10E+08 | 1.20E+08 | <4200 | <86000 | <3100 | <4200 | <4200 | <2500 | <2500 |
| tertiaryAmylmethylether | ug/kg dry | 8260 | 250 | 3,900 | NA | 58,000 | 2.90E+07 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Tetrachloroethylene | ug/kg dry | 8260 | 50 | 100 | 1,200 | 11,000 | 2.00E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Tetrahydrofuran | ug/kg dry | 8260 | 1,000 | 1,900 | 220,000 | 1.30E+06 | 2.90E+06 | <420 | <8600 | <310 | <420 | <420 | <250 | <250 |
| Toluene | ug/kg dry | 8260 | 100 | 16,000 | 5,400 | 3.30E+05 | 5.00E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| trans-1,2-Dichloroethylene | ug/kg dry | 8260 | 50 | 2,000 | 30,000 | 23,000 | 3.80E+06 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| trans-1,3-Dichloropropylene | ug/kg dry | 8260 | NA | NA | NA | NA | NA | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Trichloroethylene | ug/kg dry | 8260 | 50 | 100 | 4,000 | 1,000 | 1.10E+05 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Trichlorofluoromethane | ug/kg dry | 8260 | 100 | 52,000 | NA | 2.80E+06 | 7.90E+07 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |
| Vinyl chloride | ug/kg dry | 8260 | 40 | 40 | 260 | 270 | 3,800 | <85 | <1700 | <62 | <84 | <85 | <50 | <50 |

**Table 1**
**Soil Excavation Data**
**MDEQ Pullman Industries**
**AECOM Project No. 60477048**

| Sample Number | | | Target Detection Limit (TDL) | Drinking Water Protection Criteria (DWPC) | Groundwater Surface Water Protection Criteria (GSIPC) | Soil Volatilization to Indoor Air Inhalation Criteria (SVIIC) | Direct Contact Criteria (DCC) | 1710075-10 | 1710075-11 | 1710075-12 | 1710075-13 | 1710075-14 | 1707246-06 | 1710075-15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sample ID | | | | | | | | KHT-10 | KHT-11 | KHT-12 | KHT-13 | KHT-14 | TB-071817 | TB-100917 |
| Date Collected | | | | | | | | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 10/9/2017 | 5/18/2017 | 5/8/2017 |
| Date Received | | | | | | | | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 10/10/2017 | 7/24/2017 | 10/10/2017 |
| **Semi-Volatiles** | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | ug/kg dry | 8270 | 330 | 57,000 | 4,200 | 2.70E+06 | 8.10E+06 | <610 | **2,200** | <560 | <580 | <580 | NA | NA |
| Acenaphthene | ug/kg dry | 8270 | 330 | 3.00E+05 | 8,700 | 1.90E+08 | 4.10E+07 | <240 | <240 | <220 | <230 | <230 | NA | NA |
| Acenaphthylene | ug/kg dry | 8270 | 330 | 5,900 | ID | 1.60E+06 | 1.60E+06 | <240 | <240 | <220 | <230 | <230 | NA | NA |
| Anthracene | ug/kg dry | 8270 | 330 | 41,000 | ID | 1.00E+09 | 2.30E+08 | <240 | <240 | <220 | <230 | <230 | NA | NA |
| Benz[a]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <240 | <240 | <220 | <230 | <230 | NA | NA |
| Benzo[a]pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <490 | <490 | <450 | <460 | <460 | NA | NA |
| Benzo[b]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 20,000 | <490 | <490 | <450 | <460 | <460 | NA | NA |
| Benzo[g,h,i]perylene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.50E+06 | <490 | <490 | <450 | <460 | <460 | NA | NA |
| Benzo[k]fluoranthene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2.00E+05 | <490 | <490 | <450 | <460 | <460 | NA | NA |
| Chrysene | ug/kg dry | 8270 | 330 | NLL | NLL | ID | 2.00E+06 | <240 | <240 | <220 | <230 | <230 | NA | NA |
| Dibenz[a,h]anthracene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 2,000 | <490 | <490 | <450 | <460 | <460 | NA | NA |
| Fluoranthene | ug/kg dry | 8270 | 330 | 7.30E+05 | 5,500 | 1.00E+09 | 4.60E+07 | <240 | **280** | <220 | <230 | <230 | NA | NA |
| Fluorene | ug/kg dry | 8270 | 330 | 3.90E+05 | 5,300 | 5.80E+08 | 2.70E+07 | <240 | **430** | <220 | <230 | <230 | NA | NA |
| Indeno(1,2,3-c,d)pyrene | ug/kg dry | 8270 | 330 | NLL | NLL | NLV | 20,000 | <490 | <490 | <450 | <460 | <460 | NA | NA |
| Naphthalene | ug/kg dry | 8270 | 330 | 35,000 | 730 | 2.50E+05 | 1.60E+07 | <240 | **540** | <220 | <230 | <230 | NA | NA |
| Phenanthrene | ug/kg dry | 8270 | 330 | 56,000 | 2,100 | 2.80E+06 | 1.60E+06 | <240 | **1,300** | <220 | <230 | <230 | NA | NA |
| Pyrene | ug/kg dry | 8270 | 330 | 4.80E+05 | ID | 1.00E+09 | 2.90E+07 | <240 | <240 | <220 | <230 | <230 | NA | NA |
| **Organics** | | | | | | | | | | | | | | |
| Gas Range Organics(C6-C10) | ug/kg dry | 8260 Modified | NA | NA | NA | NA | 900 | **260,000** | **460,000** | **50,000** | <8400 | <8500 | NA | NA |
| Diesel Range Org(C10-C20) | ug/kg dry | 8015 | NA | NA | NA | NA | 1,050 | **270,000** | **2,800,000** | **180,000** | **480,000** | <14000 | NA | NA |
| Oil Range Organics (C20-C34) | ug/kg dry | 8015 | NA | NA | NA | NA | NA | **190,000** | **1,800,000** | **95,000** | **360,000** | <58000 | NA | NA |
| % Total Solids | % | NA | NA | NA | NA | NA | NA | **81.8** | **82.4** | **89.1** | **86.5** | **86.9** | **100** | **100** |

**Contaminant was detected.**
Contaminant exceeds DWPC.
Contaminant exceeds GSIPC.
Contaminant exceeds both DWPC and GSIPC.
Contaminant exceeds one or more criteria; SVIIC and/or DCC.
Exceeds GRO/DRO Screening Levels
"ID" means insufficient data to develop criterion.
"NA" means a criterion or value is not available or, in the case of background, not applicable.
"NLL" means hazardous substance is not likely to leach under most soil conditions.
"NLV" means hazardous substance is not likely to volatilize under most conditions.
Letters in criteria columns refer to Footnotes of the Criteria/RBSLs tables.

# ATTACHMENT 1

# PHOTOGRAPHIC LOG

| Photo No.: | Date: |
|---|---|
| 1 | 5/08/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Site building and paved area prior to demolition / excavation activities.

= 

| Photo No.: | Date: |
|---|---|
| 2 | 5/24/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Demolition of eastern AST.

| Photo No.: | Date: |
|---|---|
| 3 | 5/26/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Scrap steel from ASTs loaded for off-site disposal.


| Photo No.: | Date: |
|---|---|
| 4 | 6/02/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Demolition of western portion of Site building.

| Photo No.: | Date: |
|---|---|
| 5 | 5/18/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Negative air machines and containment for asbestos abatement.


| Photo No.: | Date: |
|---|---|
| 6 | 5/18/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Asbestos abatement of spray-on fireproofing in western end of Site building.

| Photo No.: | Date: |
|---|---|
| 7 | 5/30/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Excavation of affected soils in Area 6 (western end of Site).


| Photo No.: | Date: |
|---|---|
| 8 | 7/11/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Excavation of affected soils in Area 5B of Site.

| Photo No.: | Date: |
|---|---|
| 9 | 6/13/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

View of affected soils in western end of Area 5A, looking south.


| Photo No.: | Date: |
|---|---|
| 10 | 6/26/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Delivery of clean sand backfill in Area 5C, looking south.

| Photo No.: | Date: |
|---|---|
| 11 | 6/06/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Compaction of backfill materials in Area 6.


| Photo No.: | Date: |
|---|---|
| 12 | 6/06/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Compaction testing of backfill materials in Area 5A excavation.

| Photo No.: | Date: |
|---|---|
| 13 | 6/16/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

MEC$^X$ observing excavation in Area 5A of Site.


| Photo No.: | Date: |
|---|---|
| 14 | 6/12/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Excavation in southwest corner of former building, looking southwest toward Kal-Haven Trail.

| Photo No.: | Date: |
|---|---|
| 15 | 7/11/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Concrete footing and affected soils excavated in central portion of building footprint (former refinery location).


| Photo No.: | Date: |
|---|---|
| 16 | 7/27/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Plugging and abandonment of on-site potable water well.

| Photo No.: | Date: |
|---|---|
| 17 | 10/10/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Installation of Catch Basin 1 in northwest corner of Site (former wetland area).


| Photo No.: | Date: |
|---|---|
| 18 | 10/26/2017 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Restoration activities of Kal-Haven Trail following installation of new storm sewer discharge pipe.

| Photo No.: | Date: |
|---|---|
| 19 | 7/20/2018 |

**Description: Former Pullman Industries, Bloomingdale, MI**

Final grading / restoration activities along Kal-Haven Trail in southeastern corner of Site.

| Photo No.: | Date: |
|---|---|
| 20 | 7/20/2018 |

**Description: Former Pullman Industries, Bloomingdale, MI**

View of former building and paved area following completion of final restoration activities.

# ATTACHMENT 2
# LABORATORY AND ANALYTICAL DATA

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **Producer** | Aggregate Industries | **Max Spec** | | 100 | | 75 | 45 | 8 | | |
| **Location** | Kalamazoo West | **Min Spec** | 100 | 85 | | 50 | 20 | 4 | 95 | |
| **Mine ID** | 39-078 | **Average** | 100 | 99 | 81 | 59 | 26 | 6 | 98 | |
| **Material** | 21AA | **SD** | 0.0 | 1.6 | 3.0 | 4.3 | 5.2 | 1.0 | 1.7 | |

| Test No. | Date | Comments | Tested By | 1.5" | 1" | 3/4" | 1/2" | #8 | LBW / Decant / %Wash | Crush |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 4-12-17 | Loadout - SME Split | DSF | 100 | 100 | 81 | 56 | 23 | 5.7 | 99 |
| 2 | 4-12-17 | Loadout - SME Split | DSF | 100 | 97 | 85 | 66 | 35 | 7.9 | 99 |
| 3 | 4-26-17 | load out #1 | wh | 100 | 100 | 77 | 56 | 23 | 5.4 | 99 |
| 4 | 2-26-17 | load out #2 | wh | 100 | 100 | 81 | 56 | 23 | 5.4 | 98 |
| 5 | 5-4-17 | load out | wh | 100 | 97 | 82 | 61 | 26 | 6.3 | 95 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Producer** | Aggregate Industries | **Max Spec** | | 100 | | 85 | | 50 | | 8 | | |
| **Location** | Kalamazoo West | **Min Spec** | 100 | 90 | | 65 | | 30 | | 4 | **25%** | |
| **Mine ID** | MDOT #39-078 | **Average** | 100 | 95 | 78 | 70 | 53 | 44 | 37 | 4 | 39.7 | |
| **Material** | 22A MDOT (Dense Graded) | **SD** | 0.0 | 3.1 | 4.2 | 4.7 | 4.5 | 4.4 | 2.7 | 1 | 19.9 | |

| Test No. | Date | Comments | Tested By | 1" | 3/4" | 1/2" | 3/8" | #4 | #8 | #16 | LBW / Decant / %Wash | Crush |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3-29-17 | Load Out | DSF | 100 | 95 | 76 | 66 | 48 | 37 | | 6 | 36.9 |
| 2 | 4-4-17 | load out | wh | 100 | 94 | 72 | 63 | 48 | 40 | 32 | 4 | |
| 3 | 4-10-17 | Production | DSF | 100 | 98 | 80 | 73 | 59 | 49 | 39 | 4 | 74.1 |
| 4 | 4-10-17 | Split Sample (Verification) | DSF | 100 | 98 | 81 | 73 | 59 | 49 | | 4 | |
| 5 | 5-2-17 | production | wh | 100 | 92 | 82 | 74 | 53 | 46 | 38 | 4 | 35.3 |
| 6 | 5-4-17 | load out | wh | 100 | 90 | 75 | 66 | 51 | 44 | 36 | 4 | 25.7 |
| 7 | 5-4-17 | production | wh | 100 | 95 | 82 | 74 | 55 | 47 | 38 | 4 | 26.3 |

| | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Producer** | Aggregate Industries | **Max Spec** | | 100 | | | | 100 | | | | | 30 | | 7 | | | |
| **Location** | Wahmhoff | **Min Spec** | | 60 | | | | 50 | | | | | 0 | | 0.0 | | | |
| **Mine ID** | 03-102 | **Average** | 100 | 100 | 100 | 100 | 97 | 80 | 64 | 48 | 34 | 17 | 8 | 4 | 4 | 3.54 | 6 | 11 |
| **Material** | Fill Sand (Class II) | **SD** | 0.0 | 0.0 | 0.0 | 0.2 | 1.2 | 1.4 | 3.4 | 4.5 | 6.0 | 2.8 | 0.1 | 0.2 | 0.3 | 0.19 | | |

| Test No. | Date | Comments | Tested By | 1.5" | 1" | 3/4" | 1/2" | 3/8" | #4 | #8 | #16 | #30 | #50 | #100 | #200 | LBW / Decant / %Wash | FM | % Moisture | Crush |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2-13-17 | SW Pile Fill sand | DSF | 100 | 100 | 100 | 100 | 97 | 81 | 67 | 51 | 38 | 19 | 7 | 5 | 4.4 | 3.40 | 5.52 | |
| 2 | 2-13-17 | Fine CR / Fill (Low Crush) | DSF | 100 | 100 | 100 | 99 | 96 | 79 | 62 | 45 | 30 | 15 | 8 | 4 | 4.0 | 3.67 | | 11.16 |

| | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Producer** | | Aggregate Industries | | | | | | | | | | | | | | | | | | | | |
| **Location** | | Dundee, MI | | **MAX SPEC** | | | | | 100 | | 75 | | | 45 | | | | | | | 8.0 | |
| **Mine ID** | | MDOT 58-006 | | **MIN SPEC** | | | | 100 | 85 | | 50 | | | 20 | | | | | | | 4.0 | |
| **Material** | | Dense Graded Limestone Aggregate | | **AVE** | 100 | 100 | 100 | 100 | 89 | 74 | 54 | 46 | 34 | 28 | 22 | 17 | 11 | 5 | 4 | 3.5 | 100 |
| | | 21AA Modified MDOT Spec | | **SD** | 0.0 | 0.0 | 0.0 | 0.0 | 0.8 | 5.9 | 12.8 | 12.4 | 9.2 | 6.6 | 4.5 | 3.3 | 1.3 | 0.2 | 0.0 | 0.4 | 0.0 |
| **Test No.** | **Date Sampled** | **Comments** | **Tested By** | **% H20** | **3"** | **2.5"** | **2"** | **1.5"** | **1"** | **3/4"** | **1/2"** | **3/8"** | **#4** | **#8** | **#16** | **#30** | **#50** | **#100** | **#200** | **Decant, LBW** | **Crush** |
| 1 | 04/27/16 | Production | DSF | | 100 | 100 | 100 | 100 | 88 | 70 | 45 | 37 | 28 | 23 | 19 | 15 | 10 | 5 | 4 | 4 | 100.0 |
| 2 | 09/21/16 | Loader Mini Stockpile | DSF | 8.28 | 100 | 100 | 100 | 100 | 90 | 78 | 63 | 55 | 41 | 32 | 25 | 19 | 12 | 6 | 4 | 3 | 100.0 |

3301 Tech Circle Drive
Kalamazoo, MI 49008-5611
(269) 323-3555
www.sme-usa.com

# Proctor Report

| | |
|---|---|
| **Project No.:** | **073665.01** |
| **Report No.:** | **PTR:17-8585-S1-1** |

**Client:** Aggregate Industries **CC:**
**Project:** Aggregate Ind 2017 Laboratory Services

822 Schuster
Kalamazoo MI 49001

**Contractor:**

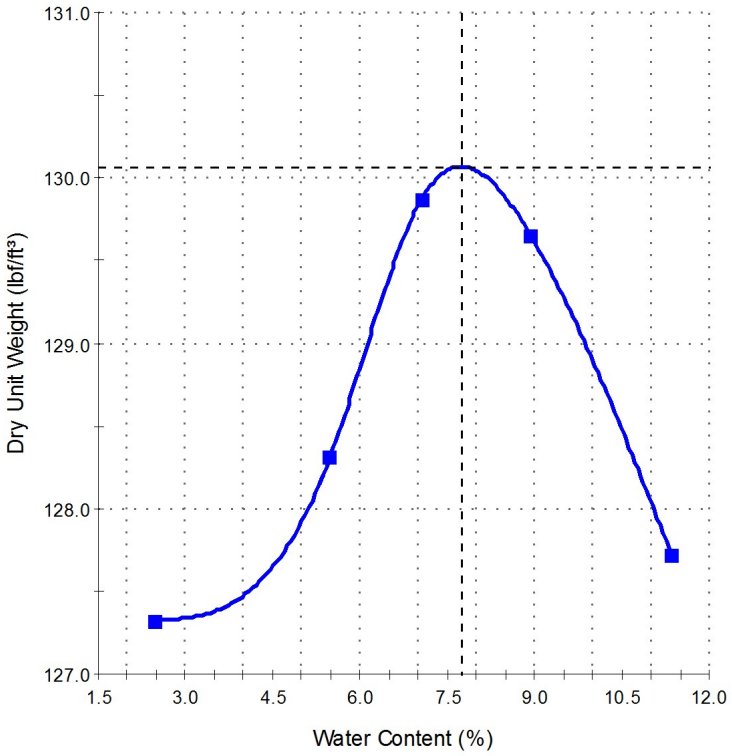


**Reviewed By:** Jonathan J. Camburn, PE

## Sample Details

| | | | |
|---|---|---|---|
| **Sample ID:** | 17-8585-S1 | **Supplier:** | Aggregate Industries |
| **Sampled By:** | Contractor | **Source:** | Wahmoff 03-102 |
| **Date Sampled:** | Jun 1, 2017 | **Date Tested:** | Jun 1, 2017 |

## Dry Unit Weight - Water Content Relationship




## Test Results

ASTM D 1557

| | |
|---|---|
| **Maximum Dry Unit Weight (lbf/ft³):** | **130.1** |
| **Optimum Water Content (%):** | **7.7** |
| Method: | B |
| Preparation Method: | Moist |
| Visual Description: | Fine to Coarse SAND with Gravel - Brown |

## Comments

The intended use of the material is Fill Sand.

Fibertec
environmental
services

Tuesday, February 21, 2017

Fibertec Project Number: 77296
Project Identification: Wahmhoff #03-102 Fill Sand /
Submittal Date: 02/14/2017

Mr. Dave Faber
Aggregate Industries US
475 12th Street
Plainwell, MI 49080

Dear Mr. Faber,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 10 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

*By Emily Kennedy at 2:05 PM, Feb 21, 2017*

For Daryl P. Strandbergh
Laboratory Director

Enclosures

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Aggregate Industries US** | Sample Description: | **Wahmhoff Pit #03-102 Fill Sand** | Chain of Custody: | **NA** |
| Client Project Name: | **Wahmhoff #03-102 Fill Sand** | Sample No: | **001** | Collect Date: | **02/14/17** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **07:45** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**Water (Moisture) Content Dried at 105 ± 5°C** **Aliquot ID: 77296-001** **Matrix: Soil/Solid**
**Method: ASTM D2216-10** **Description: Wahmhoff Pit #03-102 Fill Sand**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|
| ‡ 1. Percent Moisture (Water Content) | **6** | | % | 1 | 1.0 | 02/16/17 | MC170216 | 02/17/17 | MC170216 | BMG |

**Michigan 10 Elements by ICP/MS** **Aliquot ID: 77296-001** **Matrix: Soil/Solid**
**Method: EPA 0200.2/EPA 6020A** **Description: Wahmhoff Pit #03-102 Fill Sand**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Arsenic | **4900** | | µg/kg | 100 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 2. Barium | **15000** | | µg/kg | 1000 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 3. Cadmium | U | | µg/kg | 50 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 4. Chromium | **4400** | | µg/kg | 500 | 20 | 02/20/17 | PT17B20D | 02/21/17 | T417B21D | NRV |
| 5. Copper | **6900** | | µg/kg | 1000 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 6. Lead | **5300** | | µg/kg | 1000 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 7. Selenium | U | | µg/kg | 200 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 8. Silver | U | | µg/kg | 100 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |
| 9. Zinc | **21000** | | µg/kg | 1000 | 20 | 02/20/17 | PT17B20D | 02/20/17 | T417B20C | NRV |

**Mercury by CVAAS** **Aliquot ID: 77296-001** **Matrix: Soil/Solid**
**Method: EPA 7471B** **Description: Wahmhoff Pit #03-102 Fill Sand**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Mercury | U | | µg/kg | 50 | 8.6 | 02/20/17 | PM17B20A | 02/20/17 | M617B20B | JLH |

**Definitions/ Qualifiers:**

**A:** Spike recovery or precision unusable due to dilution.
**B:** The analyte was detected in the associated method blank.
**E:** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
**J:** The concentration is an estimated value.
**M:** Modified Method
**U:** The analyte was not detected at or above the reporting limit.
**X:** Matrix Interference has resulted in a raised reporting limit or distorted result.
**W:** Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

**Exception Summary:**

ACCREDITED IN ACCORDANCE WITH nelac

Accreditation Number(s):

**T104704518-17-6 (TX)**

Fibertec
environmental
services

Monday, June 05, 2017

| | |
|---|---|
| Fibertec Project Number: | 79004 |
| Project Identification: | Wahmhoff #03-102 Fill Sand / |
| Submittal Date: | 06/01/2017 |

Mr. Dave Faber
Aggregate Industries US
475 12th Street
Plainwell, MI 49080

Dear Mr. Faber,

Thank you for selecting Fibertec Environmental Services as your analytical laboratory. The samples you submitted have been analyzed in accordance with NELAC standards and the results compiled in the attached report. Any exceptions to NELAC compliance are noted in the report. These results apply only to those samples submitted. Please note TO-15 samples will be disposed of 10 calendar days after the reporting date. All other samples will be disposed of 30 days after the reporting date.

If you have any questions regarding these results or if we may be of further assistance to you, please contact me at (517) 699-0345.

Sincerely,

*By Emily Kennedy at 12:44 PM, Jun 05, 2017*

For Daryl P. Strandbergh
Laboratory Director

Enclosures

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Aggregate Industries US** | Sample Description: | **WAMHOFF FILL** | Chain of Custody: | **157887** |
| Client Project Name: | **Wahmhoff #03-102 Fill Sand** | Sample No: | **001/002** | Collect Date: | **05/31/17** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **11:30** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**Water (Moisture) Content Dried at 105 ± 5°C** **Aliquot ID: 79004-001** **Matrix: Soil/Solid**
**Method: ASTM D2216-10** **Description: WAMHOFF FILL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|
| ‡ 1. Percent Moisture (Water Content) | **5** | | % | 1 | 1.0 | 06/02/17 | MC170602 | 06/05/17 | MC170602 | BMG |

**Volatile Organic Compounds (VOCs) by GC/MS, 5035** **Aliquot ID: 79004-001A** **Matrix: Soil/Solid**
**Method: EPA 5035A/EPA 8260B** **Description: WAMHOFF FILL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Acetone | U | | µg/kg | 1000 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| ‡ 2. Acrylonitrile | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 3. Benzene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 4. Bromobenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 5. Bromochloromethane | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 6. Bromodichloromethane | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 7. Bromoform | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 8. Bromomethane | U | | µg/kg | 210 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 9. 2-Butanone | U | | µg/kg | 750 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 10. n-Butylbenzene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 11. sec-Butylbenzene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 12. tert-Butylbenzene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 13. Carbon Disulfide | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 14. Carbon Tetrachloride | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 15. Chlorobenzene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 16. Chloroethane | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 17. Chloroform | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 18. Chloromethane | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 19. 2-Chlorotoluene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 20. Dibromochloromethane | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| ‡ 21. 1,2-Dibromo-3-chloropropane (SIM) | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 22. Dibromomethane | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 23. 1,2-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 24. 1,3-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 25. 1,4-Dichlorobenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 26. Dichlorodifluoromethane | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 27. 1,1-Dichloroethane | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 28. 1,2-Dichloroethane | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 29. 1,1-Dichloroethene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 30. cis-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |

| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Aggregate Industries US** | Sample Description: | **WAMHOFF FILL** | Chain of Custody: | **157887** |
| Client Project Name: | **Wahmhoff #03-102 Fill Sand** | Sample No: | **001/002** | Collect Date: | **05/31/17** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **11:30** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**Volatile Organic Compounds (VOCs) by GC/MS, 5035** **Aliquot ID: 79004-001A** **Matrix: Soil/Solid**
**Method: EPA 5035A/EPA 8260B** **Description: WAMHOFF FILL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|
| 31. trans-1,2-Dichloroethene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 32. 1,2-Dichloropropane | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 33. cis-1,3-Dichloropropene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 34. trans-1,3-Dichloropropene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 35. Ethylbenzene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 36. Ethylene Dibromide | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 37. 2-Hexanone | U | | µg/kg | 2500 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 38. Isopropylbenzene | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 39. Methylene Chloride | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 40. 4-Methyl-2-pentanone | U | | µg/kg | 2500 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 41. MTBE | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 42. Naphthalene | U | | µg/kg | 330 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 43. n-Propylbenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 44. Styrene | U | | µg/kg | 53 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 45. 1,1,1,2-Tetrachloroethane | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 46. 1,1,2,2-Tetrachloroethane | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 47. Tetrachloroethene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 48. Toluene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 49. 1,2,4-Trichlorobenzene | U | | µg/kg | 250 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 50. 1,1,1-Trichloroethane | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 51. 1,1,2-Trichloroethane | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 52. Trichloroethene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 53. Trichlorofluoromethane | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 54. 1,2,3-Trichloropropane | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| ‡ 55. 1,2,3-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 56. 1,2,4-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 57. 1,3,5-Trimethylbenzene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 58. Vinyl Chloride | U | | µg/kg | 40 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 59. m&p-Xylene | U | | µg/kg | 100 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| 60. o-Xylene | U | | µg/kg | 50 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |
| ‡ 61. Xylenes | U | | µg/kg | 150 | 1.0 | 06/02/17 | VJ17F02A | 06/02/17 | VJ17F02A | LDS |

**Polynuclear Aromatic Hydrocarbons (PNAs)** **Aliquot ID: 79004-001** **Matrix: Soil/Solid**
**Method: EPA 3546/EPA 8270C** **Description: WAMHOFF FILL**

| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | Preparation P. Date | Preparation P. Batch | Analysis A. Date | Analysis A. Batch | Init. |
|---|---|---|---|---|---|---|---|---|---|---|

Fibertec environmental services

**Analytical Laboratory Report**
**Laboratory Project Number: 79004**
**Laboratory Sample Number: 79004-001**



| | | | | | |
|---|---|---|---|---|---|
| Client Identification: | **Aggregate Industries US** | Sample Description: | **WAMHOFF FILL** | Chain of Custody: | **157887** |
| Client Project Name: | **Wahmhoff #03-102 Fill Sand** | Sample No: | **001/002** | Collect Date: | **05/31/17** |
| Client Project No: | **NA** | Sample Matrix: | **Soil/Solid** | Collect Time: | **11:30** |

Sample Comments: **Soil results have been calculated and reported on a dry weight basis unless otherwise noted.**

Definitions: Q: Qualifier (see definitions at end of report) NA: Not Applicable ‡: Parameter not included in NELAC Scope of Analysis.

**Polynuclear Aromatic Hydrocarbons (PNAs)** **Aliquot ID: 79004-001** **Matrix: Soil/Solid**
**Method: EPA 3546/EPA 8270C** **Description: WAMHOFF FILL**

| | | | | | | Preparation | | Analysis | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Parameter(s) | Result | Q | Units | Reporting Limit | Dilution | P. Date | P. Batch | A. Date | A. Batch | Init. |
| 1. Acenaphthene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 2. Acenaphthylene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 3. Anthracene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 4. Benzo(a)anthracene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 5. Benzo(a)pyrene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 6. Benzo(b)fluoranthene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 7. Benzo(ghi)perylene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 8. Benzo(k)fluoranthene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 9. Chrysene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 10. Dibenzo(a,h)anthracene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 11. Fluoranthene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 12. Fluorene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 13. Indeno(1,2,3-cd)pyrene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 14. 2-Methylnaphthalene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 15. Phenanthrene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |
| 16. Pyrene (SIM) | U | | µg/kg | 330 | 1.0 | 06/02/17 | PS17F02C | 06/04/17 | S617F04A | TKT |

**Definitions/ Qualifiers:**

**A:** Spike recovery or precision unusable due to dilution.
**B:** The analyte was detected in the associated method blank.
**E:** The analyte was detected at a concentration greater than the calibration range, therefore the result is estimated.
**J:** The concentration is an estimated value.
**M:** Modified Method
**U:** The analyte was not detected at or above the reporting limit.
**X:** Matrix Interference has resulted in a raised reporting limit or distorted result.
**W:** Results reported on a wet-weight basis.
***:** Value reported is outside QC limits

**Exception Summary:**

ACCREDITED IN ACCORDANCE WITH nelac

Accreditation Number(s):

**T104704518-17-6 (TX)**

# Analytical Laboratory Report

Report ID: S81613.01(01)
Generated on 06/09/2017

Report to

Attention: Kerry Puzio
Taplin Group LLC
5140 West Michigan Ave
Kalamazoo, MI 49006

Phone: 269-375-9595 FAX: 810-238-9195
Email: kpuzio@terracontracting.net

Addtional Contacts: Doug Ervin, Larry Rader

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S81613.01
Project: Former Pullman Industries
Collected Date: 06/05/2017
Submitted Date/Time: 06/06/2017 08:30
Sampled by: Unknown
P.O. #: PO

Table of Contents



Maya Murshak
Technical Director

**General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.


**Report Narrative**

There is no additional narrative for this analytical report

**Laboratory Certifications**

| Authority | Certification ID |
|---|---|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |

**Qualifier Descriptions**

| Qualifier | Description |
|---|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

**Glossary of Abbreviations**

| Abbreviation | Description |
|---|---|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |

**Method Summary**

| Method | Version |
|---|---|
| SM2540B | Standard Method 2540 B 20th Edition |
| SW3050B | SW 846 Method 3050B Revision 2 December 1996 |
| SW3550C | SW 846 Method 3550C Revision 3 February 2007 |
| SW5035A/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002 |
| SW6020A | SW 846 Method 6020A Revision 1 February 2007 |
| SW7471B | SW 846 Method 7471B Revision 2 February 2007 |
| SW8270D | SW 846 Method 8270D Revision 4 February 2007 |

**Sample Summary (1 samples)**

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|---|---|---|---|
| S81613.01 | Backfill Soil Sand | Soil | 06/05/17 16:40 |

# Analytical Laboratory Report

Lab Sample ID: S81613.01
Sample Tag: Backfill Soil Sand
Collected Date/Time: 06/05/2017 16:40
Matrix: Soil
COC Reference: 103169

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 1 | 8oz Glass | None | Yes | 4.4 | IR |
| 1 | 40ml Glass | MeOH | Yes | 4.4 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Tech | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Mercury Digestion | Completed | | | SW7471B | 06/07/17 12:00 | JRH | | |
| Metal Digestion | Completed | | | SW3050B | 06/08/17 11:00 | PER | | |
| PNA Extraction | Completed | | | SW3550C | 06/06/17 19:46 | EMR | | |
| ***Inorganics*** | | | | | | | | |
| Total Solids* | 95 | % | 1 | SM2540B | 06/06/17 16:05 | JBL | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.23 | mg/kg | 0.20 | SW6020A | 06/08/17 13:12 | PER | 7440-38-2 | |
| Barium | 6.21 | mg/kg | 1.0 | SW6020A | 06/08/17 13:12 | PER | 7440-39-3 | |
| Cadmium | Not detected | mg/kg | 0.20 | SW6020A | 06/08/17 13:12 | PER | 7440-43-9 | |
| Chromium | 0.76 | mg/kg | 0.50 | SW6020A | 06/08/17 13:12 | PER | 7440-47-3 | |
| Lead | 4.37 | mg/kg | 0.20 | SW6020A | 06/08/17 13:12 | PER | 7439-92-1 | |
| Mercury | Not detected | mg/kg | 0.050 | SW7471B | 06/07/17 14:28 | JRH | 7439-97-6 | |
| Selenium | Not detected | mg/kg | 0.40 | SW6020A | 06/08/17 13:12 | PER | 7782-49-2 | |
| Silver | Not detected | mg/kg | 0.20 | SW6020A | 06/08/17 13:12 | PER | 7440-22-4 | |
| ***Organics - Semi-Volatiles*** | | | | | | | | |
| **Polynuclear Aromatics** | | | | | | | | |
| Acenaphthene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 83-32-9 | |
| Acenaphthylene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 208-96-8 | |
| Anthracene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 120-12-7 | |
| Benzo(a)anthracene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 56-55-3 | |
| Benzo(a)pyrene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 50-32-8 | |
| Benzo(b)fluoranthene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 191-24-2 | |
| Chrysene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 218-01-9 | |
| Dibenzo(ah)anthracene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 53-70-3 | |
| Fluoranthene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 206-44-0 | |
| Fluorene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 193-39-5 | |
| Naphthalene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 91-20-3 | |
| Phenanthrene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 85-01-8 | |
| Pyrene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 129-00-0 | |
| 2-Methylnaphthalene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 91-57-6 | |
| 1-Methylnaphthalene | Not detected | ug/kg | 300 | SW8270D | 06/07/17 16:34 | PL | 90-12-0 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics 5035** | | | | | | | | |
| Diethyl ether | Not detected | ug/kg | 200 | SW5035A/8260C | 06/08/17 15:08 | JML | 60-29-7 | |
| Acetone | Not detected | ug/kg | 1,000 | SW5035A/8260C | 06/08/17 15:08 | JML | 67-64-1 | |

Lab Sample ID: S81613.01 (continued)
Sample Tag: Backfill Soil Sand

| Analysis | Results | Units | RL | Method | Run Date/Time | Tech | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics 5035 (continued)** | | | | | | | | |
| Methyl iodide | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 74-88-4 | |
| Carbon disulfide | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-15-0 | |
| tert-Methyl butyl ether (MTBE)* | Not detected | ug/kg | 200 | SW5035A/8260C | 06/08/17 15:08 | JML | 1634-04-4 | |
| Acrylonitrile | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 107-13-1 | |
| 2-Butanone (MEK)* | Not detected | ug/kg | 820 | SW5035A/8260C | 06/08/17 15:08 | JML | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-71-8 | |
| Chloromethane | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 74-87-3 | |
| Vinyl chloride | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-01-4 | |
| Bromomethane | Not detected | ug/kg | 200 | SW5035A/8260C | 06/08/17 15:08 | JML | 74-83-9 | |
| Chloroethane | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-00-3 | |
| Trichlorofluoromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-35-4 | |
| Methylene chloride | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-09-2 | |
| trans-1,2-Dichloroethene* | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-34-3 | |
| cis-1,2-Dichloroethene* | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 156-59-2 | |
| Tetrahydrofuran* | Not detected | ug/kg | 1,000 | SW5035A/8260C | 06/08/17 15:08 | JML | 109-99-9 | |
| Chloroform | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 67-66-3 | |
| Bromochloromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK)* | Not detected | ug/kg | 3,000 | SW5035A/8260C | 06/08/17 15:08 | JML | 108-10-1 | |
| 2-Hexanone* | Not detected | ug/kg | 3,000 | SW5035A/8260C | 06/08/17 15:08 | JML | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 56-23-5 | |
| Benzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 107-06-2 | |
| Trichloroethene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-27-4 | |
| Dibromomethane | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 10061-01-5 | |
| Toluene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 110-57-6 | |
| Dibromochloromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 124-48-1 | |
| 1,2-Dibromoethane* | Not detected | ug/kg | 20 | SW5035A/8260C | 06/08/17 15:08 | JML | 106-93-4 | M |
| Chlorobenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 630-20-6 | |
| Ethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 100-41-4 | |
| p,m-Xylene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | | |
| o-Xylene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 95-47-6 | |
| Styrene* | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 98-82-8 | |
| Bromoform* | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 79-34-5 | |
| 1,2,3-Trichloropropane* | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 96-18-4 | |
| n-Propylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 103-65-1 | |

M-Result reported to MDL not RDL

Lab Sample ID: S81613.01 (continued)
Sample Tag: Backfill Soil Sand

| Analysis | Results | Units | RL | Method | Run Date/Time | Tech | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics 5035 (continued)** | | | | | | | | |
| Bromobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 526-73-8 | |
| n-Butylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/08/17 15:08 | JML | 104-51-8 | |
| Hexachloroethane | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane* | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | ug/kg | 360 | SW5035A/8260C | 06/08/17 15:08 | JML | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | ug/kg | 360 | SW5035A/8260C | 06/08/17 15:08 | JML | 87-61-6 | |
| Naphthalene* | Not detected | ug/kg | 300 | SW5035A/8260C | 06/08/17 15:08 | JML | 91-20-3 | |
| 2-Methylnaphthalene* | Not detected | ug/kg | 100 | SW5035A/8260C | 06/08/17 15:08 | JML | 91-57-6 | |

Merit Laboratories, Inc.

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C.O.C. PAGE # 1 OF 1

103169

# CHAIN OF CUSTODY RECORD

## REPORT TO

CONTACT NAME: KERRY PUZIO
COMPANY: TAPLIN
ADDRESS:
CITY: KALAMAZOO STATE: MI ZIP CODE:
PHONE NO.: FAX NO.: P.O. NO.:
E-MAIL ADDRESS: QUOTE NO.:

## INVOICE TO

CONTACT NAME: ☐ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: FORMER PULLMAN INDUSTRIES
SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☒ 3 DAYS ☐ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

| MERIT LAB NO. (FOR LAB USE ONLY) | YEAR DATE | YEAR TIME | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | # Containers & Preservatives: NONE | HCl | $HNO_3$ | $H_2SO_4$ | NaOH | MeOH | OTHER | ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED): TCLP 8 RCRA METALS | T-VOLATILES | PNA |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81613.01 | 6/5 | 1640 | BACKFILL SOIL SAND | S | 2 | 1 | 1 | | | | | | X | X | X |

Certifications: ☐ OHIO VAP ☐ Drinking Water ☐ DoD ☐ NPDES
Project Locations: ☐ Detroit ☐ New York ☐ Other
Special Instructions: 3-DAY RUSH
C.C. larry.rader@mecx.net
ICE

| RELINQUISHED BY: SIGNATURE/ORGANIZATION | ☐ Sampler | DATE | TIME |
|---|---|---|---|
| | | 6/5/17 | 1640 |
| RECEIVED BY: SIGNATURE/ORGANIZATION | | DATE | TIME |
| | | 6/5/17 | 1640 |
| RELINQUISHED BY: SIGNATURE/ORGANIZATION | | DATE | TIME |
| | | | |
| RECEIVED BY: SIGNATURE/ORGANIZATION | | DATE | TIME |
| | | 6/5/17 | 1640 |

| RELINQUISHED BY: SIGNATURE/ORGANIZATION | DATE | TIME |
|---|---|---|
| | 6/6/17 | 8:30 |
| RECEIVED BY: SIGNATURE/ORGANIZATION | DATE | TIME |
| | 6/6/17 | 0830 |

SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS
SEAL NO. SEAL INTACT YES ☐ NO ☐ INITIALS

NOTES: TEMP. ON ARRIVAL 4.4

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

# Analytical Laboratory Report

Report ID: S81836.01(01)
Generated on 06/20/2017

Report to

Attention: Kerry Puzio
Taplin Group LLC
5140 West Michigan Ave
Kalamazoo, MI 49006

Phone: 269-375-9595 FAX: 810-238-9195
Email: kpuzio@terracontracting.net

Addtional Contacts: Doug Ervin

Report produced by

Merit Laboratories, Inc.
2680 East Lansing Drive
East Lansing, MI 48823

Phone: (517) 332-0167 FAX: (517) 332-6333

Contacts for report questions:
John Laverty (johnlaverty@meritlabs.com)
Barbara Ball (bball@meritlabs.com)

Report Summary

Lab Sample ID(s): S81836.01
Project: Former Pullman Ind.
Collected Date: 06/14/2017
Submitted Date/Time: 06/15/2017 14:00
Sampled by: Unknown
P.O. #:

Table of Contents



Maya Murshak
Technical Director

**General Report Notes**

Analytical results relate only to the samples tested, in the condition received by the laboratory.
Methods may be modified for improved performance.
Results reported on a dry weight basis where applicable.
'Not detected' indicates that parameter was not found at a level equal to or greater than the reporting limit (RL).
40 CFR Part 136 Table II Required Containers, Preservation Techniques and Holding Times for the Clean Water Act specify that samples for acrolein and acrylonitrile need to be preserved at a pH in the range of 4 to 5 or if not preserved, analyzed within 3 days of sampling.
QA/QC corresponding to this analytical report is a separate document with the same Merit ID reference and is available upon request.
Full accreditation certificates are available upon request. Starred (*) analytes are not NELAP accredited.
Samples are held by the lab for 30 days from the final report date unless a written request to hold longer is provided by the client.


**Report Narrative**

There is no additional narrative for this analytical report

**Laboratory Certifications**

| Authority | Certification ID |
|---|---|
| Michigan DEQ | #9956 |
| DOD ELAP/ISO 17025 | #69699 |
| WBENC | #2005110032 |
| Ohio VAP | #CL0002 |
| Indiana DOH | #C-MI-07 |
| New York NELAC | #11814 |
| North Carolina DENR | #680 |
| North Carolina DOH | #26702 |

**Qualifier Descriptions**

| Qualifier | Description |
|---|---|
| ! | Result is outside of stated limit criteria |
| B | Compound also found in associated method blank |
| E | Concentration exceeds calibration range |
| F | Analysis run outside of holding time |
| G | Estimated result due to extraction run outside of holding time |
| H | Sample submitted and run outside of holding time |
| I | Matrix interference with internal standard |
| J | Estimated value less than reporting limit, but greater than MDL |
| L | Elevated reporting limit due to low sample amount |
| M | Result reported to MDL not RDL |
| O | Analysis performed by outside laboratory. See attached report. |
| R | Preliminary result |
| S | Surrogate recovery outside of control limits |
| T | No correction for total solids |
| X | Elevated reporting limit due to matrix interference |
| Y | Elevated reporting limit due to high target concentration |
| b | Value detected less than reporting limit, but greater than MDL |
| e | Reported value estimated due to interference |
| j | Analyte also found in associated method blank |
| p | Benzo(b)Fluoranthene and Benzo(k)Fluoranthene integrated as one peak. |
| x | Preserved from bulk sample |

**Glossary of Abbreviations**

| Abbreviation | Description |
|---|---|
| RL/RDL | Reporting Limit |
| MDL | Method Detection Limit |
| MS | Matrix Spike |
| MSD | Matrix Spike Duplicate |
| SW | EPA SW 846 (Soil and Wastewater) Methods |
| E | EPA Methods |
| SM | Standard Methods |

**Method Summary**

| Method | Version |
|---|---|
| SM2540B | Standard Method 2540 B 20th Edition |
| SW3050B | SW 846 Method 3050B Revision 2 December 1996 |
| SW3550C | SW 846 Method 3550C Revision 3 February 2007 |
| SW5035A/8260C | SW 846 Method 8260C Revision 3 August 2006 / 5035A Revision 1 July 2002 |
| SW6020A | SW 846 Method 6020A Revision 1 February 2007 |
| SW7471B | SW 846 Method 7471B Revision 2 February 2007 |
| SW8270D | SW 846 Method 8270D Revision 4 February 2007 |

**Sample Summary (1 samples)**

| Sample ID | Sample Tag | Matrix | Collected Date/Time |
|---|---|---|---|
| S81836.01 | Eastern Slab Backfill | Solid | 06/14/17 17:00 |

# Analytical Laboratory Report

Lab Sample ID: S81836.01
Sample Tag: Eastern Slab Backfill
Collected Date/Time: 06/14/2017 17:00
Matrix: Solid
COC Reference: 102958

Sample Containers

| # | Type | Preservative(s) | Refrigerated? | Arrival Temp. (C) | Thermometer # |
|---|---|---|---|---|---|
| 1 | 4oz Glass | None | Yes | 5.1 | IR |
| 1 | Plastic Bag | None | Yes | 5.1 | IR |
| 1 | 40ml Glass | MeOH | Yes | 5.1 | IR |

| Analysis | Results | Units | RL | Method | Run Date/Time | Tech | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Extraction / Prep.*** | | | | | | | | |
| Mercury Digestion | Completed | | | SW7471B | 06/19/17 11:15 | JRH | | |
| Metal Digestion | Completed | | | SW3050B | 06/16/17 10:00 | PER | | |
| PNA Extraction | Completed | | | SW3550C | 06/16/17 16:34 | EMR | | |
| ***Inorganics*** | | | | | | | | |
| Total Solids* | 98 | % | 1 | SM2540B | 06/16/17 09:25 | JBL | | |
| ***Metals*** | | | | | | | | |
| Arsenic | 0.74 | mg/kg | 0.20 | SW6020A | 06/16/17 13:07 | PER | 7440-38-2 | |
| Barium | 4.83 | mg/kg | 1.0 | SW6020A | 06/16/17 13:07 | PER | 7440-39-3 | |
| Cadmium | Not detected | mg/kg | 0.20 | SW6020A | 06/16/17 13:07 | PER | 7440-43-9 | |
| Chromium | 0.57 | mg/kg | 0.50 | SW6020A | 06/16/17 13:07 | PER | 7440-47-3 | |
| Lead | 3.55 | mg/kg | 0.20 | SW6020A | 06/16/17 13:07 | PER | 7439-92-1 | |
| Mercury | Not detected | mg/kg | 0.050 | SW7471B | 06/19/17 13:56 | JRH | 7439-97-6 | |
| Selenium | Not detected | mg/kg | 0.40 | SW6020A | 06/16/17 13:07 | PER | 7782-49-2 | |
| Silver | Not detected | mg/kg | 0.20 | SW6020A | 06/16/17 13:07 | PER | 7440-22-4 | |
| ***Organics - Semi-Volatiles*** | | | | | | | | |
| **Polynuclear Aromatics** | | | | | | | | |
| Acenaphthene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 83-32-9 | |
| Acenaphthylene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 208-96-8 | |
| Anthracene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 120-12-7 | |
| Benzo(a)anthracene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 56-55-3 | |
| Benzo(a)pyrene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 50-32-8 | |
| Benzo(b)fluoranthene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 205-99-2 | |
| Benzo(k)fluoranthene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 207-08-9 | |
| Benzo(ghi)perylene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 191-24-2 | |
| Chrysene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 218-01-9 | |
| Dibenzo(ah)anthracene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 53-70-3 | |
| Fluoranthene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 206-44-0 | |
| Fluorene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 86-73-7 | |
| Indeno(1,2,3-cd)pyrene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 193-39-5 | |
| Naphthalene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 91-20-3 | |
| Phenanthrene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 85-01-8 | |
| Pyrene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 129-00-0 | |
| 2-Methylnaphthalene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 91-57-6 | |
| 1-Methylnaphthalene | Not detected | ug/kg | 300 | SW8270D | 06/17/17 00:26 | PL | 90-12-0 | |
| ***Organics - Volatiles*** | | | | | | | | |
| **Volatile Organics 5035** | | | | | | | | |
| Diethyl ether | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 60-29-7 | |

Lab Sample ID: S81836.01 (continued)
Sample Tag: Eastern Slab Backfill

| Analysis | Results | Units | RL | Method | Run Date/Time | Tech | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics 5035 (continued)** | | | | | | | | |
| Acetone | Not detected | ug/kg | 1,000 | SW5035A/8260C | 06/20/17 11:56 | JML | 67-64-1 | |
| Methyl iodide | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 74-88-4 | |
| Carbon disulfide | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-15-0 | |
| tert-Methyl butyl ether (MTBE)* | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 1634-04-4 | |
| Acrylonitrile | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 107-13-1 | |
| 2-Butanone (MEK)* | Not detected | ug/kg | 730 | SW5035A/8260C | 06/20/17 11:56 | JML | 78-93-3 | |
| Dichlorodifluoromethane | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-71-8 | |
| Chloromethane | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 74-87-3 | |
| Vinyl chloride | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-01-4 | |
| Bromomethane | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 74-83-9 | |
| Chloroethane | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-00-3 | |
| Trichlorofluoromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-69-4 | |
| 1,1-Dichloroethene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-35-4 | |
| Methylene chloride | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-09-2 | |
| trans-1,2-Dichloroethene* | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 156-60-5 | |
| 1,1-Dichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-34-3 | |
| cis-1,2-Dichloroethene* | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 156-59-2 | |
| Tetrahydrofuran* | Not detected | ug/kg | 1,000 | SW5035A/8260C | 06/20/17 11:56 | JML | 109-99-9 | |
| Chloroform | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 67-66-3 | |
| Bromochloromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 74-97-5 | |
| 1,1,1-Trichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 71-55-6 | |
| 4-Methyl-2-pentanone (MIBK)* | Not detected | ug/kg | 2,000 | SW5035A/8260C | 06/20/17 11:56 | JML | 108-10-1 | |
| 2-Hexanone* | Not detected | ug/kg | 2,000 | SW5035A/8260C | 06/20/17 11:56 | JML | 591-78-6 | |
| Carbon tetrachloride | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 56-23-5 | |
| Benzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 71-43-2 | |
| 1,2-Dichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 107-06-2 | |
| Trichloroethene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 79-01-6 | |
| 1,2-Dichloropropane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 78-87-5 | |
| Bromodichloromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-27-4 | |
| Dibromomethane | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 74-95-3 | |
| cis-1,3-Dichloropropene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 10061-01-5 | |
| Toluene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 108-88-3 | |
| trans-1,3-Dichloropropene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 10061-02-6 | |
| 1,1,2-Trichloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 79-00-5 | |
| Tetrachloroethene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 127-18-4 | |
| trans-1,4-Dichloro-2-butene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 110-57-6 | |
| Dibromochloromethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 124-48-1 | |
| 1,2-Dibromoethane* | Not detected | ug/kg | 20 | SW5035A/8260C | 06/20/17 11:56 | JML | 106-93-4 | M |
| Chlorobenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 108-90-7 | |
| 1,1,1,2-Tetrachloroethane | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 630-20-6 | |
| Ethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 100-41-4 | |
| p,m-Xylene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | | |
| o-Xylene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 95-47-6 | |
| Styrene* | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 100-42-5 | |
| Isopropylbenzene | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 98-82-8 | |
| Bromoform* | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 75-25-2 | |
| 1,1,2,2-Tetrachloroethane | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 79-34-5 | |
| 1,2,3-Trichloropropane* | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 96-18-4 | |

M-Result reported to MDL not RDL

Lab Sample ID: S81836.01 (continued)
Sample Tag: Eastern Slab Backfill

| Analysis | Results | Units | RL | Method | Run Date/Time | Tech | CAS # | Flags |
|---|---|---|---|---|---|---|---|---|
| ***Organics - Volatiles (continued)*** | | | | | | | | |
| **Volatile Organics 5035 (continued)** | | | | | | | | |
| n-Propylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 103-65-1 | |
| Bromobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 108-86-1 | |
| 1,3,5-Trimethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 108-67-8 | |
| tert-Butylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 98-06-6 | |
| 1,2,4-Trimethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 95-63-6 | |
| sec-Butylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 135-98-8 | |
| p-Isopropyltoluene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 99-87-6 | |
| 1,3-Dichlorobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 541-73-1 | |
| 1,4-Dichlorobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 106-46-7 | |
| 1,2-Dichlorobenzene | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 95-50-1 | |
| 1,2,3-Trimethylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 526-73-8 | |
| n-Butylbenzene | Not detected | ug/kg | 50 | SW5035A/8260C | 06/20/17 11:56 | JML | 104-51-8 | |
| Hexachloroethane | Not detected | ug/kg | 300 | SW5035A/8260C | 06/20/17 11:56 | JML | 67-72-1 | |
| 1,2-Dibromo-3-chloropropane* | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 96-12-8 | |
| 1,2,4-Trichlorobenzene | Not detected | ug/kg | 320 | SW5035A/8260C | 06/20/17 11:56 | JML | 120-82-1 | |
| 1,2,3-Trichlorobenzene | Not detected | ug/kg | 320 | SW5035A/8260C | 06/20/17 11:56 | JML | 87-61-6 | |
| Naphthalene* | Not detected | ug/kg | 200 | SW5035A/8260C | 06/20/17 11:56 | JML | 91-20-3 | |
| 2-Methylnaphthalene* | Not detected | ug/kg | 100 | SW5035A/8260C | 06/20/17 11:56 | JML | 91-57-6 | |

Merit Laboratories, Inc.

2680 East Lansing Dr., East Lansing, MI 48823
Phone (517) 332-0167 Fax (517) 332-4034
www.meritlabs.com

C.O.C. PAGE # 1 OF 1

102958

# CHAIN OF CUSTODY RECORD

## REPORT TO

CONTACT NAME: KERRY PUZIO
COMPANY: TAPLIN
ADDRESS:
CITY: KALAMAZOO STATE: MI ZIP CODE:
PHONE NO.: 269-375-9595 FAX NO.: P.O. NO.:
E-MAIL ADDRESS: KerryPuzio@taplinholdings.com QUOTE NO.:

## INVOICE TO

CONTACT NAME: ☐ SAME
COMPANY:
ADDRESS:
CITY: STATE: ZIP CODE:
PHONE NO.: E-MAIL ADDRESS:

PROJECT NO./NAME: FORMER PULLMAN IND. SAMPLER(S) - PLEASE PRINT/SIGN NAME:

TURNAROUND TIME REQUIRED ☐ 1 DAY ☐ 2 DAYS ☒ 3 DAYS ☐ STANDARD ☐ OTHER

DELIVERABLES REQUIRED ☐ STD ☐ LEVEL II ☐ LEVEL III ☐ LEVEL IV ☐ EDD ☐ OTHER

MATRIX CODE: GW=GROUNDWATER WW=WASTEWATER S=SOIL L=LIQUID SD=SOLID SL=SLUDGE DW=DRINKING WATER O=OIL WP=WIPE A=AIR W=WASTE

ANALYSIS (ATTACH LIST IF MORE SPACE IS REQUIRED)

Certifications
☐ OHIO VAP ☐ Drinking Water
☐ DoD ☐ NPDES

Project Locations
☐ Detroit ☐ New York
☐ Other

Special Instructions

| MERIT LAB NO. (FOR LAB USE ONLY) | YEAR DATE | YEAR TIME | SAMPLE TAG IDENTIFICATION-DESCRIPTION | MATRIX | # OF BOTTLES | # Containers & Preservatives: NONE | HCl | $HNO_3$ | $H_2SO_4$ | NaOH | MeOH | OTHER | RCRA 8 METALS | VOCs 8260 | PNAs | Special Instructions |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 81836.01 | 6.14.17 | 1700 | EASTERN SLAB BACKFILL | S | 2 | | | | | | X | | X | X | X | 3-DAY RUSH |

ICC

| | | | | |
|---|---|---|---|---|
| RELINQUISHED BY: SIGNATURE/ORGANIZATION | Lauren Rader | ☒ Sampler | DATE 6/15/17 | TIME 9:00 |
| RECEIVED BY: SIGNATURE/ORGANIZATION | | | DATE 6/15/17 | TIME 9:00 |
| RELINQUISHED BY: SIGNATURE/ORGANIZATION | | | DATE 6/15/17 | TIME |
| RECEIVED BY: SIGNATURE/ORGANIZATION | | | DATE 6/15/17 | TIME |

| | | | | |
|---|---|---|---|---|
| RELINQUISHED BY: SIGNATURE/ORGANIZATION | B L Bryant | | DATE 6/15/17 | TIME |
| RECEIVED BY: SIGNATURE/ORGANIZATION | | | DATE 6/15/17 | TIME 1400 |
| SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS | NOTES: | TEMP. ON ARRIVAL 5.1 |
| SEAL NO. | SEAL INTACT YES ☐ NO ☐ | INITIALS | | |

PLEASE NOTE: SIGNING ACKNOWLEDGES ADHERENCE TO MERIT'S SAMPLE ACCEPTANCE POLICY ON REVERSE SIDE

Rev. 5.18.12

# ATTACHMENT 3
# WELL ABANDONMENT LOG

# Abandoned Well Plugging Record

Completion is required under authority of Part 127 Act 368 PA 1978.
Failure to comply is a misdemeanor.

Wellogic

**Import ID:**

| | | | | | |
|---|---|---|---|---|---|
| **Tax No:** 80-05-016-011-01 | **Permit No:** | **County:** Van Buren | | **Township:** Bloomingdale | |
| | | **Town/Range:** 01S 14W | **Section:** 16 | **WSSN:** | **Source ID/Well No:** |

## Well ID: 80000013427

**Elevation:**

**Latitude:** 42.3824

**Longitude:** -85.9441

**Measurement Method:** GPS Std Positioning Svc SA Off

**Distance and Direction from Road Intersection:**
West of 40th St. on the south side of CR388.

**Well Owner:** Pullman Insdustries Facility

| **Well Address:** | **Owner Address:** |
|---|---|
| 40677 CR388<br>Bloomingdale, MI 49026 | 40677 CR388<br>Bloomingdale, MI 49026 |

| | |
|---|---|
| **Date of Well Plugging:** 7/27/2017 | **Well Use:** Industrial |
| **Well Construction Type:** Sand/Gravel Well | **Date Well Constructed:** |

**Casing Status after Plugging:** 7.00 ft. below grade
**Reason for Abandoning Well:** Well no longer needed
**Abandonment Method:** Pumped through grout pipe
**Drilling Record:**

**Casing Type:** Steel - galvanized
**Diameter:** 8.00 in. to 123.00 ft. depth

**Measured Well Depth:** 123 ft. **Well Diameter:** 8 in.

**Pumping Equipment Removed:** No
**Equipment Removed:**

**Note: Cutting casing off 4 feet below grade is recommended.**

| Plugging Material | From (ft) | To (ft) | Quantity | Quantity Unit |
|---|---|---|---|---|
| Bentonite slurry | 0.00 | 123.00 | 15.00 | Bags |

**Plugging Remarks:**

**Note: Plugging from well bottom up to ground surface is required.**

**Certification:** Water Well Drilling Contractor
**Registration No:** 03-2342
**Registered Contractor:** Russell Y Beckley

**Business Name:** Koops Well Drilling Inc
**Address:** 3811 58th Street
Holland, MI 49423

**Remarks:**

### Water Well Contractor's Certification

This well plugging was performed under my registration.

**Signature of Registered Contractor** **Date**

Russell Beckley 7-27-17

# ATTACHMENT 4
# COMPACTION TESTING FORMS

ENVIRONMENTAL • GEOTECHNICAL
BUILDING SCIENCES • MATERIALS TESTING
46555 Humboldt Drive, Suite 100
Novi, MI 48377
Phone: 248-669-5140

# Consolidated

**Client:**

MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**

188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

| Title | Description | Number |
|---|---|---|
| Soil Nuclear Gauge | Test-0013-0016 | SNG-000001 |
| Soil Nuclear Gauge | Test-0001-0003 | SNG-000002 |
| Soil Nuclear Gauge | Test-0001-0006 | SNG-000003 |
| Soil Nuclear Gauge | Test-0007-0012 | SNG-000004 |
| Soil Nuclear Gauge | Test-0001-0003 | SNG-000005 |
| Soil Nuclear Gauge | Test-0004-0006 | SNG-000006 |
| Soil Nuclear Gauge | Test-0007-0012 | SNG-000007 |
| Soil Nuclear Gauge | Test-0013-0016 | SNG-000008 |
| Soil Nuclear Gauge | Test-0018-0031 | SNG-000009 |
| Soil Nuclear Gauge | Test-0032-0041 | SNG-000010 |
| Soil Nuclear Gauge | 188MT MECx Bloomingdale, MI 2017-08-03 Test-0042-0053 | SNG-000011 |
| Soil Nuclear Gauge | | SNG-000012 |
| Soil Nuclear Gauge | 188MT MECx Bloomingdale, MI 2017-08-11 Test-0054-0057 | SNG-000013 |
| Soil Nuclear Gauge | 188MT MECx Bloomingdale, MI 2017-08-24 Test-0058-0074 | SNG-000014 |
| Soil Nuclear Gauge | 188MT MECx Bloomingdale, MI 2017-09-28 Test-0075-0086 | SNG-000015 |
| Soil Nuclear Gauge | 188MT MECx Bloomingdale, MI 2017-10-03 Test-0087-0108 | SNG-000016 |
| Soil Nuclear Gauge | | SNG-000017 |

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Novi, MI 48377
Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000001
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 6.4 | 122.0 | 6 | 94 | 90 / 100 | DP |
| 14 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 7.2 | 120.8 | 6 | 93 | 90 / 100 | DP |
| 15 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 8.1 | 119.4 | 6 | 92 | 90 / 100 | DP |
| 16 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 7.4 | 120.1 | 6 | 92 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 13 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 14 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 15 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 16 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Novi, MI 48377
Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000002
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 3.5 | 123.4 | 6 | 95 | 90 / 100 | DP |
| 2 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 3.6 | 123.9 | 6 | 95 | 90 / 100 | DP |
| 3 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 4.4 | 120.8 | 6 | 93 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 1 | Non-Structural Fill: Excavation on the west side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 2 | Non-Structural Fill: Excavation on the west side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 3 | Non-Structural Fill: The north excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Novi, MI 48377
Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000003
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 3.5 | 123.4 | 6 | 95 | 90 / 100 | DP |
| 2 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 3.6 | 123.9 | 6 | 95 | 90 / 100 | DP |
| 3 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 4.4 | 120.8 | 6 | 93 | 90 / 100 | DP |
| 4 | | 6/7/17 | PR-1 | | SP | 7.7 | 130.1 | 4.8 | 119.7 | 6 | 92 | 90 / 100 | DP |
| 5 | | 6/7/17 | PR-1 | | SP | 7.7 | 130.1 | 5.1 | 118.9 | 6 | 91 | 90 / 100 | DP |
| 6 | | 6/7/17 | PR-1 | | SP | 7.7 | 130.1 | 5.1 | 118.2 | 6 | 91 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 1 | Non-Structural Fill: Excavation on the west side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 2 | Non-Structural Fill: Excavation on the west side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 3 | Non-Structural Fill: The north excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 4 | Non-Structural Fill: The north excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 5 | Non-Structural Fill: The south excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 6 | Non-Structural Fill: The south excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Novi, MI 48377
Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000004
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 7.3 | 106.0 | 6 | 99 | 90 / 100 | DP |
| 8 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 7.0 | 105.7 | 6 | 98 | 90 / 100 | DP |
| 9 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 5.7 | 100.7 | 6 | 94 | 90 / 100 | DP |
| 10 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 5.6 | 101.9 | 6 | 95 | 90 / 100 | DP |
| 11 | | 6/13/17 | PR-1 | | SP | 7.7 | 130.1 | 3.3 | 123.2 | 6 | 95 | 90 / 100 | DP |
| 12 | | 6/13/17 | PR-1 | | SP | 7.7 | 130.1 | 2.6 | 125.7 | 6 | 97 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 7 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 8 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 9 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 10 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 11 | Non-Structural Fill: Excavation of an old storage tank on the east side of the main building | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 12 | Non-Structural Fill: Excavation of an old storage tank on the east side of the main building | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000005
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 3.5 | 123.4 | 6 | 95 | 90 / 100 | DP |
| 2 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 3.6 | 123.9 | 6 | 95 | 90 / 100 | DP |
| 3 | | 6/6/17 | PR-1 | | SP | 7.7 | 130.1 | 4.4 | 120.8 | 6 | 93 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 1 | Non-Structural Fill: Excavation on the west side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 2 | Non-Structural Fill: Excavation on the west side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 3 | Non-Structural Fill: The north excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Novi, MI 48377
Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000006
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | | 6/7/17 | PR-1 | | SP | 7.7 | 130.1 | 4.8 | 119.7 | 6 | 92 | 90 / 100 | DP |
| 5 | | 6/7/17 | PR-1 | | SP | 7.7 | 130.1 | 5.1 | 118.9 | 6 | 91 | 90 / 100 | DP |
| 6 | | 6/7/17 | PR-1 | | SP | 7.7 | 130.1 | 5.1 | 118.2 | 6 | 91 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 4 | Non-Structural Fill: The north excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 5 | Non-Structural Fill: The south excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 6 | Non-Structural Fill: The south excavation on the east side of the site | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Novi, MI 48377
Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000007
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 7.3 | 106.0 | 6 | 99 | 90 / 100 | DP |
| 8 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 7.0 | 105.7 | 6 | 98 | 90 / 100 | DP |
| 9 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 5.7 | 100.7 | 6 | 94 | 90 / 100 | DP |
| 10 | | 6/13/17 | MI Cone 6-13 | | SP | 7.0 | 107.5 | 5.6 | 101.9 | 6 | 95 | 90 / 100 | DP |
| 11 | | 6/13/17 | PR-1 | | SP | 7.7 | 130.1 | 3.3 | 123.2 | 6 | 95 | 90 / 100 | DP |
| 12 | | 6/13/17 | PR-1 | | SP | 7.7 | 130.1 | 2.6 | 125.7 | 6 | 97 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 7 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 8 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 9 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 10 | Non-Structural Fill: West side of the Main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 11 | Non-Structural Fill: Excavation of an old storage tank on the east side of the main building | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 12 | Non-Structural Fill: Excavation of an old storage tank on the east side of the main building | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000008
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 6.4 | 122.0 | 6 | 94 | 90 / 100 | DP |
| 14 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 7.2 | 120.8 | 6 | 93 | 90 / 100 | DP |
| 15 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 8.1 | 119.4 | 6 | 92 | 90 / 100 | DP |
| 16 | | 6/20/17 | PR-1 | | SP | 7.7 | 130.1 | 7.4 | 120.1 | 6 | 92 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 13 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 14 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 15 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |
| 16 | Non-Structural Fill: Final lift of the west side of the main building excavation | | | Troxler 3440 67678 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000009
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.0 | 124.2 | 12 | 95 | 90 / 100 | DP |
| 19 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.1 | 125.5 | 12 | 96 | 90 / 100 | DP |
| 20 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 4.9 | 123.0 | 12 | 95 | 90 / 100 | DP |
| 21 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.3 | 117.4 | 12 | 90 | 90 / 100 | DP |
| 22 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.2 | 126.0 | 12 | 97 | 90 / 100 | DP |
| 23 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.9 | 123.4 | 12 | 95 | 90 / 100 | DP |
| 24 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 9.2 | 126.7 | 12 | 97 | 90 / 100 | DP |
| 25 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 9.1 | 124.4 | 12 | 96 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 18 | Non-Structural Fill: Fill along side of old building, about 8" below grade. West end | | | Troxler 3440 69135 | Seibert, Joseph |
| 19 | Non-Structural Fill: Fill along side of bike path, about 8" below grade. West end, about 15' east | | | Troxler 3440 69135 | Seibert, Joseph |
| 20 | Non-Structural Fill: Fill along side of the old building, about 8" below grade. West end, about 15' east | | | Troxler 3440 69135 | Seibert, Joseph |
| 21 | Non-Structural Fill: Fill along side of bike path, about 8" below grade. West end, about 40' east | | | Troxler 3440 69135 | Seibert, Joseph |
| 22 | Non-Structural Fill: Fill along side of the old building, about 8" below grade. West end, about 40' east | | | Troxler 3440 69135 | Seibert, Joseph |
| 23 | Non-Structural Fill: Fill along side of the bike path, about 8" below grade. West end, about 80' east | | | Troxler 3440 69135 | Seibert, Joseph |
| 24 | Non-Structural Fill: Fill along side of the old building, about 8" below grade. West end, about 80' east | | | Troxler 3440 69135 | Seibert, Joseph |
| 25 | Non-Structural Fill: Fill along side of the bike path, about 8" below grade. East end | | | Troxler 3440 69135 | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000009
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 26 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 8.1 | 126.7 | 12 | 97 | 90 / 100 | DP |
| 27 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 4.4 | 120.7 | 12 | 93 | 90 / 100 | DP |
| 28 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.7 | 124.7 | 12 | 96 | 90 / 100 | DP |
| 29 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 128.1 | 12 | 98 | 90 / 100 | DP |
| 30 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 6.5 | 123.7 | 12 | 95 | 90 / 100 | DP |
| 31 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 5.9 | 120.9 | 12 | 93 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 26 | Non-Structural Fill: Fill along side of the old building, about 8" below grade. East end | | | Troxler 3440 69135 | Seibert, Joseph |
| 27 | Non-Structural Fill: Fill along side of the old building, about 8" below grade. East end15' west | | | Troxler 3440 69135 | Seibert, Joseph |
| 28 | Non-Structural Fill: Fill along side of the bike path, about 8" below grade. East end15' west | | | Troxler 3440 69135 | Seibert, Joseph |
| 29 | Non-Structural Fill: Fill along side of the bike path, about 8" below grade. East end 40' west | | | Troxler 3440 69135 | Seibert, Joseph |
| 30 | Non-Structural Fill: Fill along side of the old building, about 8" below grade. East end 40' west | | | Troxler 3440 69135 | Seibert, Joseph |
| 31 | Non-Structural Fill: Fill in the middle of the area behind the old building and the bike path | | | Troxler 3440 69135 | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000010
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.6 | 124.7 | 6 | 96 | 90 / 100 | DP |
| 33 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.7 | 125.0 | 6 | 96 | 90 / 100 | DP |
| 34 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.4 | 127.9 | 6 | 98 | 90 / 100 | DP |
| 35 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.5 | 124.5 | 6 | 96 | 90 / 100 | DP |
| 36 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 6.5 | 127.2 | 6 | 98 | 90 / 100 | DP |
| 37 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 6.5 | 129.2 | 6 | 99 | 90 / 100 | DP |
| 38 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.3 | 125.9 | 6 | 97 | 90 / 100 | DP |
| 39 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.4 | 126.7 | 6 | 97 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 32 | Non-Structural Fill: West side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 33 | Non-Structural Fill: West side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 34 | Non-Structural Fill: West side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 35 | Non-Structural Fill: West side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 36 | Non-Structural Fill: West side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 37 | Non-Structural Fill: East side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 38 | Non-Structural Fill: East side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 39 | Non-Structural Fill: East side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000010
**Test Method:** ASTM D 6938

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 40 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.2 | 121.7 | 6 | 94 | 90 / 100 | DP |
| 41 | | 7/25/17 | PR-1 | | SP | 7.7 | 130.1 | 5.7 | 121.5 | 6 | 93 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN | Field Technician |
|---|---|---|---|---|---|
| 40 | Non-Structural Fill: East side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |
| 41 | Non-Structural Fill: East side of the building foundation | | | Seaman C300 21214 | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000011
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.0 | 126.4 | 4 | 97 | 90 / 100 | DP |
| 43 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.7 | 127.9 | 4 | 98 | 90 / 100 | DP |
| 44 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.2 | 127.0 | 4 | 98 | 90 / 100 | DP |
| 45 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.5 | 127.3 | 4 | 98 | 90 / 100 | DP |
| 46 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 124.8 | 4 | 96 | 90 / 100 | DP |
| 47 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 3.9 | 123.5 | 4 | 95 | 90 / 100 | DP |
| 48 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.0 | 118.2 | 4 | 91 | 90 / 100 | DP |
| 49 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 126.4 | 4 | 97 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 42 | Non-Structural Fill: Lower lift on the North side of area 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 43 | Non-Structural Fill: Lower lift on the North side of area 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 44 | Non-Structural Fill: Lower lift on the North side of area 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 45 | Non-Structural Fill: Lower lift on the North side of area 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 46 | Non-Structural Fill: Top lift in the Central area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 47 | Non-Structural Fill: Top lift in the Central area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 48 | Non-Structural Fill: Top lift in the Central area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 49 | Non-Structural Fill: Top lift in the Central area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000011
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 50 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.2 | 125.9 | 4 | 97 | 90 / 100 | DP |
| 51 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 126.8 | 4 | 97 | 90 / 100 | DP |
| 52 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.3 | 129.3 | 4 | 99 | 90 / 100 | DP |
| 53 | | 8/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.6 | 127.8 | 4 | 98 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 50 | Non-Structural Fill: Top lift in the South area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 51 | Non-Structural Fill: Top lift in the South area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 52 | Non-Structural Fill: Top lift in the South area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 53 | Non-Structural Fill: Top lift in the South area of 5C | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000012
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 7.5 | 122.3 | 8 | 94 | 90 / 100 | DP |
| 55 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 6.8 | 125.3 | 8 | 96 | 90 / 100 | DP |
| 56 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 7.5 | 130.4 | 8 | 100 | 90 / 100 | DP |
| 57 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 7.3 | 130.6 | 8 | 100 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 54 | Non-Structural Fill: Ground level | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |
| 55 | Non-Structural Fill: Ground level | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |
| 56 | Non-Structural Fill: Ground level | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |
| 57 | Non-Structural Fill: Trench edge | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000013
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 54 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 7.5 | 122.3 | 8 | 94 | 90 / 100 | DP |
| 55 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 6.8 | 125.3 | 8 | 96 | 90 / 100 | DP |
| 56 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 7.5 | 130.4 | 8 | 100 | 90 / 100 | DP |
| 57 | | 8/11/17 | PR-1 | | SP | 7.7 | 130.1 | 7.3 | 130.6 | 8 | 100 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 54 | Non-Structural Fill: Ground level | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |
| 55 | Non-Structural Fill: Ground level | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |
| 56 | Non-Structural Fill: Ground level | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |
| 57 | Non-Structural Fill: Trench edge | | | Troxler / 3440 / 67678 / | Demshuk, Craig William |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000014
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 7.8 | 124.5 | Backscatter | 96 | 90 / 100 | DP |
| 59 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.6 | 126.4 | Backscatter | 97 | 90 / 100 | DP |
| 60 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.9 | 129.1 | Backscatter | 99 | 90 / 100 | DP |
| 61 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 7.1 | 119.4 | Backscatter | 92 | 90 / 100 | DP |
| 62 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 9.5 | 127.2 | Backscatter | 98 | 90 / 100 | DP |
| 63 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 7.3 | 123.3 | Backscatter | 95 | 90 / 100 | DP |
| 64 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 10.0 | 121.0 | Backscatter | 93 | 90 / 100 | DP |
| 65 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 8.3 | 128.0 | Backscatter | 98 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 58 | Non-Structural Fill: Building backfill | | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 59 | Non-Structural Fill: Building backfill | | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 60 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 61 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 62 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 63 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 64 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 65 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000014
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 8.4 | 125.4 | Backscatter | 96 | 90 / 100 | DP |
| 67 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 5.9 | 127.5 | Backscatter | 98 | 90 / 100 | DP |
| 68 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.6 | 128.6 | Backscatter | 99 | 90 / 100 | DP |
| 69 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.1 | 128.5 | Backscatter | 99 | 90 / 100 | DP |
| 70 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 10.0 | 125.3 | Backscatter | 96 | 90 / 100 | DP |
| 71 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 8.5 | 125.8 | Backscatter | 97 | 90 / 100 | DP |
| 72 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.7 | 124.3 | Backscatter | 96 | 90 / 100 | DP |
| 73 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.2 | 122.7 | Backscatter | 94 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 66 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 67 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 68 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 69 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 70 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 71 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 72 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |
| 73 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000014
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

**Test Results**

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 74 | | 8/24/17 | PR-1 | | SP | 7.7 | 130.1 | 6.5 | 119.4 | Backscatter | 92 | 90 / 100 | DP |

**Test Information**

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 74 | Non-Structural Fill: Building backfill. Throughout the front 1/3 of the area | 0.0 | | Seaman / C300 / 21248 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000015
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 75 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.0 | 125.6 | 4 | 97 | 90 / 100 | DP |
| 76 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.7 | 128.8 | 4 | 99 | 90 / 100 | DP |
| 77 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.6 | 125.0 | 4 | 96 | 90 / 100 | DP |
| 78 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.9 | 127.0 | 4 | 98 | 90 / 100 | DP |
| 79 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 126.4 | 4 | 97 | 90 / 100 | DP |
| 80 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.2 | 127.2 | 4 | 98 | 90 / 100 | DP |
| 81 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 125.6 | 4 | 97 | 90 / 100 | DP |
| 82 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 124.9 | 4 | 96 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 75 | Non-Structural Fill: Northeast end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 76 | Non-Structural Fill: Northeast end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 77 | Non-Structural Fill: North central end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 78 | Non-Structural Fill: North central end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 79 | Non-Structural Fill: North central end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 80 | Non-Structural Fill: North central end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 81 | Non-Structural Fill: North central end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 82 | Non-Structural Fill: North central end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000015
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 83 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.8 | 126.1 | 4 | 97 | 90 / 100 | DP |
| 84 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.7 | 125.6 | 4 | 97 | 90 / 100 | DP |
| 85 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.7 | 125.0 | 4 | 96 | 90 / 100 | DP |
| 86 | | 9/28/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 126.4 | 4 | 97 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 83 | Non-Structural Fill: Northeastl end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 84 | Non-Structural Fill: Northeastl end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 85 | Non-Structural Fill: Northeastl end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |
| 86 | Non-Structural Fill: Northeastl end of area 5b | | | Troxler / 3440 / 69135 / | O'Neil, Amy Catherine |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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Phone: 248-669-5140

# Soil Nuclear Gauge

**Report #:** SNG-000016
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 87 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.2 | 126.1 | 4 | 97 | 90 / 100 | DP |
| 88 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 3.8 | 129.1 | 4 | 99 | 90 / 100 | DP |
| 89 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.7 | 127.8 | 8 | 98 | 90 / 100 | DP |
| 90 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.3 | 127.0 | 8 | 98 | 90 / 100 | DP |
| 91 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 3.8 | 123.4 | 8 | 95 | 90 / 100 | DP |
| 92 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.2 | 120.5 | 8 | 93 | 90 / 100 | DP |
| 93 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 125.9 | 8 | 97 | 90 / 100 | DP |
| 94 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.6 | 127.7 | 6 | 98 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 87 | Non-Structural Fill: Old parking area | 0.0 | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 88 | Non-Structural Fill: Old parking area | 0.0 | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 89 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 90 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 91 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 92 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 93 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 94 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000016
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 95 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 6.0 | 129.3 | 6 | 99 | 90 / 100 | DP |
| 96 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.3 | 129.3 | 6 | 99 | 90 / 100 | DP |
| 97 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.8 | 128.0 | 6 | 98 | 90 / 100 | DP |
| 98 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 6.3 | 128.6 | 6 | 99 | 90 / 100 | DP |
| 99 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.4 | 127.5 | 6 | 98 | 90 / 100 | DP |
| 100 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.4 | 127.2 | 6 | 98 | 90 / 100 | DP |
| 101 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.7 | 123.1 | 6 | 95 | 90 / 100 | DP |
| 102 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.4 | 123.0 | 6 | 95 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 95 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 96 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 97 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 98 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 99 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 100 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 101 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 102 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000016
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

## Test Results

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 103 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.3 | 122.8 | 6 | 94 | 90 / 100 | DP |
| 104 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.5 | 124.1 | 6 | 95 | 90 / 100 | DP |
| 105 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 3.2 | 121.5 | 6 | 93 | 90 / 100 | DP |
| 106 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.9 | 124.2 | 6 | 95 | 90 / 100 | DP |
| 107 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 4.1 | 119.3 | 6 | 92 | 90 / 100 | DP |
| 108 | | 10/3/17 | PR-1 | | SP | 7.7 | 130.1 | 5.4 | 127.1 | 6 | 98 | 90 / 100 | DP |

## Test Information

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 103 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 104 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 105 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 106 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 107 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |
| 108 | Non-Structural Fill: Old parking area | | | Troxler / 3440 / 67678 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

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# Soil Nuclear Gauge

**Report #:** SNG-000017
**Test Method:** See Footnote

**Client:**
MECx
8864 Interchange Dr.
Houston, TX 77054-2512

**Project:**
188MT17010
188MT MECx Bloomingdale, MI
Former Pullman Industries
Bloomingdale, MI

**Test Results**

| Test # | Retest Of | Test Date | Proctor ID | Method | Soil Classification | Optimum Moisture (%) | Maximum Dry Density (pcf) | In Place Moisture (%) | In Place Dry Density (pcf) | Probe Depth (in) | Percent Compaction | Min/Max Comp. (%) | Remark |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | | 7/11/17 | PR-1 | | SP | 7.7 | 130.1 | 9.2 | 126.6 | 12 | 97 | 90 / 100 | DP |

**Test Information**

| Test # | Test Location | Elevation | Reference | Gauge Make / Model / SN / Calibrated | Field Technician |
|---|---|---|---|---|---|
| 17 | Non-Structural Fill: Fill along side of bike path, about 8" below grade. West end | | | Troxler / 3440 / 69135 / | Seibert, Joseph |

| Remarks | Comments |
|---|---|
| **DP:** Density Pass | Tests are "Direct Transmission" (Method A) unless probe depth is noted as "Backscatter". Gauge calibration data on file with the testing agency. |

# ATTACHMENT 5
# PERMITS

# NOTIFICATION OF INTENT TO RENOVATE/DEMOLISH

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
(MDEQ) AIR QUALITY DIVISION
NESHAP, 40 CFR Part 61, Subpart M

MICHIGAN DEPARTMENT OF LICENSING AND
REGULATORY AFFAIRS (LARA), ASBESTOS PROGRAM,
P.A. 135 OF 1986, AS AMENDED, Section 220 (1-4) or (8)

**1. NOTIFICATION:**

Date of Notification: 06/02/2017 Document #: 0000095507
Date of Original: 04/20/2017 Original Document #: 0000087989
Notification Type: ☐ Original ☑ Revised ☐ Canceled

**Mark appropriate boxes: (both DEQ and LARA may apply):**

**DEQ (NESHAP) [*260 ln. ft./160 sq. ft. or more is threshold*]**

☑ Planned Renovation - 10 **working** days notice
☐ Emergency Renovation
☐ Scheduled Demolition - 10 **working** days notice
☐ Intentional Burn - 10 **working** days notice
☐ Ordered Demolition

**LARA (MIOSHA) [*Will not accept annual notifications*]**

☑ Demo, Reno, Encap. (>10 ln. ft./15 sq. ft.) 10 **calendar** days notice
☐ Emergency Renovation/Encapsulation

**Calculate LARA Asbestos Project Fee:**(1% Project Fee) ☐ Time & material
Total Project Cost: $177,266.26 x 0.01 = $1,772.66
Type of Contractor: Type II License No: C49795
Licensing Authority: MIOSHA

**2. PROJECT SCHEDULE:**

☐ Check here if this is a multi-phased project, attach a schedule showing the start/end date of each phase.

| | | START DATE | END DATE |
|---|---|---|---|
| * | Renovation: | | |
| + | Asb. Removal: | 05/08/2017 | 06/02/2017 |
| + | Demolition: | | |
| | Encapsulation: | | |

* Includes setup, build enclosure, asbestos removal, demobilizing, etc.
+Include **only** those dates you are conducting asbestos removal/demo.

**Work Schedule:** Please indicate the anticipated days of the week and work hours for the purpose of scheduling a compliance inspection.

| | Days of the Week | Work Hours |
|---|---|---|
| Asb. Removal: | M, Tu, W, Th, F | M-F 8a-4:30p |
| Demolition: | | |
| Encapsulation: | | |

☐ Check here if the work hours are not the same across the days of the week or vary from day to day and attach a document with Detailed Work Hours.

**3. ABATEMENT CONTRACTOR:** Internal Project #:
Name: Taplin Group, LLC
Mailing Address: 5140 West Michigan Avenue
City/State/Zip: Kalamazoo, MI 49006
E-mail: reneewhitlock@taplingroup.com
Contact: Gregory G. Moe Phone: 269-375-9595

**4. DEMOLITION CONTRACTOR:** Internal Project #:
Name:
Mailing Address:
City/State/Zip:
E-mail:
Contact: Phone:

**5. FACILITY OWNER:** Internal Project #:
Name: State of Michigan, Michigan Land Bank
Mailing Address: 300 North Washington Square
City/State/Zip: Lansing, MI 48913
E-mail:
Contact: Dave Harn, MDEQ Phone: 269-567-3526

**6. FACILITY DESCRIPTION:**
Facility Name: Former Pullman Industries, Facility I.D. #80000211
Location Address: 40677 East Kalamazoo Street
City/State/Zip: Bloomingdale, MI 48217
County: Van Buren Age: 47
No. of Floors: 1 If Apt. # of units:
Nearest Crossroad:
Size: (sq. ft.) 16000 Floor No.:
Present Use: Unoccupied Commercial Property
Prior Use: Industrial
Specific Location(s) in Facility: Room 8

**7. DISPOSAL SITE:**
Name: Westside Recycling & Disposal Facility
Location Address: 14094 M 60
City/State/Zip: Three Rivers, MI 49093

**8. WASTE TRANSPORTER(S):**
Name: Taplin Group, LLC
Location Address: 5140 West Michigan Avenue
City/State/Zip: Kalamazoo, MI 49006
Name:
Location Address:
City/State/Zip:

**9. ORDERED DEMOLITIONS:** (See NESHAP regulations for definition of "Ordered Demolition.") A copy of the official Order must accompany this notification.
Gov't Agency Ordering Demo:
Name/Title of Person Signing Order:
Date of Order: Date Ordered to Begin:

**10. ASBESTOS INFORMATION**

Is asbestos present? *(i.e. Assumed or identified in asbestos inspection report)* ☑ Yes ☐ No Will asbestos be removed prior to demolition? ☐ Yes ☐ No

***Estimate the amount of asbestos:*** *Include RACM (Regulated Asbestos Containing Material) to be removed, encapsulated, etc. Also include the amount and type (floor tile, roofing, etc.) of non-friable Category I and/or Category II ACM that **will not** be removed prior to demolition. (**NOTE:** In a demolition, cementatious ACM **cannot** remain in a structure, as it is likely to become regulated in the demolition/handling process. It **must** be removed prior to demolition. Also, all asbestos must be removed prior to an intentional burn.)*

| RACM/ACM to be removed | RACM to be Encapsulated | Non-friable ACM **not** removed prior to demo. Category I | Non-friable ACM **not** removed prior to demo. Category II | Units of Measure |
|---|---|---|---|---|
| | | | | ☐ Ln. Ft. ☐ Ln. M. |
| 15600/160 of Spray-on Removed in Wet Demo | | | 7312 | ☑ Sq. Ft. ☐ Sq. M. |
| | | | | ☐ Cu. Ft.* ☐ Cu. M.* |

*Volume (cubic ft./meters) should be used only if unable to measure by linear/square measure (example: asbestos has fallen off of surface).

## *NOTIFICATION OF INTENT TO RENOVATE/DEMOLISH (continued)*

**11. PROJECT DESCRIPTION:** Complete **A) for Renovation** (asbestos removal/encapsulation) or **B) for Demolition:**

**A) RENOVATION:** Mark all surfaces/types of RACM to be removed:

☐ Piping ☐ Fittings ☐ Boiler(s) ☐ Tanks(s)
☐ Beam(s) ☐ Duct(s) ☐ Tunnel(s) ☐ Ceiling Tile(s)
☐ Mag Block ☑ Other (describe):

Spray-on material/Due to unsafe access of 160 sqft of the building this material will be removed using wet methods during demolition.

**Encapsulation (for LARA):** Mark surfaces/types to be encapsulated:

☐ Piping ☐ Fittings ☐ Boiler(s) ☐ Tanks(s)
☐ Beam(s) ☐ Duct(s) ☐ Tunnel(s) ☐ Ceiling Tile(s)
☐ Other (describe):

**Method of removal:** Describe how the asbestos will be removed:

☐ Glove Bag ☑ Neg. Pressure Cont. ☑ Cut into sections and remove ☑ Hand Scraping
☐ Dry Removal (please provide attachment with a description and explanation ☑ Other (describe):

Due to unsafe access of 160 sqft of the building spray-on material will be removed using wet methods during demolition.

**B) DEMOLITION:** Indicate if complete or partial demolition:

☐ **Complete** or ☐ **Partial** (describe part of facility to be demolished):

**Method of Demolition:** Describe the method of demolition of facility, bridge, etc.:

☐ Excavator or other heavy equipment ☐ Disassembly by hand ☐ Explosives ☐ Other (describe):

**12. ENGINEERING CONTROLS:** Describe work practices and engineering controls used to prevent visible emissions before, during, and after removal, and until proper disposal:

☑ Water spray to control dust ☑ Place in leak tight containers ☑ Adequately wet material ☐ Other (describe):

**13. UNEXPECTED ASBESTOS:** Describe the steps you intend to follow in the event that unexpected RACM is found or previously non-friable asbestos becomes friable (crumbled, pulverized, reduced to powder, etc.) and therefore regulated:

☑ Stop Work ☑ Wet material ☐ Contact DEQ and abatement contractor ☑ Revise notification ☐ Other (describe):

**14. PROCEDURE(S) USED TO DETECT THE PRESENCE OF ASBESTOS:**

A) Indicate how you determined whether or not asbestos is in the facility. If analytical sampling was used, describe method of analysis. (The determination of the presence or absence of asbestos must be made prior to submitting a renovation/demolition notification):

☑ All suspect materials sampled and analyzed using Polarized Light Microscopy (PLM) ☐ Other (describe):

B) Name, address, and phone number of company performing asbestos survey: Fibertec Industrial Hygiene Services, Inc., 517-699-0345, 1914 Holloway Drive, Holt, MI, 48842

C) Name, accreditation number of inspector, and date of inspection: John D. Luna, A4665, 01/30/2017

**15. EMERGENCY RENOVATIONS:** Date/time of emergency:

Describe the sudden, unexpected event:

Explain how the event caused unsafe conditions, and/or would cause equipment damage and/or an unreasonable financial burden:

**16.** I certify that an individual trained in the provisions of 40 CFR Part 61, Subpart M, will be on-site during the renovation and during demolition involving RACM above the threshold and/or during an ordered demolition. Evidence that this person has completed the required training will be available for inspection at the renovation or demolition site.

| Gregory Moe | 06/02/2017 |
|---|---|
| *Signature of Owner or Abatement/Demolition Contractor* | *Date* |

**17. Signature Requirements for Projects with Negative Pressure Enclosures: (required by LARA)**

**Per Section 221(1)(2) of P.A. 135 of 1986, as amended, clearance air monitoring is required for any asbestos abatement project involving 10 linear feet/15 square feet or more of friable material which is performed within a negative pressure enclosure. I (the building owner or lessee) have been advised by the contractor of my responsibility under Act 135 to have clearance air monitoring performed on this project.**

| | | Gregory Moe | 06/02/2017 |
|---|---|---|---|
| *Signature of Building Owner or Lessee* | *Date* | *Signature of Asbestos Abatement Contractor Representative* | *Date* |

**NOTE: <u>It is not mandatory that a signed copy be sent to LARA unless requested.</u>**

For affected projects, this section of the notification form must be completed, signed, and made part of **<u>your</u>** records before the project begins.

**18. I certify that the above information is correct:**

| Gregory Moe | 06/02/2017 | Gregory Moe | 06/02/2017 |
|---|---|---|---|
| *Printed Name of Owner/Operator* | *Date* | *Signature of Owner/Operator* | *Date* |

Former Pullman Industries
Building Demolition

west end of Main Building
20' X 80' Unsafe to walk around.
Recommend west Dem 0

Chuck Mize
Building Inspector
# PO 3235

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**
WATER RESOURCES DIVISION
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

*Authorized by Part 31, Water Resources Protection, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as Amended*

# CERTIFICATE OF COVERAGE (COC)

**Under General Permit No. MIG080000**
**Petroleum Contaminated Wastewater General Permit**

COC NO.: MIG081232
DESIGNATED NAME: Pullman Industries GWCU
PERMITTEE: DEQ, Remediation and Redevelopment Division, Kalamazoo District Office
MAILING ADDRESS: 7953 Adobe Road
Kalamazoo, MI 49009-5025

This Certificate of Coverage (COC) authorizes the permittee to discharge treated petroleum contaminated wastewater from the Pullman Industries facility located at 40677 CR-388, Bloomingdale, Michigan 49026, in Van Buren County. Consistent with the criteria and requirements established in General Permit No. MIG080000, the permittee is authorized to discharge the following:

1.4 MGD of treated petroleum contaminated wastewater from Monitoring Point 001A through Outfall 001. Outfall 001 discharges to the Haven and Max Lake drain at latitude 42.38161, longitude -85.94502.

Sections of the General Permit applicable to this facility include: the cover page, Part I.A.1., Part I.A.7 and Part I.A.9. through Part II.E.6., inclusively.

References in the General Permit to the Department of Environmental Quality (Department) shall be defined as the Kalamazoo District Supervisor of the Water Resources Division. The Kalamazoo District Office is located at 7953 Adobe Road, Kalamazoo, MI, 49009-5025; Telephone: 269-567-3500; Fax: 269-567-9440.

Any person who is aggrieved by this COC may file a sworn petition with the Michigan Administrative Hearing System within the Michigan Department of Licensing and Regulatory Affairs, c/o the Michigan Department of Environmental Quality, setting forth the conditions of the COC which are being challenged and specifying the grounds for the challenge. The Department of Licensing and Regulatory Affairs may reject any petition filed more than 60 days after issuance as being untimely.

The issuance of this COC does not authorize violation of any federal, state, or local laws or regulations, nor does it obviate the necessity of obtaining such permits, including any other Department permits, or approvals from other units of government as may be required by law.

This COC is based on a complete application received by the Department on May 10, 2017. The permittee is subject to all conditions specified in General Permit No. MIG080000, issued July 10, 2014, expiring April 1, 2020. This COC may be modified, terminated, reissued, or revoked as allowed for in General Permit No. MIG080000.

This COC shall take effect on the date of issuance.

July 3, 2017
Date Issued

Original Signed by Sylvia Heaton
Sylvia Heaton, Supervisor
Lakes Michigan & Superior Permits Unit
Permits Section
Water Resources Division

# MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
# WATER RESOURCES DIVISION
# MINOR PROJECT PERMIT

**Issued To:**

Jeffrey Huntington
PO Box 30766
Lansing, MI 48909

**Permit No.:** WRP006111 **v.**1
**Submission No.:** 2K3-M2XB-3VJN
**Site Name:** Pullman Industries
**Issued:** **March 3, 2017**
**Revised:**
**Expires:** **March 3, 2022**

**This permit is being issued by the Michigan Department of Environmental Quality (MDEQ), Water Resources Division, under the provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (NREPA); specifically:**

- ☐ **Part 301, Inland Lakes and Streams**
- ☒ **Part 303, Wetlands Protection**
- ☐ **Part 315, Dam Safety**
- ☐ **Part 323, Shorelands Protection and Management**
- ☐ **Part 325, Great Lakes Submerged Lands**
- ☐ **Part 353, Sand Dunes Protection and Management**
- ☐ **Part 31, Water Resources Protection (Floodplain Regulatory Authority)**

**Permission is hereby granted, based on permittee assurance of adherence to State of Michigan requirements and permit conditions, to:**

**Authorized Activity:**

Place 3.3 cubic yards of angular rock riprap at an existing stormwater outlet in an area measuring 15-feet long and 4-feet wide, to a depth of 1.5-feet. Excavate150 cubic yards of contaminated soil from a regulated wetland measuring 1,850 square feet. Dispose of all removed material at a Type II landfill. Place 300 cubic yards of clean backfill in the excavated area. All work shall be performed in accordance with the attached plans and permit conditions.

Authorized Under Minor Permit Category: 5. Cleanup of Hazardous and Toxic Waste
Property Location: Van Buren County, Bloomingdale Township, Town/Range/Section: 01S14W16, Property Tax No. 80-05-016-011-01

**Authority granted by this permit is subject to the following limitations:**

A. Initiation of any work on the permitted project confirms the permittee's acceptance and agreement to comply with all terms and conditions of this permit.

B. The permittee, in exercising the authority granted by this permit, shall not cause unlawful pollution as defined by Part 31 of the NREPA.
C. This permit shall be kept at the site of the work and available for inspection at all times during the duration of the project or until its date of expiration.
D. All work shall be completed in accordance with the approved plans and specifications submitted with the application and/or plans and specifications attached to this permit.
E. No attempt shall be made by the permittee to forbid the full and free use by the public of public waters at or adjacent to the structure or work approved.
F. It is made a requirement of this permit that the permittee give notice to public utilities in accordance with 2013 PA 174 (Act 174) and comply with each of the requirements of Act 174.
G. This permit does not convey property rights in either real estate or material, nor does it authorize any injury to private property or invasion of public or private rights, nor does it waive the necessity of seeking federal assent, all local permits, or complying with other state statutes.
H. This permit does not prejudice or limit the right of a riparian owner or other person to institute proceedings in any circuit court of this state when necessary to protect his rights.
I. Permittee shall notify the MDEQ within one week after the completion of the activity authorized by this permit by completing and forwarding the attached preaddressed postcard to the office addressed thereon.
J. This permit shall not be assigned or transferred without the written approval of the MDEQ.
K. Failure to comply with conditions of this permit may subject the permittee to revocation of permit and criminal and/or civil action as cited by the specific state act, federal act, and/or rule under which this permit is granted.
L. All dredged or excavated materials shall be disposed of in an upland site (outside of floodplains, unless exempt under Part 31 of the NREPA, and wetlands).
M. In issuing this permit, the MDEQ has relied on the information and data that the permittee has provided in connection with the submitted application for permit. If, subsequent to the issuance of a permit, such information and data prove to be false, incomplete, or inaccurate, the MDEQ may modify, revoke, or suspend the permit, in whole or in part, in accordance with the new information.
N. The permittee shall indemnify and hold harmless the State of Michigan and its departments, agencies, officials, employees, agents, and representatives for any and all claims or causes of action arising from acts or omissions of the permittee, or employees, agents, or representative of the permittee, undertaken in connection with this permit. The permittee's obligation to indemnify the State of Michigan applies only if the state: (1) provides the permittee or its designated representative written notice of the claim or cause of action within 30 days after it is received by the state, and (2) consents to the permittee's participation in the proceeding on the claim or cause of action. It does not apply to contested case proceedings under the Administrative Procedures Act, 1969 PA 306, as amended, challenging the permit. This permit shall not be construed as an indemnity by the State of Michigan for the benefit of the permittee or any other person.
O. Noncompliance with these terms and conditions and/or the initiation of other regulated activities not specifically authorized shall be cause for the modification, suspension, or revocation of this permit, in whole or in part. Further, the MDEQ may initiate criminal and/or civil proceedings as may be deemed necessary to correct project deficiencies, protect natural resource values, and secure compliance with statutes.
P. If any change or deviation from the permitted activity becomes necessary, the permittee shall request, in writing, a revision of the permitted activity from the MDEQ. Such revision request shall include complete documentation supporting the modification and revised plans detailing the proposed modification. Proposed modifications must be approved, in writing, by the MDEQ prior to being implemented.
Q. This permit may be transferred to another person upon written approval of the MDEQ. The permittee must submit a written request to the MDEQ to transfer the permit to the new owner. The

new owner must also submit a written request to the MDEQ to accept transfer. The new owner must agree, in writing, to accept all conditions of the permit. A single letter signed by both parties that includes all of the above information may be provided to the MDEQ. The MDEQ will review the request and, if approved, will provide written notification to the new owner.

R. Prior to initiating permitted construction, the permittee is required to provide a copy of the permit to the contractor(s) for review. The property owner, contractor(s), and any agent involved in exercising the permit are held responsible to ensure that the project is constructed in accordance with all drawings and specifications. The contractor is required to provide a copy of the permit to all subcontractors doing work authorized by the permit.

S. Construction must be undertaken and completed during the dry period of the wetland. If the area does not dry out, construction shall be done on equipment mats to prevent compaction of the soil.

T. Authority granted by this permit does not waive permit requirements under Part 91, Soil Erosion and Sedimentation Control, of the NREPA, or the need to acquire applicable permits from the County Enforcing Agent (CEA).

U. Authority granted by this permit does not waive permit requirements under the authority of Part 305, Natural Rivers, of the NREPA. A Natural Rivers Zoning Permit may be required for construction, land alteration, streambank stabilization, or vegetation removal along or near a natural river.

V. The permittee is cautioned that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.

W. Unless specifically stated in this permit, construction pads, haul roads, temporary structures, or other structural appurtenances to be placed in a wetland or on bottomland of the water body are not authorized and shall not be constructed unless authorized by a separate permit or permit revision granted in accordance with the applicable law.

X. For projects with potential impacts to fish spawning or migration, no work shall occur within fish spawning or migration timelines (i.e., windows) unless otherwise approved in writing by the Michigan Department of Natural Resources, Fisheries Division.

Y. Work to be done under authority of this permit is further subject to the following special instructions and specifications:

1. All spoils shall be dewatered on-site using a temporary water treatment system before being disposed on in a Type II landfill. All dewatered spoils effluent shall be discharged to the Haven & Max Lake County Drain, and will require authorization under a National Pollutant Discharge Elimination Service (NPDES) permit that DEQ understands you have applied for (NPDES permit #MIG080000).

2. Authority granted by this permit does not waive permit or program requirements under Part 91 of the NREPA or the need to acquire applicable permits from the CEA. To locate the Soil Erosion Program Administrator for your county, visit www.mi.gov/deqstormwater and select "Soil Erosion and Sedimentation Control Program" under “Related Links.”

3. The authority to conduct the activity as authorized by this permit is granted solely under the provisions of the governing act as identified above. This permit does not convey, provide, or otherwise imply approval of any other governing act, ordinance, or regulation, nor does it waive the permittee's obligation to acquire any local, county, state, or federal approval or authorization necessary to conduct the activity.

4. This permit does not authorize or sanction work that has been completed in violation of applicable federal, state, or local statutes.

5. The permit placard shall be kept posted at the work site, in a prominent location at all times for the duration of the project, or until permit expiration.

6. This permit is being issued for the maximum time allowed and no extensions of this permit will be granted. Initiation of the construction work authorized by this permit indicates the permittee's acceptance of this condition. The permit, when signed by the MDEQ, will be for a five-year period beginning on the date of issuance. If the project is not completed by the expiration date, a new permit must be sought.

Issued By:

Derek Haroldson
Kalamazoo District Office
Water Resources Division
269-567-3567

cc: Bloomingdale Township Clerk
Mr. Andy Abbott, Van Buren CEA
Mr. Brad Hoare, AECOM
Mr. David Harn, DEQ
Ms. Melanie Burdick, USEPA Region 5

# NOTICE OF AUTHORIZATION

**Permit Number: WRP006111 v. 1** **Date Issued: March 3, 2017**
**Site Name: Pullman Industries** **Expiration Date: March 3, 2022**

The Michigan Department of Environmental Quality, Water Resources Division, P.O. Box 30458, Lansing, Michigan 48909-7958, under provisions of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended; specifically:

☒ Part 303, Wetlands Protection.

Authorized activity:

Place 3.3 cubic yards of angular rock riprap at the existing stormwater outlet in an area measuring 15-feet long and 4-feet wide, to a depth of 1.5-feet. Excavate150 cubic yards of contaminated soil from a regulated wetland measuring 1,850 square feet. Dispose of all removed material at a Type II landfill. Place 300 cubic yards of clean backfill in the excavated area. All work shall be performed in accordance with the attached plans and permit conditions.

Authorized Under Minor Permit Category: 5. Cleanup of Hazardous and Toxic Waste
Property Location: Van Buren County, Bloomingdale Township,
Town/Range/Section: 01S14W16
Property Tax No. 80-05-016-011-01

Permittee:
Jeffrey Huntington
PO Box 30766
Lansing, MI 48909

Derek Haroldson
Kalamazoo District Office
Water Resources Division
269-567-3567

*This notice must be displayed at the site of work.*
*Laminating this notice or utilizing sheet protectors is recommended.*
Please refer to the above permit number with any questions or concerns.

# TRANSMITTAL

Michigan Department Of Environmental Quality
Air Quality Division - Permit Section
Constitution Hall, 2nd Floor South
525 West Allegan Street
Lansing, MI 48933-1502

July 18, 2017

Re: Permit To Install Application for Site-Specific Special Use

Project No. 080032A14

☒ **FOR REVIEW**
☒ **FOR YOUR USE**
☐ **AS REQUESTED**

Sent By: Lynn M. Spurr/lkj

| COPIES | DATE | DESCRIPTION |
|---|---|---|
| 3 | 7/18/2017 | Permit to Install (PTI) Application (Form 5615E) for Revolution Onsite Crushing (SRN P0411) |
| 2 | Various | Attachments to PTI Application |

**COMMENTS**

If you have any questions or require additional information, please contact me at 269.544.6955 or lmspurr@ftch.com.

By UPS
cc/att: Ms. Mary Douglas – MDEQ Kalamazoo District Office, Air Quality Division (By UPS)
Mr. Dale Klett - Revolution Onsite Crushing (By email)

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MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - AIR QUALITY DIVISION

# PERMIT TO INSTALL APPLICATION

*For authority to install, construct, reconstruct, relocate, or modify process, fuel-burning or refuse burning equipment and/or control equipment. Permits to install are required by administrative rules pursuant to Section 5505 of 1994 PA 451, as*

| FOR DEQ USE |
|---|
| APPLICATION NUMBER |
| |

Please type or print clearly. The "Application Instructions" and "Information Required for an Administratively Complete Permit to Install Application" are available on the Air Quality Division (AQD) Permit Web Page at http://www.deq.state.mi.us/aps. Please call the AQD at 517-284-6804 if you have not been contacted within 15 days of your application submittal.

1. FACILITY CODES: State Registration Number (SRN) and North American Industry Classification System (NAICS)

SRN: P041 1 NAICS: 212321

2. APPLICANT NAME: (Business License Name of Corporation, Partnership, Individual Owner, Government Agency)
Revolution Onsite Crushing

3. APPLICANT ADDRESS: (Number and Street) 62994 Territorial Road | MAIL CODE:

CITY: Hartford | STATE: MI | ZIP CODE: 49057 | COUNTY: Van Buren

4. EQUIPMENT OR PROCESS LOCATION: (Number and Street – if different than Item 3)
40677 CR388

CITY: Bloomingdale | ZIP CODE: 49026 | COUNTY: Van Buren

5. GENERAL NATURE OF BUSINESS:
Aggregate and concrete crushing.

6. EQUIPMENT OR PROCESS DESCRIPTION: (A Description MUST Be Provided Here. Include Emission Unit IDs. Attach additional sheets if necessary; number and date each page of the submittal.)
Crushers, screens, and conveyors for material processing, currently permitted under a General Permit to Install for a Nonmetallic Mineral Crushing Facility (permit no. 192-12A). The attached April 2015 general permit modification application for Permit No. 192-12 includes a complete list of equipment at the plant. This application is being submitted because the plant would like to temporarily relocate to a site that does not meet the minimum 500-foot setback distance requirement for a general permit. Once relocated, it is estimated the plant would crush 5,000 tons over a 1-week period.

7. REASON FOR APPLICATION: (Check all that apply.)
- ☐ INSTALLATION / CONSTRUCTION OF NEW EQUIPMENT OR PROCESS
- ☒ RECONSTRUCTION / MODIFICATION / RELOCATION OF EXISTING EQUIPMENT OR PROCESS – **DATE INSTALLED:**
- ☐ OTHER – DESCRIBE

8. IF THE EQUIPMENT OR PROCESS THAT WILL BE COVERED BY THIS PERMIT TO INSTALL (PTI) IS CURRENTLY COVERED BY ANY ACTIVE PERMITS, LIST THE PTI NUMBER(S): 192-12A

9. DOES THIS FACILITY HAVE AN EXISTING RENEWABLE OPERATING PERMIT (ROP)? ☒ NOT APPLICABLE ☐ PENDING APPLICATION ☐ YES
PENDING APPLICATION OR ROP NUMBER:

10. AUTHORIZED EMPLOYEE: Dale Klett | TITLE: Owner | PHONE NUMBER: (Include Area Code) 269.308.3714
SIGNATURE: | DATE: 7/18/17 | E-MAIL ADDRESS: daleklett@yahoo.com

11. CONTACT: (If different than Authorized Employee. The person to contact with questions regarding this application) Lynn Spurr | PHONE NUMBER: (Include Area Code) 269.544.6955
CONTACT AFFILIATION: FTCH | E-MAIL ADDRESS: lmspurr@ftch.com

12. IS THE CONTACT PERSON AUTHORIZED TO NEGOTIATE THE TERMS AND CONDITIONS OF THE PERMIT TO INSTALL? ☒ YES ☐ NO

**FOR DEQ USE ONLY - DO NOT WRITE BELOW**

| | |
|---|---|
| DATE OF RECEIPT OF ALL INFORMATION REQUIRED BY RULE 203: | |
| DATE PERMIT TO INSTALL APPROVED: | SIGNATURE: |
| DATE APPLICATION / PTI VOIDED: | SIGNATURE: |
| DATE APPLICATION DENIED: | SIGNATURE: |

**A PERMIT CERTIFICATE WILL BE ISSUED UPON APPROVAL OF A PERMIT TO INSTALL**

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY - AIR QUALITY DIVISION

# PERMIT TO INSTALL APPLICATION INSTRUCTIONS

**INFORMATION:**

A permit to install is required to install, construct, reconstruct, relocate, or modify any process or process equipment, including control equipment pertaining thereto, which may emit an air contaminant (R 336.1201). A process is an action, operation, or a series of actions or operations at a source that emits or has the potential to emit an air contaminant. Process equipment is all equipment, devices, and auxiliary components, including air pollution control equipment, stacks, and other emission points, used in a process. An emission unit is any part of a stationary source that emits or has the potential to emit an air contaminant. Air pollution control equipment is any method, process, or equipment that removes, reduces, or renders less noxious air contaminants discharged into the atmosphere. An application may be submitted for one or more interrelated processes at a source.

**ADDITIONAL REQUIREMENTS:**

An administratively complete application must include reasonable responses to all requests for information on the application form and in these instructions. Additional detailed information may be attached to the application form and must be submitted in duplicate. In addition to the general information requested on the application form, the following information must be included for the application to be considered administratively complete:

A. **Process Description** - In addition to the general process description which must be included in Item 6 on the application form, attach a written description in appropriate detail of each process covered by this application. State the size and type along with the make and model (if known) of the proposed process equipment, including any air pollution control equipment. Create a unique descriptive identifier (Emission Unit ID) for each emission unit. Specify the proposed operating schedule of the process equipment in hours per day, days per week, and weeks per year. Provide details of the type and feed rate of each material used in or produced by the process, in pounds per hour or similar measure. Describe any fuels and associated firing devices used in the process. Describe any waste generated by the process or equipment and methods of disposal or treatment. Applications for complex or multiple processes should also include a block diagram showing the flow of materials and intermediate and final products.

B. **Regulatory Discussion** - Describe all federal, state, or local air pollution control regulations which you believe are applicable to the proposed process or process equipment. Include a discussion of how you believe the proposed process or process equipment complies with these regulations.

C. **Control Technology Analysis** - Describe how the air contaminant emissions from the proposed process equipment will be controlled or otherwise minimized. Provide sufficient control method detail to show the extent and efficiency of any air pollution control devices. Air pollution control includes pollution prevention or other methods which result in reduced emissions from the process.

D. **Emissions Summary and Calculations** - Explain clearly and in appropriate detail the nature, quantity (both controlled and uncontrolled), concentration, particle size, pressure, temperature, etc. of all air contaminants, including all toxic air contaminants, that are reasonably anticipated to be discharged to the atmosphere due to the operation of the source. Summarize these emissions calculations in tabular form for all equipment covered by the application and for each stack/vent.

E. **Stack/Vent Parameters** - For each stack or vent related to the proposed process equipment provide the following information (including ranges if appropriate): the minimum height above the ground, maximum internal diameter or dimensions, discharge orientation (e.g., vertical, horizontal), maximum exhaust volume flow rate in cubic feet per minute (indicate actual or standard), maximum exhaust gas temperature, a description of any rain protection device, and location of any stack testing ports.

F. **Site Description and Process Equipment Location Drawings** - Submit legible scale drawings which show a plan view of the owner's property to the boundary lines. Locate and identify the proposed equipment. Locate and identify all adjacent properties, include outline and height of all structures within 150 feet of proposed equipment and show any fence lines. Locate and identify all stacks/vents or other emission points related to the proposed process equipment and indicate the distance to the nearest property line. Indicate the scale of the plan and north direction on the drawing.

**Additional information beyond that identified above may be required to complete the technical review of any individual application. Further information or clarification concerning permits to install, including the document "Information Required for an Administratively Complete Application," can be obtained from the address listed below, the Internet, or by calling (517) 284-6804.**

**ADDITIONAL REQUIREMENTS FOR USE OF ELECTRONIC APPLICATION:**

The electronic version of the Permit to Install Application is a WORD template. This template may be downloaded and completed electronically. The department is <u>not</u> accepting electronic submittal of the application. Create three (3) paper copies of the application. Mail three (3) copies of this application along with two (2) copies of any plans, specifications, or drawings required by the above instructions to the address below. The application must include the original signature of an authorized employee of the applicant certifying the truth of the information in the application. Applicant should retain a copy of the application.

**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**
**AIR QUALITY DIVISION - PERMIT SECTION**
**P.O. BOX 30260**
**LANSING, MI 48909-7760**

For Priority/Express Mail:
**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**
**AIR QUALITY DIVISION - PERMIT SECTION**
**CONSTITUTION HALL, 2nd FLOOR SOUTH**
**525 W ALLEGAN STREET**
**LANSING, MI 48933-1502**

STATE OF MICHIGAN
DEPARTMENT OF ENVIRONMENTAL QUALITY
LANSING

RICK SNYDER
GOVERNOR

DAN WYANT
DIRECTOR

April 20, 2015

Mr. Dale Klett, Partner
Revolution Onsite Crushing
62994 Territorial Road
Hartford, Michigan 49057

Dear Mr. Klett:

This letter is to acknowledge receipt of a Process Information form for a modification to your General Permit to Install for a nonmetallic mineral crushing facility (SRN P0411) located at 15 D Avenue in Kalamazoo, Michigan. This General Permit to Install, identified as No. 192-12 has been updated to reflect the addition of the following equipment:

| Equipment | Device ID |
|---|---|
| Terex Jaw Crushcer | FJXR (Serial No. 400581) |
| Conveyor | 10 |

Please note that Special Condition No. 1.8 requires all equipment subject to the federal New Source Performance Standards, Subpart OOO, for Nonmetallic Mineral Processing plants, be tested to demonstrate compliance with visible emission and particulate emission limits. If it is determined that this equipment has not been previously tested, you are required to schedule testing upon start up of the plant with the addition of the new equipment. As indicated in your application, testing of the crusher identified as "FJXR" and the conveyor identified as EU Device ID "10" will be scheduled upon start-up of the plant, which is anticipated to be spring of 2015.

Approval of this modification is based upon your certification that all General Permit to Install applicability criteria shall continue to be met after the replacement or modification is complete. The terms and conditions of General Permit to Install No. 192-12 remain in effect to assure that the process or process equipment will operate in compliance with all applicable requirements for air pollution control.

Please contact the AQD District Office or me if you have any questions regarding this permit.

Sincerely,

Nicholas Zabrodsky
Air Quality Division, Permit Section
517-284-6807
zabrodskyn@michigan.gov

cc/enc: Ms. Lynn Spurr, FTC&H
Mr. Chris Hare, DEQ

Michigan Department Of Environmental Quality - Air Quality Division

DEQ

# GENERAL PERMIT TO INSTALL APPLICATION

## PROCESS INFORMATION - NONMETALLIC MINERAL CRUSHING (PAGE 1 OF 2)

| FOR DEQ USE ONLY |
|---|
| PERMIT NUMBER |

Authorized under 1994 PA 451, as amended. Completion of form is required. Applicant may be subject to civil and /or criminal penalties for providing false information.

**Instructions:** Use this form to request authority to install and operate a nonmetallic mineral crushing facility, under the terms and conditions of a general permit to install pursuant to Rule 201a. If two or more primary crushers operate in parallel, each constitutes a separate facility. Complete a separate copy of this form for each facility. Prepare and submit this form with the General Information form (EQP5727). **For a Modification:** Complete Items 1 - 9. Identify all existing and new or additional process equipment. Certify and submit pages 1 and 2 of this form to the Permit Section and the appropriate district office. See map for district office locations.

| 1. FACILITY CODE<br>STATE REGISTRATION NUMBER (SRN) P 0 4 1 1 | | | 2. MINE/QUARRY NAME<br>Phoenix plant |
|---|---|---|---|
| SECTION<br>15 | TOWNSHIP<br>4S | RANGE<br>16W | 3. AMOUNT PROCESSED AT THIS SITE<br>*tons per year<2,000,000* |

4. DESCRIPTION *(Brief description of this facility or proposed modification. Attach a detailed site map showing all site characteristics including the location of any residential and/or commercial establishments and places of public assembly located within 1,000 feet of the proposed site)*
Adding equipment to existing plant

| | |
|---|---|
| 5. DOES THIS FACILITY HAVE ANY OUTSTANDING UNRESOLVED AIR VIOLATIONS? | ☐ YES ☒ NO |
| 6. ARE THE CRUSHER(S) LOCATED A MINIMUM OF 500 FEET FROM ALL RESIDENTIAL OR COMMERCIAL ESTABLISHMENTS OR PLACES OF PUBLIC ASSEMBLY? | ☒ YES ☐ NO |
| 7. WAS THIS FACILITY PREVIOUSLY PERMITTED PURSUANT TO RULE 201? IF YES, PERMIT NO. 192-12A | ☒ YES ☐ NO |
| 8. APPLICATION IS FOR ☐ NEW GENERAL PERMIT ☒ MODIFICATION TO EXISTING GENERAL PERMIT - PERMIT NO. 192-12A | |
| 9. **FOR A MODIFICATION:** IS THE FACILITY CURRENTLY IN COMPLIANCE WITH ALL CONDITIONS OF THE EXISTING GENERAL PERMIT, INCLUDING BUT NOT LIMITED TO THE TESTING OF ALL NSPS SUBJECT EQUIPMENT? | ☒ YES ☐ NO |

**Instructions for completing the following items:** Each piece of equipment must have a unique identification number (ID). The ID may be any combination of up to 10 letters, numbers or keyboard characters with no spaces between characters. Provide an ID and complete all items for each piece of process equipment at the facility. A manufactured date is required. If a device is shop built, the manufactured date may be estimated. If a device is not subject to NSPS Subpart OOO, an explanation is required. Use Additional Information form EQP5729 if more space is needed. Use as many copies of page 2 as needed to list all process equipment.

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)*<br>Jaw Crusher | | DEVICE ID *(Assign an identification number for this device)*<br>FJXR | |
|---|---|---|---|
| MAKE AND MODEL<br>Terex | | SERIAL NUMBER<br>400581 | MANUFACTURED DATE<br>2008 |
| MAXIMUM RATED CAPACITY<br>*(tons per hour) 300* | CONTROL? ☒ YES ☐ NO<br>CONTROL TYPE water spray | | |
| IS DEVICE SUBJECT TO NSPS?<br>☐ YES, HAS DEVICE BEEN TESTED? ☐ YES ☒ NO, DATE TEST SCHEDULED within 180 days of start-up<br>☐ NO, REASON NOT SUBJECT | | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)*<br>Conveyor | | DEVICE ID *(Assign an identification number for this device)*<br>10 | |
|---|---|---|---|
| MAKE AND MODEL<br>Shop made (purchased used) | | SERIAL NUMBER<br>N/A | MANUFACTURED DATE<br>unknown |
| MAXIMUM RATED CAPACITY<br>*(tons per hour) 30"x55'* | CONTROL? ☐ YES ☒ NO<br>CONTROL TYPE | | |
| IS DEVICE SUBJECT TO NSPS?<br>☐ YES, HAS DEVICE BEEN TESTED? ☐ YES ☒ NO, DATE TEST SCHEDULED within 180 days of start up<br>☐ NO, REASON NOT SUBJECT | | | |

**This page must be certified by an authorized employee**

**Applicant Certification:** I certify, under penalty of law, that this permit application and any attachments were prepared by me, or under my direction or supervision in accordance with a system to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. In addition, the equipment described in this application meets the necessary criteria for applicability for a General Permit to Install. Furthermore, I certify that I can and will comply with all conditions outlined in the General Permit to Install. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| SIGNATURE OF AUTHORIZED EMPLOYEE | DATE |
|---|---|
| | 4/9/15 |

Michigan Department Of Environmental Quality - Air Quality Division

DEQ

# GENERAL PERMIT TO INSTALL APPLICATION

## PROCESS INFORMATION - NONMETALLIC MINERAL CRUSHING (PAGE 1 OF 2)

| FOR DEQ USE ONLY |
|---|
| PERMIT NUMBER |

Authorized under 1994 PA 451, as amended. Completion of form is required. Applicant may be subject to civil and /or criminal penalties for providing false information.

**Instructions:** Use this form to request authority to install and operate a nonmetallic mineral crushing facility, under the terms and conditions of a general permit to install pursuant to Rule 201a. If two or more primary crushers operate in parallel, each constitutes a separate facility. Complete a separate copy of this form for each facility. Prepare and submit this form with the General Information form (EQP5727). **For a Modification:** Complete items 1 - 9. Identify all existing and new or additional process equipment. Certify and submit pages 1 and 2 of this form to the Permit Section and the appropriate district office. See map for district office locations.

| 1. FACILITY CODE<br>STATE REGISTRATION NUMBER (SRN) P 0 4 1 1 | | | 2. MINE/QUARRY NAME<br>Phoenix Plant |
|---|---|---|---|
| SECTION<br>15 | TOWNSHIP<br>4S | RANGE<br>16W | 3. AMOUNT PROCESSED AT THIS SITE<br>*(tons per year)* < 2,000,000 |

4. DESCRIPTION *(Brief description of this facility or proposed modification. Attach a detailed site map showing all site characteristics including the location of any residential and/or commercial establishments and places of public assembly located within 1,000 feet of the proposed site)*
MINING & PROCESSING SAND AND GRAVEL. PROCESS INCLUDES CRUSHING, SCREENING, SIZE CLASSIFICATION, MATERIAL HANDLING AND STORAGE.

| | | |
|---|---|---|
| 5. DOES THIS FACILITY HAVE ANY OUTSTANDING UNRESOLVED AIR VIOLATIONS? | ☐ YES | ☒ NO |
| 6. ARE THE CRUSHER(S) LOCATED A MINIMUM OF 500 FEET FROM ALL RESIDENTIAL OR COMMERCIAL ESTABLISHMENTS OR PLACES OF PUBLIC ASSEMBLY? | ☒ YES | ☐ NO |
| 7. WAS THIS FACILITY PREVIOUSLY PERMITTED PURSUANT TO RULE 201? IF YES, PERMIT NO. 192-12 | ☒ YES | ☐ NO |
| 8. APPLICATION IS FOR ☐ NEW GENERAL PERMIT ☒ MODIFICATION TO EXISTING GENERAL PERMIT 192-12 | | |
| 9. **FOR A MODIFICATION:** IS THE FACILITY CURRENTLY IN COMPLIANCE WITH ALL CONDITIONS OF THE EXISTING GENERAL PERMIT, INCLUDING BUT NOT LIMITED TO THE TESTING OF ALL NSPS SUBJECT EQUIPMENT? | ☒ YES | ☐ NO |

**Instructions for completing the following items:** Each piece of equipment must have a unique identification number (ID). The ID may be any combination of up to 10 letters, numbers or keyboard characters with no spaces between characters. Provide an ID and complete all items for each piece of process equipment at the facility. A manufactured date is required. If a device is shop built, the manufactured date may be estimated. If a device is not subject to NSPS Subpart OOO, an explanation is required. Use Additional Information form EQP5729 if more space is needed. Use as many copies of page 2 as needed to list all process equipment.

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)*<br>Impact Crusher | | DEVICE ID *(Assign an identification number for this device)*<br>X855 | |
|---|---|---|---|
| MAKE AND MODEL<br>Inertia Phoenix 4048 | | SERIAL NUMBER<br>9371130 | MANUFACTURED DATE<br>2010 |
| MAXIMUM RATED CAPACITY<br>175 tons per hour | CONTROL? ☒ YES ☐ NO<br>CONTROL TYPE Water Spray | | |
| IS DEVICE SUBJECT TO NSPS?<br>☒ YES, HAS DEVICE BEEN TESTED? ☐ YES ☒ NO, DATE TEST SCHEDULED Within 180 operating days of startup<br>☐ NO, REASON NOT SUBJECT | | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)*<br>Screen | | DEVICE ID *(Assign an identification number for this device)*<br>X856 | |
|---|---|---|---|
| MAKE AND MODEL<br>Finlay | | SERIAL NUMBER<br>FTM530430 | MANUFACTURED DATE<br>2003 |
| MAXIMUM RATED CAPACITY<br>*(tons per hour)* 20' x 5' | CONTROL? ☒ YES ☐ NO<br>CONTROL TYPE Water Spray | | |
| IS DEVICE SUBJECT TO NSPS?<br>☒ YES, HAS DEVICE BEEN TESTED? ☐ YES ☒ NO, DATE TEST SCHEDULED Within 180 operating days of startup<br>☐ NO, REASON NOT SUBJECT | | | |

**This page must be certified by an authorized employee**

**Applicant Certification:** I certify, under penalty of law, that this permit application and any attachments were prepared by me, or under my direction or supervision in accordance with a system to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. In addition, the equipment described in this application meets the necessary criteria for applicability for a General Permit to Install. Furthermore, I certify that I can and will comply with all conditions outlined in the General Permit to Install. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| SIGNATURE OF AUTHORIZED EMPLOYEE | DATE |
|---|---|
| | 8/15/18 |

Michigan Department Of Environmental Quality - Air Quality Division

DEQ

# GENERAL PERMIT TO INSTALL APPLICATION NONMETALLIC MINERAL CRUSHING- (PAGE 2 OF 2)

| FOR DEQ USE ONLY |
|---|
| PERMIT NUMBER |
| |

Authorized under 1994 PA 451, as amended. Completion of form is required. Applicant may be subject to civil and /or criminal penalties for providing false information.

**Instructions:** Page 1 of this form must be completed and certified by an authorized employee. Provide an ID and complete all items for each piece of process equipment at the facility. A manufactured date is required. If a device is shop built, the manufactured date may be estimated. If a device is not subject to NSPS subpart OOO, an explanation is required. Use Additional Information form EQP5729 if more space is needed. Use as many copies of this page as needed to list all process equipment.

**For a Modification:** Provide the information for all existing and new or additional process equipment. Submit pages 1 and 2 to the Permit Section and the appropriate district office. See map for district office locations.

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)* | DEVICE ID *(Assign an identification number for this device)* | |
|---|---|---|
| Conveyor | X857 | |
| MAKE AND MODEL | SERIAL NUMBER | MANUFACTURED DATE |
| Shop-Built | Not available | 1992 |
| MAXIMUM RATED CAPACITY *(tons per hour)* 36" x 53' | CONTROL? ☐ YES ☒ NO<br>CONTROL TYPE | |
| IS DEVICE SUBJECT TO NSPS?<br>☒ YES, HAS DEVICE BEEN TESTED? ☐ YES, DATE TEST PASSED ☒ NO, DATE TEST SCHEDULED<br>☐ NO, REASON NOT SUBJECT Within 180 operating days of startup | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)* | DEVICE ID *(Assign an identification number for this device)* | |
|---|---|---|
| Stacking conveyor | X858 | |
| MAKE AND MODEL | SERIAL NUMBER | MANUFACTURED DATE |
| Powerscreen | Not available | 2010 |
| MAXIMUM RATED CAPACITY *(tons per hour)* 42" x 60' | CONTROL? ☐ YES ☒ NO<br>CONTROL TYPE | |
| IS DEVICE SUBJECT TO NSPS?<br>☐ YES, HAS DEVICE BEEN TESTED? ☐ YES, DATE TEST PASSED ☐ NO, DATE TEST SCHEDULED<br>☒ NO, REASON NOT SUBJECT Exempt stacking conveyor | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)* | DEVICE ID *(Assign an identification number for this device)* | |
|---|---|---|
| | | |
| MAKE AND MODEL | SERIAL NUMBER | MANUFACTURED DATE |
| | | |
| MAXIMUM RATED CAPACITY *(tons per hour)* | CONTROL? ☐ YES ☐ NO<br>CONTROL TYPE | |
| IS DEVICE SUBJECT TO NSPS?<br>☐ YES, HAS DEVICE BEEN TESTED? ☐ YES, DATE TEST PASSED ☐ NO, DATE TEST SCHEDULED<br>☐ NO, REASON NOT SUBJECT | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)* | DEVICE ID *(Assign an identification number for this device)* | |
|---|---|---|
| | | |
| MAKE AND MODEL | SERIAL NUMBER | MANUFACTURED DATE |
| | | |
| MAXIMUM RATED CAPACITY *(tons per hour)* | CONTROL? ☐ YES ☐ NO<br>CONTROL TYPE | |
| IS DEVICE SUBJECT TO NSPS?<br>☐ YES, HAS DEVICE BEEN TESTED? ☐ YES, DATE TEST PASSED ☐ NO, DATE TEST SCHEDULED<br>☐ NO, REASON NOT SUBJECT | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)* | DEVICE ID *(Assign an identification number for this device)* | |
|---|---|---|
| | | |
| MAKE AND MODEL | SERIAL NUMBER | MANUFACTURED DATE |
| | | |
| MAXIMUM RATED CAPACITY *(tons per hour)* | CONTROL? ☐ YES ☐ NO<br>CONTROL TYPE | |
| IS DEVICE SUBJECT TO NSPS?<br>☐ YES, HAS DEVICE BEEN TESTED? ☐ YES, DATE TEST PASSED ☐ NO, DATE TEST SCHEDULED<br>☐ NO, REASON NOT SUBJECT | | |

Michigan Department Of Environmental Quality - Air Quality Division

# GENERAL PERMIT TO INSTALL APPLICATION
## GENERAL INFORMATION

| FOR DEQ USE ONLY |
|---|
| PERMIT NUMBER |

Authorized under 1994 PA 451, as amended. Completion of form is required. Applicant may be subject to civil and/or criminal penalties for providing false information

**Instructions:** Use this form to request authority to install and operate a source, process or process equipment under the terms and conditions of a general permit to install pursuant to Rule 201a. Prepare this form together with one or more of the forms identified in Item 19, according to type of source, process or process equipment, which will be installed and operated. Please submit all information, including forms, in duplicate. **NOTE:** This general permit does not apply to a source, process, or process equipment that is included in a Permit to Install pursuant to Rule 201 and is further referenced in an outstanding consent order or consent judgment.

| | | |
|---|---|---|
| 1. FACILITY CODES<br>STATE REGISTRATION NUMBER (SRN): | | STANDARD INDUSTRIAL CLASSIFICATION (SIC) CODE: |
| 2. APPLICANT NAME *(Business license name of the corporation, partnership, individual or government agency that owns the facility)*<br>Revolution Onsite Crushing | | |
| 3. APPLICANT MAILING ADDRESS *(Street Address or P.O. Box Number)*<br>62994 Territorial Road | | |
| 4. CITY<br>Hartford | 5. STATE<br>MI | 6. ZIP CODE<br>49057 |
| 7. NAME OF AUTHORIZED COMPANY MEMBER<br>Dale Klett | | |
| 8. TITLE *(person identified in item 7)*<br>Partner | | 9. TELEPHONE NO. *(person identified in item 7)*<br>(269 ) 208 - 3714 |
| 10. CONTACT PERSON *(technical point of contact, if different than name in item 7)* | | 11. TELEPHONE NO. *(contact person)*<br>( ) - |
| 12. EQUIPMENT OR PROCESS LOCATION *(complete items 12 - 15 if different than mailing address)* | | |
| 13. CITY | 14. ZIP CODE | 15. COUNTY |
| 16. EQUIPMENT IS *(check one)* ☒ New ☐ Existing | 17. PRIOR AIR PERMIT NO. *(existing equipment only)* | |

**18. EQUIPMENT OR PROCESS INSTALLATION TIMETABLE *(enter dates in items 18a - 18d for those which apply)***

| | | |
|---|---|---|
| FOR NEW EQUIPMENT (PROCESS INSTALLATION OR CONSTRUCTION) | 18a. START DATE<br>11/19/2012 | 18b. COMPLETION DATE<br>11/19/2012 |
| FOR EXISTING EQUIPMENT (PROCESS MODIFICATION OR RELOCATION) | 18c. START DATE | 18d. COMPLETION DATE |

**19. THE FOLLOWING COMPLETED FORMS ARE ATTACHED TO AND MADE A PART OF THIS PERMIT APPLICATION *(check all that apply)***

| TYPE OF FORM | NUMBER ATTACHED |
|---|---|
| ☒ EQP 5756 _____ PROCESS INFORMATION<br>*(complete one form for each process - insert form number and type of process in spaces provided)* | 1 |
| ☐ EQP5729 - ADDITIONAL INFORMATION | |

**Applicant Certification:** I certify, under penalty of law, that this permit application and the attachments identified in Item 19 were prepared by me, or under my direction or supervision in accordance with a system to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. In addition, the equipment described in this application meets the necessary criteria for applicability for a General Permit to Install. Furthermore, I certify that I can and will comply with all conditions outlined in the General Permit to Install. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| 20. SIGNATURE *(person identified in item 7)* | 21. DATE |
|---|---|
| | 12/2/12 |

**Submit this completed application and the attachments identified in Item 19 to:**

**PERMIT SECTION, AIR QUALITY DIVISION**
**MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY**
**P.O. BOX 30260, LANSING, MI 48909-7760**

| DEQ USE ONLY - DO NOT WRITE BELOW | |
|---|---|
| DATE APPLICATION COMPLETE | DATE OF DETERMINATION OF NON-APPLICABILITY |
| DATE GENERAL PERMIT TO INSTALL GRANTED | SIGNATURE |
| DATE GENERAL PERMIT TO INSTALL REVOKED | SIGNATURE |

Michigan Department Of Environmental Quality - Air Quality Division

DEQ

# GENERAL PERMIT TO INSTALL APPLICATION

## PROCESS INFORMATION - NONMETALLIC MINERAL CRUSHING (PAGE 1 OF 2)

| FOR DEQ USE ONLY |
|---|
| PERMIT NUMBER |

Authorized under 1994 PA 451, as amended. Completion of form is required. Applicant may be subject to civil and /or criminal penalties for providing false information.

**Instructions:** Use this form to request authority to install and operate a nonmetallic mineral crushing facility, under the terms and conditions of a general permit to install pursuant to Rule 201a. If two or more primary crushers operate in parallel, each constitutes a separate facility. Complete a separate copy of this form for each facility. Prepare and submit this form with the General Information form (EQP5727). **For a Modification:** Complete items 1 - 9. Identify all existing and new or additional process equipment. Certify and submit pages 1 and 2 of this form to the Permit Section and the appropriate district office. See map for district office locations.

| 1. FACILITY CODE<br>STATE REGISTRATION NUMBER (SRN) | | 2. MINE/QUARRY NAME<br>Phoenix Plant | |
|---|---|---|---|
| SECTION<br>15 | TOWNSHIP<br>4S | RANGE<br>16W | 3. AMOUNT PROCESSED AT THIS SITE<br>*(tons per year)* < 2,000,000 |

4. DESCRIPTION *(Brief description of this facility or proposed modification. Attach a detailed site map showing all site characteristics including the location of any residential and/or commercial establishments and places of public assembly located within 1,000 feet of the proposed site)*
MINING & PROCESSING SAND AND GRAVEL. PROCESS INCLUDES CRUSHNG, SCREENING, SIZE CLASSIFICATION, MATERIAL HANDLING AND STORAGE.

| | | |
|---|---|---|
| 5. DOES THIS FACILITY HAVE ANY OUTSTANDING UNRESOLVED AIR VIOLATIONS? | ☐ YES | ☒ NO |
| 6. ARE THE CRUSHER(S) LOCATED A MINIMUM OF 500 FEET FROM ALL RESIDENTIAL OR COMMERCIAL ESTABLISHMENTS OR PLACES OF PUBLIC ASSEMBLY? | ☒ YES | ☐ NO |
| 7. WAS THIS FACILITY PREVIOUSLY PERMITTED PURSUANT TO RULE 201? IF YES, PERMIT NO. | ☐ YES | ☒ NO |

8. APPLICATION IS FOR ☒ NEW GENERAL PERMIT ☐ MODIFICATION TO EXISTING GENERAL PERMIT

9. **FOR A MODIFICATION:** IS THE FACILITY CURRENTLY IN COMPLIANCE WITH ALL CONDITIONS OF THE EXISTING GENERAL PERMIT, INCLUDING BUT NOT LIMITED TO THE TESTING OF ALL NSPS SUBJECT EQUIPMENT? ☐ YES ☐ NO

**Instructions for completing the following items:** Each piece of equipment must have a unique identification number (ID). The ID may be any combination of up to 10 letters, numbers or keyboard characters with no spaces between characters. Provide an ID and complete all items for each piece of process equipment at the facility. A manufactured date is required. If a device is shop built, the manufactured date may be estimated. If a device is not subject to NSPS Subpart OOO, an explanation is required. Use Additional Information form EQP5729 if more space is needed. Use as many copies of page 2 as needed to list all process equipment.

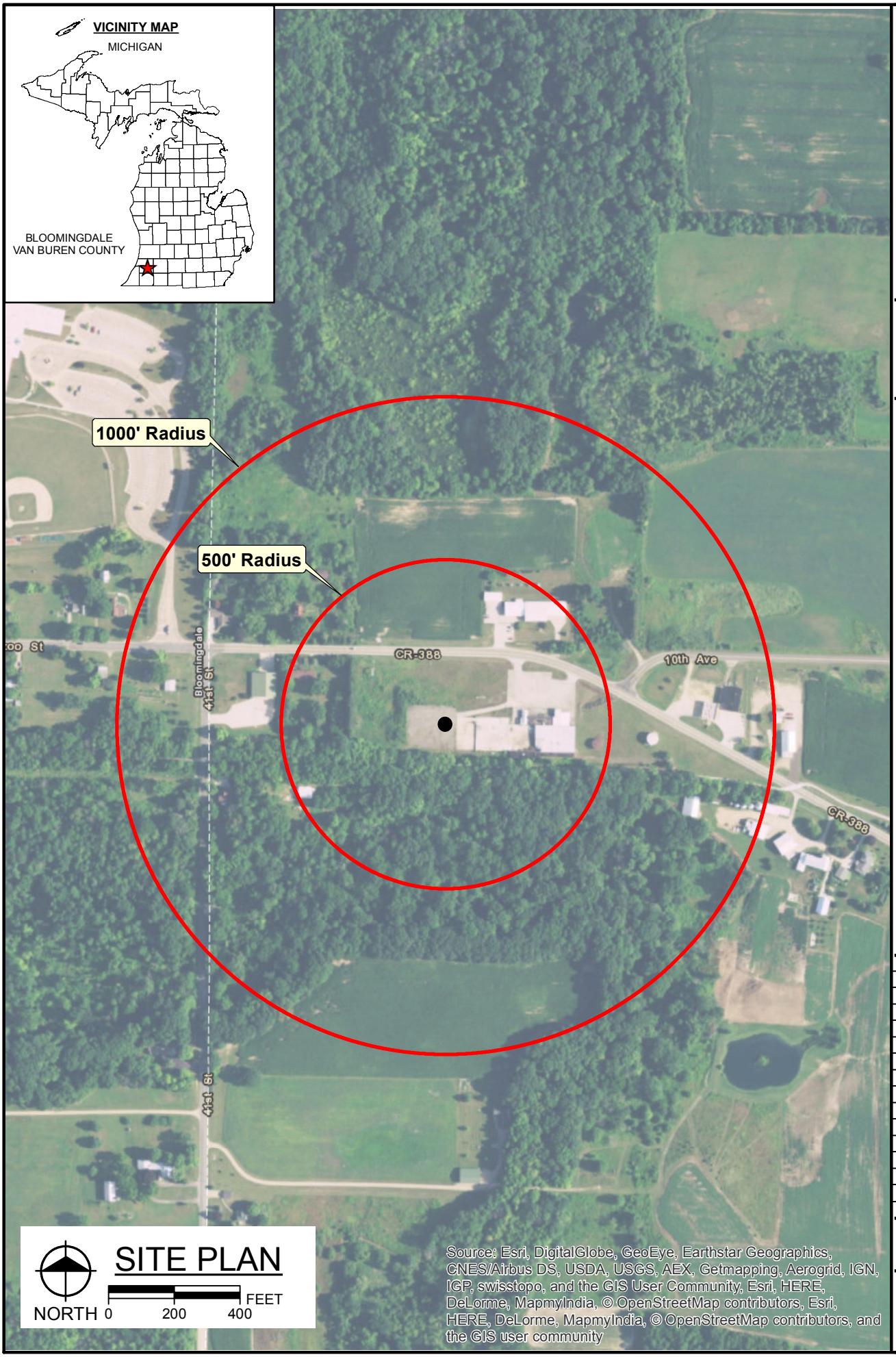
| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)*<br>Impact Crusher | | DEVICE ID *(Assign an identification number for this device)*<br>X855 | |
|---|---|---|---|
| MAKE AND MODEL<br>Inertia Phoenix 4048 | | SERIAL NUMBER<br>9371130 | MANUFACTURED DATE<br>2010 |
| MAXIMUM RATED CAPACITY<br>175 tons per hour | CONTROL? ☒ YES ☐ NO<br>CONTROL TYPE Water Spray | | |
| IS DEVICE SUBJECT TO NSPS?<br>☒ YES, HAS DEVICE BEEN TESTED? ☐ YES ☒ NO, DATE TEST SCHEDULED Within 180 operating days of startup<br>☐ NO, REASON NOT SUBJECT | | | |

| DEVICE DESCRIPTION *(crusher-type, screen, conveyor, drill, etc.)*<br>Screen | | DEVICE ID *(Assign an identification number for this device)*<br>X856 | |
|---|---|---|---|
| MAKE AND MODEL<br>Finlay | | SERIAL NUMBER<br>FTM530430 | MANUFACTURED DATE<br>2003 |
| MAXIMUM RATED CAPACITY<br>*(tons per hour)* 20' x 5' | CONTROL? ☒ YES ☐ NO<br>CONTROL TYPE Water Spray | | |
| IS DEVICE SUBJECT TO NSPS?<br>☒ YES, HAS DEVICE BEEN TESTED? ☐ YES ☒ NO, DATE TEST SCHEDULED Within 180 operating days of startup<br>☐ NO, REASON NOT SUBJECT | | | |

**This page must be certified by an authorized employee**

**Applicant Certification:** I certify, under penalty of law, that this permit application and any attachments were prepared by me, or under my direction or supervision in accordance with a system to ensure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. In addition, the equipment described in this application meets the necessary criteria for applicability for a General Permit to Install. Furthermore, I certify that I can and will comply with all conditions outlined in the General Permit to Install. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

| SIGNATURE OF AUTHORIZED EMPLOYEE | DATE |
|---|---|
| | 12/12/12 |




Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, Esri, HERE, DeLorme, MapmyIndia, © OpenStreetMap contributors, and the GIS user community

fitch

engineers
scientists
architects
constructors

fishbeck, thompson, carr & huber, inc.

Hard copy is intended to be 8.5"x11" when plotted. Scale(s) indicated and graphic quality may not be accurate for any other size.

# Revolution Onsite Crushing

40677 CR388, Bloomingdale, Michigan

**Relocation Notice**

PROJECT NO.
080032A14

FIGURE NO.
1



PLOT INFO: Z:\2008\080032A14\CAD\GIS\mapdoc\Bloomingdale\FIG01_SITE PLAN-40677 CR388.mxd Date: 7/17/2017 10:54:02 AM User: acs

# VAN BUREN COUNTY
# SOIL EROSION & SEDIMENTATION CONTROL PERMIT

**219 E. Paw Paw Street, Suite 301**
**Paw Paw, Michigan 49079**
**(269) 657-8241; Fax (269) 657-8286**

**Date Issued:** 5-16-17 **Permit #:** 05-1-299 **Expiration Date:** 5-16-18

***Issued under authority of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act 1994 PA 451, as amended.***

**Applicant/Owner:** Michigan Land Bank(MDEQ)
David Harn, MDEQ-RRD **Phone:** 269-567-9440

**On-Site Responsible Person:** Larry Rader: 815-997-0829 & Rich Anson: 269-569-1548 **Company:** MECx Inc.

**Address where earth change will take place:** 40677 CR 388

**City:** Bloomingdale **State:** MI **Zip Code**: 49026

**Section:** 16 **Parcel:** 80-05-016-011-01 **Township:** Bloomingdale **Van Buren County.**

**Permitted Activity:** Building demolition, Soil Excavation, storm sever removal & installation

**PERMIT CONDITIONS:**

- **All construction work shall comply with the requirements of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, P.A. 451 of 1994 as amended (2000).**
- **This permit does not waive the necessity for obtaining all other required Federal, State, or Local permits.**
- **The permitted activity shall be completed in accordance with the approved plans and specifications, and the GENERAL (on reverse side) and SPECIFIC (below) conditions.**
- **Permittee shall notify the permitting agency within one (1) week after completing the permitted activity or one (1) week prior to the permit expiration date, whichever comes first.**

**SPECIFIC CONDITIONS:**

1. **Erosion control measures to be installed and maintained as shown on SESC Plan. (Silt fence *must* be trenched in 6")**
2. **Be aware that grade changes resulting in increased runoff onto adjacent property is subject to civil damage litigation.**
3. **All work completed in compliance with MDEQ permit number WRP005545 v.1**
4. **No sediment to reach the waters of** Haven Drain.**, adjacent wetlands, private or public properties, including but not limited to storm drains, sewers, streets, etc.**
5. **Minimum 25' buffer strip of undisturbed natural vegetation between earth change activity** and_____.
6. **Any stockpiles of soil left over 90 days are to be temporarily seeded in cover crop and/or blanketed.**
7. **Permanent soil erosion control measures to be completed within five (5) calendar days after final grade or earth change.**

**GENERAL CONDITIONS:**

**In accordance with Rule 1709 promulgated under the authority of Part 91, Soil Erosion and Sedimentation Control, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended, and in addition to the information on the attached plan(s) and special conditions, the following general conditions apply to the earth change authorized by this permit:**

- **Design, construct and complete the earth change in a manner that limits the exposed area of disturbed land for the shortest period of time.**
- **Remove sediment caused by accelerated soil erosion from runoff water before it leaves the site of the earth change.**
- **Temporary or permanent control measures shall be designed and installed to convey water around, through, or from the earth change at a non-erosive velocity.**
- **Install temporary soil erosion and sedimentation control measures before or upon commencement of the earth change activity and maintain the measures on a daily basis.**
- **Remove temporary soil erosion and sedimentation control measures after permanent soil erosion measures are in place and the area is stabilized. ("Stabilized" means the establishment of vegetation or the proper placement, grading, or covering of the soil to ensure its resistance to soil erosion, sliding, or other earth movement.)**
- **Complete permanent soil erosion control measures for the earth change within five calendar days after final grading or upon completion of the final earth change. If it is not possible to permanently stabilize the earth change, then maintain temporary soil erosion and sedimentation control measures until permanent soil erosion control measures are in place and the area is stabilized.**

**Andy Abbott / CEA**
**SESC Permit Officer & Drain Maintenance Supervisor**
**Van Buren County**

**Joe Parman, CEA**

# ATTACHMENT 6
# WASTE MANIFESTS AND WEIGHT TICKETS
# (ELECTRONIC ATTACHMENT, CD-ROM)

**ATTACHMENT 6**

This attached Compact Disk (CD-ROM) contains scanned electronic copies of the following documents:

- Affected Soil Waste Manifests and Weight Tickets
- Class II Sand Weight Tickets
- Asbestos Containing Materials Waste Manifests
- Construction Debris Disposal Documents
- Universal Waste Disposal Documents
- Concrete Crushing Log